

CONVERSION NOTES

This is the Undergraduate Catalogue. Most references to Graduate programs and options have been removed and put in the Graduate Catalogue.

This catalogue was created by converting HTML content into a PDF file. The complex inter-linkage of references was only partially duplicated, but all data from the HTML structure is in this PDF file. The most complete information on any Degree or Program will be under the College or School, in the Department's Academic Offerings.

The document follows the outline of the HTML structure: Courses, Academic Offerings, College & Schools, Faculty and Administration, Policies & General Information.

Academic Offerings

Only the items in **green** are active links in this document. This is how Undergraduate programs were differentiated from the Graduate programs.

Hyperlinks


There are hundreds of hyperlinks in the text. Most of them link to pages in the PDF, but some link back to the website, and may link to web pages with current information that is not applicable to this catalogue. To find out where the link goes: hover the cursor over a hyperlink. If the cursor becomes a hand with pointing finger, it is a local link that will go to a page in the PDF. If the cursor becomes a hand with pointing finger and a box with a "W" in it, the link goes to the web.

Courses specific to a Program are listed under the College/School under the *Departments and Programs* link.

Odd Characters

The conversion program changed lower case "st" into a ligature: **statistical**

It sometimes changed apostrophes and hyphens into a diamond with a question mark:

advisor s

The Find/Replace function does not recognize these characters, so they could not be replaced.



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This is the official publication of degree programs and requirements and course descriptions for the 2003-2004 academic year produced annually by the office of the Provost and the Graduate College.

Students at The University of Vermont are responsible for knowing and complying with all requirements for their respective degrees as stated in the catalogue.

* The University of Vermont reserves the right to make changes in the course offerings, degree requirements, charges, regulations, and procedures contained herein as educational and financial considerations require, subject to and consistent with established procedures and authorizations for making such changes.

Notes on using the online catalogue:



The official UVM Catalogue 2003-04 bar is at the top left of each **official** Catalogue page.

➡ The green arrow identifies links that point **outside** the official catalogue site [External Link].



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About Catalogue Courses

Continue on to [Course Listings](#)

The University reserves the right to change course offerings at any time.

A student who lacks the stated prerequisites for a course may be permitted to enroll by the instructor. Such students must inform the instructor that they lack the prerequisites, and the instructor will make appropriate efforts to ascertain that they are properly qualified. Students enrolled who do not meet the prerequisites of a course may be disenrolled from that course. The instructor will notify the registrar of this action.

Courses are divided into three levels: introductory, intermediate, and advanced. Where appropriate, a department may limit enrollment in a particular course. Such limitations, other than class size, must be explicitly stated.

Some departments will make further subdivisions of courses at some levels.

Courses 1-99

Courses numbered from 1 to 99 are introductory courses. Introductory courses emphasize basic concepts of the discipline. In general, they presuppose no previous college work in the subject. The only exceptions to this rule are those cases in which there is a two-semester introductory sequence. In such cases, the second-semester course may have the first-semester course as a prerequisite.

Note for graduate students: Under no circumstances will graduate credit be allowed for a course numbered below 100.

Courses 100-199

Courses numbered from 100 to 199 are intermediate courses. An intermediate course covers more advanced material than that treated in introductory courses. Students will be expected to be familiar with the basic concepts of the subject, and the course will present more difficult ideas. Intermediate courses will generally be more specialized than introductory courses. An intermediate course will always have a minimum prerequisite of three hours' prior study in the discipline or in another specified discipline.

Note for graduate students: Courses numbered 100 to 199 may not be taken for graduate credit except upon the recommendation of a student's Studies Committee and with the authorization of the Dean of the Graduate College prior to enrollment. Authorization will be limited to one appropriate course (three credit hours) for a master's program and two appropriate courses (six credit hours) for a doctoral program. Graduate students may take additional 100-level courses beyond those values, but graduate credit will not be allowed for such courses. Graduate programs designed for the Master of Science for Teachers degree (MST) are exempted from this rule. Nondegree students are not permitted to receive graduate credit for courses numbered 100 to 199.

Courses 200-299

Courses numbered 200 to 299 are advanced courses. An advanced course presents concepts, results, or arguments which are only accessible to students who have taken courses in the discipline (or, occasionally, in a related discipline) at the introductory and intermediate levels. Prior acquaintance with the basic concepts of the subject and with some special areas of the subject will be assumed. An advanced course will always have a minimum prerequisite of three hours of prior study at the intermediate level in the discipline, or in a related discipline, or some specified equivalent preparation.

Note for graduate students: Some, but not all, 200-level courses carry graduate credit. Graduate students should refer to [the list of courses approved for graduate credit](#) to identify these courses. To obtain graduate credit, the graduate student generally is expected to meet higher qualitative and/or quantitative expectations than the undergraduate student. Seniors who wish to take a course for graduate credit must receive permission through the office of their dean (see Undergraduate Enrollment for Graduate Credit in the policies section of this Web site) prior to enrolling in the course.

Courses 300 and Above

Courses numbered 300 to 399 are generally limited to graduate students. Courses numbered 400 or above are limited to candidates for the degrees of Doctor of Education and Doctor of Philosophy.

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Courses in A&S Interdisciplinary (AS)

AS 095 - Focus:First Year Seminar

Credits: 4.00

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Courses in ALANA U.S.Ethnic Studies (ALAN)

ALAN 051 - Intr to ALANA US Ethnic Studies

Survey of the experience of ALANA peoples in the U.S. as well as a theoretical analysis of issues of race, culture, gender, and diverse traditions in the American multicultural setting.

Credits: 3.00

ALAN 055 - Racism and American Culture

Survey and analysis of racism in the development of American institutions and its effects upon ALANA groups and societies.

Credits: 3.00

ALAN 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

ALAN 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

ALAN 159 - Am Cultrl Images ALANA Peoples

Comparative study of ALANA groups and the stereotypical and archetypal impressions projected on peoples of color in American society. Prerequisites: ALAN 051 or ALAN 055 or having previously satisfied the College of Arts and Sciences Race and Ethnicity requirement.

Credits: 3.00

ALAN 191 - Field Experience: Internship

Prerequisite: Junior standing; six hours of 100-level courses in appropriate field and program permission. A Studies program during preregistration. contract must be obtained from and returned to the ALANA

Credits: 3.00

ALAN 195 - Intermediate Special Topics

Intermediate courses or seminars beyond the scope of existing ALANA offerings. See Schedule of Courses for specific titles. Prerequisite: Sophomore standing.

Credits: 3.00

ALAN 196 - Intermediate Special Topics

Intermediate courses or seminars beyond the scope of existing ALANA offerings. See Schedule of Courses for specific titles. Prerequisite: Sophomore standing. Credits: 3.00

ALAN 198 - Readings and Research

Credits: 1.00 to 12.00

ALAN 269 - Cross-Cultural Psyc:Clin Persp

Introduction to issues posed for psychologists in their work with ALANA (African, Latino/a, Native and Asian American) and international populations. Critical appraisal of readings, research and case studies. Prerequisites: PSYC 1, 109. (Same as PSYC 269) Credits: 3.00

ALAN 277 - Sem in ALANA US Ethnic Studies

Interdisciplinary examination of theories on the position of ALANA peoples in U.S. culture and society. Emphasis on relationship between race, class, gender, and ethnicity. Prerequisites: Six hours in ALANA U.S. Ethnic Studies; admission to ALANA U.S. Ethnic Studies minor program. Not offered for graduate credit.) Credits: 3.00

ALAN 295 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departments. See Schedule of Courses for specific titles. Prerequisite: Junior standing. (Not offered for graduate credit.) Credits: 3.00

ALAN 296 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departments. See Schedule of Courses for specific titles. Prerequisite: Junior standing. (Not offered for graduate credit.) Credits: 3.00

ALAN 297 - Independent Study

Special topics in consultation with ALANA U.S. Ethnic Studies faculty. Prerequisites: Permission of program director; junior standing. (Not offered for graduate credit.) Credits: 3.00

ALAN 298 - Independent Study

Special topics in consultation with ALANA U.S. Ethnic Studies faculty. Prerequisites: Permission of program director; junior standing. (Not offered for graduate credit.) Credits: 3.00

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Courses in Agricultural Biochemistry (AGBI)

AGBI 010 - Introductory Biochemistry

Credits: 3.00

AGBI 191 - Biochemistry of Nucleic Acids

Structure, function, and properties of nucleic acids, nucleoproteins, and enzymes or proteins that act on nucleic acids. Emphasis on experimental approach.

Prerequisite: AGBI 010 or equivalent or Instructor permission. Alternate years, 2000-01.

Credits: 2.00

AGBI 195 - Special Topics

Prerequisite: Instructor permission.

Credits: 3.00

AGBI 198 - Undergraduate Research

Prerequisite: Department permission.

Credits: 1.00 to 3.00

AGBI 201 - General Biochemistry

Broad coverage of biochemistry including principles of analytical biochemistry.

Prerequisites: CHEM 042 or CHEM 141 Three hours and one lab hour as AGBI 202.

Credits: 3.00

AGBI 202 - General Biochemistry Lab

Introduction to techniques and equipment used for the isolation and quantitative analysis of amino acids, proteins, carbohydrates and DNA enzymes in biological materials. Prerequisites: Credit for or concurrent enrollment in AGBI 201.

Credits: 1.00

AGBI 220 - Molecular Biology

Structure and biological function of nucleic acids, proteins, and enzymes.

Emphasis on optical, electrophoretic, and ultracentrifugal methods. Prerequisites: AGBI 201 and AGBI 202 or Instructor permission.

Credits: 3.00

AGBI 221 - Molecular Biology Lab

Laboratory practice in protein characterization by disc electrophoresis and isoelectric focusing. DNA separation and characterization by agarose gel electrophoresis, restriction digests, polymerase chain reaction, and Southern blots. Prerequisites: Credit for or concurrent enrollment in AGBI 220.
Credits: 1.00

AGBI 230 - Advanced Biochemistry

Study of metabolic cycles emphasizing research methods involving radioisotopes and chromatography. Prerequisites: AGBI 201 and AGBI 202 or AGBI 220 and AGBI 221 or Instructor permission.
Credits: 3.00

AGBI 231 - Advanced Biochemistry Lab

Laboratory experimentation emphasizing chromatography. Introduction to modern GLC and HPLC techniques, protein secondary structures, and enzyme isolation, purification, and characterization. Prerequisites: Credit for or concurrent enrollment in AGBI 230.
Credits: 1.00

AGBI 250 - Plant Biochemistry

Study of specific biochemical principles unique to plants concentrating on the biochemistry of plant cell walls, photosynthesis, and secondary metabolites. Prerequisites: AGBI 201. Alternate years, 2001-02.
Credits: 2.00

AGBI 295 - Special Topics

Prerequisite: Instructor permission.
Credits: 2.00

AGBI 301 - Special Problems

Prerequisite: Department permission.
Credits: 1.00 to 3.00

AGBI 381 - Biochemistry Seminar

A topical seminar with discussion of assigned and collateral reading. Required of graduate students.
Credits: 1.00

AGBI 391 - Master's Thesis Research

Credit as arranged.
Credits: 1.00 to 18.00

AGBI 491 - Doctoral Dissertation Research

Credit as arranged.
Credits: 1.00 to 12.00

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Courses in Agriculture (AGRI)

AGRI 085 - Computer Applications

Use of computer operating systems programming languages, electronic communications, word processing, spreadsheet modeling and graphics, and internet software related to the agricultural and life sciences.

Credits: 3.00

AGRI 095 - Introductory Special Topics

Credits: 1.00

AGRI 096 - Special Topics

Credits: 1.00

AGRI 125 - Teaching Assistant Development

TA's develop skills in areas of leadership, group dynamics, interpersonal effectiveness, and assertiveness as group facilitators in Beginnings course.

Prerequisites: Sophomore standing, permission.

Credits: 3.00

AGRI 183 - Communication Methods

Introduction to informational and persuasive public speaking. Developing individual and group oral communication skills through giving and critically analyzing presentations.

Credits: 3.00

AGRI 195 - Special Topics

Appropriate for interdepartmental and interdisciplinary topics in Agriculture and Life Sciences. Permission of Dean's Office.

Credits: 3.00

AGRI 196 - Special Topics

Appropriate for interdepartmental and interdisciplinary topics in Agriculture and Life Sciences. Permission of Dean's Office.

Credits: 3.00

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Courses in Anatomy & Neurobiology (ANNB)

ANNB 197 - Undergrad Research

Individual laboratory research under guidance of faculty member. Prerequisite: Departmental permission.
Credits: 3.00 or 6.00

ANNB 198 - Undergrad Research

Individual laboratory research under guidance of faculty member. Prerequisite: Department permission.
Credits: 3.00 to 6.00

ANNB 201 - Human Gross Anatomy

Lectures and detailed regional dissections emphasize functional anatomy of major systems (e.g. musculoskeletal, cardiovascular, nervous). Prerequisite: Permission.
Credits: 6.00

ANNB 202 - Human Neuroscience

Structural basis of human nervous system function: spinal reflex organization, sensory/motor systems, clinical examples, brain dissection, cell biology of neurons & glia, membrane excitability, & synaptic transmission.
Credits: 3.00

ANNB 261 - Neurobiology

Focus on molecular and cellular aspects of the nervous system. Electrical signaling, synaptic transmission, signal transduction, neural development, plasticity and diseases. Prerequisites: BIOL 103 or ANPS 19 & 20. (Same as BIOL 261).
Credits: 3.00

ANNB 295 - Special Topics

UG only.
Credits: 6.00

ANNB 296 - Advanced Special Topics

UG only.
Credits: 3.00

ANNB 301 - Medical Gross Anatomy

Individualized laboratory instruction, small group conferences, clinically correlated lectures. Basic anatomical information. Emphasis on importance of the relationship between normal human structure and function.

Credits: 8.00

ANNB 302 - Neuroscience

A correlated presentation of the neuroanatomy and neurophysiology of the mammalian central nervous system. Lectures, demonstrations, laboratory, and clinical correlation workshops.

Credits: 4.00

ANNB 306 - Techniques in Neurobiology

Discussion, demonstration of techniques used to study the nervous system. Experience with light, fluorescence, electron microscopy; microsurgical procedures; electrophysiological stimulating, recording techniques; neuronal tracing techniques. Prerequisite: Neuroscience 302.

Credits: 3.00

ANNB 311 - Medical Histology

Microscopic study of cells, tissues, and organs emphasizing the correlation of structure and function.

Credits: 3.00

ANNB 320 - Developmental Neurobiology

Provides fundamental knowledge of cell-to-cell interactions necessary for proper development and organization of the nervous system. Topics include pattern formation, neuronal differentiation, axon guidance, and target interactions. Prerequisite: Neuroscience 302 or consent of instructor. Alternate years.

Credits: 3.00

ANNB 323 - Neurochemistry

Biochemistry of the nervous system. Topics include ion channels, synaptic function, neurotransmitters and neuropeptides, signal transduction, and hormones in brain function. Prerequisite: 302 or Cell and Molecular Biology 301 or Biochemistry 301, 302. Alternate years.

Credits: 3.00

ANNB 342 - Spec Dissections in Gross Anat

A detailed and independent study of a single anatomical region, utilizing gross, microscopic, and embryologic materials. Prerequisite: 301.

Credits: 1.00

ANNB 381 - Sem in Anatomy & Neurobiology

Research presentations and critical review of the literature in various areas of anatomical and neurobiological sciences.

Credits: 1.00

ANNB 382 - Sem in Anatomy & Neurobiology

Research presentations and critical review of the literature in various areas of anatomical and neurobiological sciences.

Credits: 1.00

ANNB 391 - Master's Thesis Research

Credit as arranged.

Credits: 1.00 to 18.00

ANNB 395 - Special Topics

A supplementary course to the medical neuroscience course (Neuroscience 302) designed for graduate students which will provide more detailed information concerning selected topics in neurobiology. Prerequisite: Neuroscience 302.

Credits: 3.00

ANNB 491 - Doctoral Dissertation Research

Credit as arranged.

Credits: 1.00 to 18.00

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Courses in Anatomy/Physiology (ANPS)

ANPS 019 - Ugr Hum Anatomy & Physiology

Two-semester course with credit given only upon completion of both semesters. Structure and function of human body using cadaver prosections, histological material, and physiological experiments. Required of all Medical Lab Science, Nursing, Nutritional Sciences, Dental Hygiene, Radiation Therapy, Nuclear Medicine Technology, and Physical Education students; others with instructor's permission. Prerequisite: 19 for 20.
Credits: 4.00

ANPS 020 - Ugr Hum Anatomy & Physiology

Two-semester course with credit given only upon completion of both semesters. Structure and function of human body using cadaver prosections, histological material, and physiological experiments. Required of all Medical Lab Science, Nursing, Nutritional Sciences, Dental Hygiene, Radiation Therapy, Nuclear Medicine Technology, and Physical Education students; others with instructor's permission. Prerequisite: 19 for 20.
Credits: 4.00

ANPS 095 - Introductory Special Topics

Credits: 4.00

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Courses in Animal Science (ASCI)

ASCI 001 - Introductory Animal Sciences

An overview of the genetics, nutrition, reproduction, and management of livestock and recreation species; introduction to animal behavior, animal disease, and biotechnology.

Credits: 4.00

ASCI 006 - Companion Animal Care & Mgmt

Scientific principles of nutrition, breeding selection, health, management practices, pet therapy, and animal bonding. Primary emphasis on cat and dog.

Credits: 3.00

ASCI 043 - Fundamentals of Nutrition

Comprehensive study of specific nutrients in terms of their availability, function, and utilization in mammalian species. Prerequisites: High school chemistry and biology.

Credits: 3.00

ASCI 110 - Animal Nutrit, Metab & Feeding

Principles of meeting the nutrient requirements of animals, especially as they relate to the practical problems of formulation and production systems.

Prerequisite: ASCI 043.

Credits: 4.00

ASCI 115 - Introduction to Equine Studies

Overview of the scientific and practical application of equine management and selection principles. Housing, nutrition, herd health, reproduction, and career opportunities.

Credits: 4.00

ASCI 117 - Horse Health and Disease

Discusses the basic anatomy and physiology of the horse, common equine diseases and problems, their diagnoses, prevention, and treatment. Prerequisite: ASCI 001; a Biology course, or Instructor permission.

Credits: 3.00

ASCI 118 - Appl Animal Health

A study of small and large domestic animal diseases. Natural response to disease, methods of diagnosis, control, and treatment. Prerequisite: ASCI 001; a Biology course, or Instructor permission.

Credits: 3.00

ASCI 119 - Equine Training Techniques

Behavior modification and training of the young horse under saddle and in the cart. Introduction to interdisciplinary directions open to the equine athlete and to conditioning programs associated with these options.

Credits: 3.00

ASCI 121 - Equus

A hands-on equine management experience. Students perform horse duties, recordkeeping, and make financial and management decisions on a horse boarding operation. Prerequisite: Sophomore standing; Instructor permission.

Credits: 4.00

ASCI 122 - Animals in Soc/Animal Welfare

Designed to heighten awareness and understanding of human-animal relationships in society, agriculture, and science. Prerequisite: Sophomore standing.

Credits: 3.00

ASCI 125 - Equine Instructing Techniques

Examines philosophies, concepts and teaching-learning strategies needed for the development of sound equine instructing skills. Prerequisite: ASCI 115 or Instructor Permission.

Credits: 3.00

ASCI 134 - CREAM

A two-semester course in which students perform the work and make the financial and management decisions associated with the CREAM dairy herd. Prerequisite: Sophomore/Junior standing; Instructor permission.

Credits: 4.00

ASCI 135 - CREAM

A two-semester course in which students perform the work and make the financial and management decisions associated with the CREAM dairy herd. Prerequisite: Sophomore/Junior standing; Instructor permission.

Credits: 4.00

ASCI 141 - Anat&Physiol Domestic Animals

A comprehensive review of the structure and function of domestic animals, emphasizing those of economic importance. Differences between mammalian and avian species are discussed. Prerequisite: BIOL 001; a chemistry course, or Instructor permission.

Credits: 4.00

ASCI 143 - Forage Crop Management

(See Plant and Soil Science 143.) Alternate years, 2002-03.

Credits: 4.00

ASCI 154 - Dog Training and Behavior

Canine behavior is thoroughly examined and applied to the training and behavior modifications of dogs. Prerequisite: ASCI Major or Instructor permission.

Credits: 3.00

ASCI 161 - Lab Animal Health & Disease

An introduction to laboratory animal science and welfare covering animal care and management, the correct performance of experimental procedures, and the regulatory and legislative framework governing it. Prerequisite: ASCI 001; a Biology course, or Instructor permission.

Credits: 3.00

ASCI 171 - Zoos, Exotics & Endang Species

From gorillas to golden lion tamarinds, how human attitudes, activities, utilization, and management strategies impact wild and captive animal populations.

Prerequisite: ASCI 001 or Instructor permission.

Credits: 3.00

ASCI 195 - Field Experience

Professionally-oriented field experience under joint supervision by faculty and business or community representative. Prerequisite: Instructor permission. Total credits towards graduation cannot exceed 15 hours.

Credits: 12.00

ASCI 196 - Field Experience

Professionally-oriented field experience under joint supervision by faculty and business or community representative. Prerequisite: Instructor permission. Total credits towards graduation cannot exceed 15 hours.

Credits: 1.00 to 15.00

ASCI 197 - Undergraduate Research

Research activity under direction of qualified staff member. Must have faculty member approval. Written proposal and report required. Prerequisite: Junior standing; Department Chair permission.

Credits: 2.00

ASCI 198 - Undergraduate Research

Research activity under direction of qualified staff member. Must have faculty member approval. Written proposal and report required. Prerequisite: Junior standing; Department Chair permission.

Credits: 3.00

ASCI 205 - Equine Reproduction&Management

In-depth investigation of equine reproduction and physiology, mare and stallion endocrinology, breeding techniques, processing semen, embryo transfer, parturition, neonatal foal care, and marketing in the equine industry. Prerequisite: ASCI 001, ASCI 115, or Instructor permission.

Credits: 3.00

ASCI 211 - Summer Farm Management

A work-study program on the modern practices associated with farm management.

Taught at Miner Institute, Chazy, NY. For students with a strong interest in farm management. Prerequisites: Junior, senior, or graduate standing. UG only.

Credits: 4.00

ASCI 212 - Genetics & Breeding

A review of Mendelian genetics, the study of genetic engineering applications, a review of statistics, and the study of selection and mating schemes. Prerequisites: A course in statistics (141 preferred), Biology 1, or permission. UG only.

Credits: 4.00

ASCI 214 - Dairy Herd Management

Organization and management of the dairy herd. Practical application of feeding, reproduction, milking, and general management principles. Prerequisites: Junior standing or instructor permission. UG only.

Credits: 4.00

ASCI 215 - Physiology of Reproduction

Fundamental principles of the physiology of reproduction with emphasis on, but not limited to, farm animals. Prerequisite: 120 or instructor permission.

Credits: 4.00

ASCI 216 - Endocrinology

Physiology of endocrine and autocrine/paracrine systems and growth factors. Prerequisite: Course in both biology and physiology; one course in anatomy desirable. Alternate years, 2001-2002.

Credits: 3.00

ASCI 220 - Lactation Physiology

Physiological mechanisms that control and affect lactation in domestic and laboratory animals with emphasis on dairy cattle. Includes mammary anatomy, development and health, and milk synthesis. Prerequisite: One chemistry course and one course in anatomy and physiology, or Instructor permission.

Credits: 3.00

ASCI 230 - Agricultural Policy & Ethics

Examines American agriculture and policies from various perspectives - historical, political, ecological, technological, social, economic, and ethical. Emphasis on contemporary issues, policy options, future developments. Prerequisite: Junior standing or permission.

Credits: 3.00

ASCI 231 - Adv Ruminant Nutr&Dairy Feed

Integration of microbial growth and fermentation with metabolism to define nutrient requirements in ruminant animals and application to current feeding practices in dairy production systems. Prerequisite: 110. (Not offered for graduate credit.)

Credits: 2.00

ASCI 233 - Dairy Cattle Breeding

Setting breeding goals, making selection and mating decisions; balancing opposing forces to maximize genetic progress, and understanding the underlying genetic principles. Prerequisites: A genetics course, a statistics course, and

permission. (Not offered for graduate credit.)

Credits: 2.00

ASCI 234 - Advanced Dairy Management

An intensive, residential program at the Miner Institute providing an in-depth experiential program in the management of the dairy herd. Prerequisites: ASCI 110, 134 or 135 or equivalents. Fifteen hours. (Not offered for graduate credit.)

Credits: 15.00

ASCI 263 - Clin Top:Companion Animal Med

The use of case studies in companion animal medicine to develop clinical, analytical, and diagnostic skills. Prerequisites: 118, 141, junior standing.

Credits: 3.00

ASCI 264 - Clin Topics:Livestock Medicine

An advanced study of diseases in cattle, sheep, goats, and pigs, emphasizing disease detection, pathobiology, treatment and prevention. Prerequisites: ASCI 118, ASCI 141, Junior standing.

Credits: 3.00

ASCI 272 - Adv Top:Zoo,Exotic,Endang Spec

An exploration of modern zoo philosophy and ethics and the extent of human intervention necessary for the preservation of endangered species. Prerequisite: ASCI 171 and Instructor permission.

Credits: 3.00

ASCI 281 - Animal Sciences Career Seminar

Discussion and workshop activities exploring careers in animal and food sciences. Includes resume preparation and interview training. Prerequisite: Junior standing ASCI major. UG only.

Credits: 1.00

ASCI 297 - Spec Topics in Animal Science

Written courses, seminars or topics beyond the scope of existing offerings. See Schedule of Courses for specific titles. Prerequisite: Department Chair permission. May enroll more than once for maximum of fifteen hours.

Credits: 4.00

ASCI 298 - Spec Topics in Animal Science

Written courses, seminars or topics beyond the scope of existing offerings. See Schedule of Courses for specific titles. Prerequisite: Department Chair permission. May enroll more than once for maximum of fifteen hours.

Credits: 4.00

ASCI 301 - ASCI Graduate Journal Club

Students learn to critically read and discuss current scientific literature in terms of scientific method and merit. Pre/corequisite: Graduate standing.

Credits: 1.00

ASCI 302 - ASCI Graduate Seminar

Topics of current faculty and graduate student interest presented in a seminar-discussion format. Pre/corequisite: Graduate standing.

Credits: 1.00

ASCI 303 - Research Proposal Writing

Students develop and write a formal proposal for their graduate research project.

Pre/co-requisite: Graduate standing; must be taken prior to/during the semester of student's first committee meeting.

Credits: 1.00

ASCI 391 - Master's Thesis Research

Credits: 1.00 to 9.00

ASCI 392 - Independent Literature Rsch

Reading and literature research culminating in a paper on a topic of current interest in Animal Sciences.

Credits: 3.00

ASCI 491 - Doctoral Dissertation Research

Credits: 1.00 to 12.00

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Courses in Anthropology (ANTH)

ANTH 021 - Human Cultures

Introduction to cultural anthropology focusing on the life ways of non-Western societies and how anthropologists study them.

Credits: 3.00

ANTH 023 - Anthropology Third World Dev

A survey of the role of applied anthropology in the understanding and analysis of development efforts to alleviate (mostly) third world problems.

Credits: 3.00

ANTH 024 - Prehistoric Archaeology

Examination of the origins and development of culture from the earliest human fossils through the appearance of civilization; the nature of archaeological data and interpretations.

Credits: 3.00

ANTH 026 - Biological Anthropology

Introduction to the study of the evolution and physical variation of humanity from a biocultural perspective.

Credits: 3.00

ANTH 028 - Linguistic Anthropology

Introduction to linguistic anthropology, focusing on language and communication as they pertain to human culture and human social interaction.

Credits: 3.00

ANTH 064 - Native Americans of Vermont

Vermont's native peoples from their earliest appearance in the region until today. Archaeological and ethnographic data reviewed in the broader perspective of aboriginal Northeastern cultural history. Alternate years.

Credits: 3.00

ANTH 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 6.00

ANTH 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

ANTH 160 - North American Indians

Ethnographic survey of major Native American cultures of Mesoamerica and the U.S. against background of aboriginal culture history, and problems of contact with European cultures. Prerequisite: ANTH 021. Alternate years.

Credits: 3.00

ANTH 161 - Cultures of South America

Ethnographic survey of major native American cultures south of Mesoamerica against background of aboriginal culture history, and their relation to present day culture spheres. Prerequisite: 21. Alternate years.

Credits: 3.00

ANTH 162 - Cultures of Africa

Ethnographic survey of representative native societies of sub-Saharan Africa and major colonial/immigrant minorities emphasizing changes resulting from colonialism, independence, and modernization. Prerequisite: ANTH 021. Alternate years.

Credits: 3.00

ANTH 163 - South Pacific Cultures

Survey of major cultural areas of the South Pacific including problems of prehistory, contact with Western colonialism, and contemporary life. Prerequisite: ANTH 021. Alternate years.

Credits: 3.00

ANTH 165 - Peoples of South Asia

Culture and social organization of peoples of Pakistan, India, Bangladesh, and Sri Lanka. Theoretical issues in anthropological analysis of these societies discussed. Prerequisite: ANTH 021. Alternate years.

Credits: 3.00

ANTH 166 - Peoples of the Middle East

Culture and social organization of peoples living in lands from Morocco to Afghanistan, including a consideration of Islam. Prerequisite: ANTH 021. Alternate years.

Credits: 3.00

ANTH 167 - Native Peoples of Canada

Traditional life-ways of the native peoples of Canada, Indian, and Inuit; contemporary issues in native life in Canada. Prerequisites: ANTH 021 or GEOG 052 or HST 065 or HST 066. Alternate years.

Credits: 3.00

ANTH 169 - Latinos in the United States

Survey of peoples of Latino/Hispanic descent living in the U.S. Course examines their similarities and differences in history, ethnic identification, and cultural practices. Prerequisite: ANTH 021.

Credits: 3.00

ANTH 172 - Women, Society & Culture

Cross-cultural treatment of women which emphasizes the interrelationships between female status, social organization, and ideological systems. Prerequisite: 21. Alternate years.
Credits: 3.00

ANTH 178 - Sociolinguistics

Exploration of language and nonverbal interactions as cultural activities. Focus on rules and patterns people display appropriate to communication and social interaction. Prerequisite: 28.
Credits: 3.00

ANTH 179 - Cultural Ecology

(Same as Geography 179.) Interrelationships of social groups and their natural environments and resource bases, with primary emphasis on nonindustrial cultures. Prerequisite: 21 or Geography 1. (taught on a rotating basis). Alternate years.
Credits: 3.00

ANTH 180 - Psychological Anthropology

Cross-cultural study of the individual in a sociocultural context examining cognition and culture, symbols, alternative states of consciousness, human sexuality, deviance and madness, and ethnotherapy. Prerequisite: 21. Alternate years.
Credits: 3.00

ANTH 181 - Law, War and Disorder

Introduction to the anthropology of law and conflict management emphasizing the cultural fora and social organization of disputes and efforts to deal with conflict. Prerequisite: ANTH 021.
Credits: 3.00

ANTH 187 - Race and Ethnicity

Description and analysis of ethnic, racial, and religious groups in the U.S. Examination of social/cultural patterns in the larger society and in these groups themselves. Prerequisite: ANTH 021. Cross-listed with: SOC 119.
Credits: 3.00

ANTH 188 - Historical Archaeology

Survey of field, lab, and archival research methods; specialized studies of material culture; selected topics on ethnicity in the Americas, gender and status. Prerequisites: ANTH 024. Alternate years.
Credits: 3.00

ANTH 189 - Aging in Cross-Cultural Persp

Aging from an anthropological perspective. Topics include the biology of aging; aging in hunting, pastoral, fishing, and horticultural societies; aging in contemporary ethnic America. Prerequisites: 21 or Sociology 20. Alternate years.
Credits: 3.00

ANTH 190 - ISSP Thesis

Independent study for students enrolled in Integrated Social Sciences Program;

final product is thesis. Prerequisite: Enrollment in ISSP courses.

Credits: 3.00

ANTH 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

ANTH 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 6.00

ANTH 197 - Readings & Research

Credits: 3.00

ANTH 198 - Readings & Research

Credits: 3.00

ANTH 200 - Field Work in Archaeology

Methods and techniques of archaeological investigation in field situations and the laboratory analysis of data. Prerequisites: 24, one 100-level course in anthropology or history, instructor's permission. Summers only.

Credits: 6.00

ANTH 201 - Practicum & Internship

Supervised service or research integrating theoretical and practical anthropological issues. Prerequisite: Nine hours of anthropology. UG only.

Credits: 6.00

ANTH 210 - Archaeological Theory

Development of archaeology from the 19th century to the present including concepts of form, space and time, intellectual attitudes, current systems theory, and research strategies. Prerequisites: ANTH 024, one 100-level Anthropology course; or HP 201; or graduate standing in Historic Preservation Program, or HIST 121, HIST 122, or HIST 149. Alternate years.

Credits: 3.00

ANTH 220 - Develop & Applied Anthropology

Seminar examines the application of anthropological knowledge and methodologies to alleviate social problems around the world, with a special focus on the cultural politics of expertise. Prerequisites: ANTH 23, three 100-level courses, or instructor's permission. Alternate years.

Credits: 3.00

ANTH 225 - Anthropological Theory

Schools of anthropological thought examined in relation to data on non-Western societies and the historical and social context in which the anthropologist works. Prerequisites: ANTH 021, one 100-level course.

Credits: 3.00

ANTH 228 - Social Organization

Examination of the basic anthropological concepts and theories used in the cross-cultural analysis of kinship and marriage. Prerequisites: ANTH 021, one 100-level course.

Credits: 3.00

ANTH 250 - Museum Anthropology

The cultural context of selected archaeological and ethnographic collections at Fleming Museum; cataloguing, conservation, research, and interpretation of objects; exhibition design and ethical issues. Prerequisites: Junior standing; Anthropology, Art History, Studio Art majors and minors. Alternate years.

Credits: 3.00

ANTH 283 - Colonialism

The concepts, ideologies, and practice(s) of colonialism within a sociocultural and historical context emphasizing the cultures of the colonizer and the colonized and the interaction thereof. Prerequisites: ANTH 021, one 100-level course, or ANTH 021, six hours in the social sciences. Alternate years.

Credits: 3.00

ANTH 284 - Microethnography

Tape recorders and video cameras used to explore human patterns of communication; specifically phonemic, paralinguistic, haptic and kinesic detail, as well as ethnographic semantics. Prerequisite: 28 or Linguistics 101.

Credits: 3.00

ANTH 290 - Meth of Ethnographic Field Wrk

Examination of theoretical and ethical premises of field work methodology with practical experience in participant observation, interviewing, the genealogical method, and the recording of data. Prerequisite: Twelve hours of Anthropology. Alternate years.

Credits: 3.00

ANTH 295 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisites: ANTH 021, one 100-level course.

Credits: 6.00

ANTH 296 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisites: ANTH 021, one 100-level course.

Credits: 4.00

ANTH 297 - Advanced Readings & Research

Prerequisite: Junior/Senior standing.

Credits: 1.00

ANTH 298 - Advanced Readings & Research

Prerequisite: Junior/Senior standing.

Credits: 3.00

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Courses in Area & International Studies (AIS)

AIS 091 - Introduction to Area

(A) Introduction to Canada: A team-taught introduction to Canada through interdisciplinary perspective. (B) Introduction to Russia and East Europe: An interdisciplinary overview from the perspectives of economics, fine arts, geography, history, political science, Russian language and literature, and sociology. (C) Introduction to Western Europe. Primarily designed for first-year students.

Credits: 3.00

AIS 093 - So Africa:Politic/Race&Culture

An interdisciplinary introduction analyzing the forces that led to creation of that system of government known as Apartheid. Assessment of strategies and tactics of change.

Credits: 3.00

AIS 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

AIS 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

AIS 191 - Internships

Approved programs of learning outside the classroom. Internships must be undertaken directly in the field and involve activity in which substantive learning about the program area can take place.

Credits: 1.00 to 6.00

AIS 192 - Internships

Approved programs of learning outside the classroom. Internships must be undertaken directly in the field and involve activity in which substantive learning about the program area can take place.

Credits: 3.00

AIS 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

AIS 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

AIS 197 - Readings & Research

Credits: 3.00

AIS 198 - Readings & Research

Credits: 1.00 to 3.00

AIS 295 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: Permission by Executive Committee of International Studies. Other area courses offered by individual academic departments.

Credits: 3.00

AIS 296 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: Permission by Executive Committee of International Studies. Other area courses offered by individual academic departments.

Credits: 4.00

AIS 297 - Advanced Readings & Research

Independent study of a specific area subject or theme with an approved instructor.

Prerequisites: Junior/senior standing, and permission of area Program Director.

Credits: 6.00

AIS 298 - Advanced Readings & Research

Independent study of a specific area subject or theme with an approved instructor.

Prerequisites: Junior/senior standing, and permission of area Program Director.

Credits: 3.00

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Courses in Art (ART)

ART 001 - Drawing

Introductory study of visual experience through drawing and its transformation of the three-dimensional visual world onto a two-dimensional surface. Emphasis varies with instructor.

Credits: 3.00

ART 002 - Two-Dimensional Studies

A studio course exploring through classroom projects how we perceive space and how we work with materials and concepts to organize two-dimensional surfaces.

Credits: 3.00

ART 003 - Three-Dimensional Studies

Introductory study of the manipulation of actual space in diverse media. Emphasis varies with instructor.

Credits: 3.00

ART 004 - Intro to Film/Video Production

Introductory study of the principles and properties of four-dimensional media, including the mechanical and electronic phenomena behind the creation of a moving image.

Credits: 3.00

ART 005 - Western Art: Ancient - Medieval

Introduction to the visual arts, primarily painting, sculpture, and architecture in the Western world from prehistoric through Gothic.

Credits: 3.00

ART 006 - Western Art: Renaissance-Modern

Introduction to the visual arts, primarily painting, sculpture, and architecture in the Western world from Renaissance to present. Prerequisite: It is recommended that ART 005 be taken before ART 006.

Credits: 3.00

ART 008 - Asian Art

Introduction to the artistic traditions and major architectural monuments of India, China, Japan, and Southeast Asia.

Credits: 3.00

ART 011 - Introduction to Fine Metals

Emphasizes design in the third dimension. Basic metal fabrication techniques, soldering, forming, forging, fusing, and casting. Drawing required. Fall semester only.

Credits: 3.00

ART 095 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

ART 096 - Introduction to Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

ART 111 - Fine Metals

Continuation of three-dimensional fabrication with work in chasing, repousse, casting, stone setting, and more complex methods of construction. Design and drawing required. Prerequisite: ART 011. Fall semester only. Credits 0 to 3.

Credits: 3.00

ART 113 - Clay: Hand Building

Investigation of surfaces and three-dimensional forms. Focus on variety of construction methods, surface treatment, and firing techniques. Related clay and glaze technology. Prerequisites: ART 001 or ART 002, and ART 003.

Credits: 3.00

ART 114 - Clay: Wheel Throwing

Development of throwing skills and the capacity to create a range of forms. Investigation of surface treatment techniques such as slip painting and glazing. Low-fire and stoneware firing. Related clay and glaze technology. Prerequisites: ART 001 or ART 002, and ART 003.

Credits: 3.00

ART 115 - Intermediate Drawing

Intense investigation of drawing and elements related to the discipline. The figure used to introduce drawing exercises dealing with contour, gesture, color, and compositional geometry. Prerequisite: ART 001 and ART 002.

Credits: 3.00

ART 116 - Drawing From the Figure

Drawing from the model, emphasizing in-depth studies in different media. Prerequisite: ART 001 and ART 002.

Credits: 3.00

ART 121 - Painting

Painting as an investigation of color, space, and visual perception using traditional motifs and exploring individually developed directions. Prerequisites: 1, 2.

Credits: 3.00

ART 131 - Printmaking: Etching

Basic procedures in zinc plate printing, stressing design and technical control of aquatint, etching, drypoint and embossment. Prerequisites: ART 001 and ART 002. Offered alternate semesters. Credits 3.

Credits: 3.00

ART 132 - Printmaking: Silkscreen

Basic procedures in stencil printing, stressing design and technical control of stencil cutting, glue and tusche resist and photo-silkscreening. Prerequisites: ART 001 and ART 002. Offered alternate semesters.

Credits: 3.00

ART 133 - Printmaking: Lithography

Basic procedures in planographic printing from stone, stressing design and technical competence. Intensity of investigation varies with individual student. Prerequisites: ART 001 and ART 002.

Credits: 3.00

ART 137 - Photography

Photographic processes as methods of seeing, emphasizing visual discovery through informed manipulation of materials. Students explore light, camera, photosensitive materials relating to photographic realities. Prerequisite: one of the following: ART 001, ART 002, ART 004.

Credits: 3.00

ART 138 - Color Photography

Exploration of color films, cameras, and color printing processes as a means for recording, enhancing and expressing students' subjective experiences.

Prerequisite: one of the following: ART 001, ART 002, ART 004. Credits 3.

Credits: 3.00

ART 139 - Animation

Techniques of single frame filmmaking, including drawing on film, producing a flipbook, animating a repetitive form, a two-dimensional sequence, and a three-dimensional sequence. Prerequisite: any two of the following: ART 001, ART 002, ART 003, ART 004.

Credits: 3.00

ART 140 - Hist of Optical Media as Art

Theory and development of the art of "optical media:" photography, film, and video. Emphasis on discovery and explication of technical, aesthetic, and expressive properties. Prerequisite: one of the following: ART 006, FILM 005, FILM 006.

Credits: 3.00

ART 141 - Sculpture

Exploration of manipulative materials. Prerequisite: ART 003.

Credits: 3.00

ART 142 - Art from Scraps

Students explore in a series of projects how discarded objects and materials from everyday life, the "found object" tradition, can become materials for sculpture.

Prerequisite: ART 002 and ART 003.

Credits: 3.00

ART 143 - Intermed Film/Video Production

Exploration of the principles and properties of sound and moving image through projects in synchronous sound mediamaking and live studio production.

Prerequisite: ART 004 and either ART 001, ART 002, or ART 003, or instructor permission.

Credits: 3.00

ART 144 - Digital Art

Exploration of the computer as an artistic medium, focusing on a variety of approaches for creating and displaying imagery. Prerequisite: ART 002.

Credits: 3.00

ART 145 - Graphic Design

The application of graphic design principles to practical problems, including the impact of popular design on society, and the exploration of visual elements in contemporary printing processes. Prerequisite: ART 001 or ART 002.

Credits: 3.00

ART 146 - Egypt & the Ancient Near East

The development of sculpture, painting, and architecture in Mesopotamia and Egypt 3000-300 B.C. Prerequisite: ART 005.

Credits: 3.00

ART 147 - Visual Environment

Exploration of public spaces, structures, architectural detail, landscaping, roadways, lighting, etc. Field trips; meetings with planners and architects; projects.

Prerequisites: ART 001, ART 002, or ART 003.

Credits: 3.00

ART 148 - Greek Art

Development of painting, sculpture, architecture, and related arts in Greek lands 3000-30 B.C. Prerequisite: ART 005.

Credits: 3.00

ART 149 - Roman Art

Examination of the artistic experiments made by Roman painters, sculptors, and architects from 3rd century B.C. to 5th century A.D. Prerequisite: ART 005.

Credits: 3.00

ART 155 - Topics in Medieval Art

Selected aspects of European art from the end of the Roman Empire through the Gothic period. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: ART 005.

Credits: 3.00

ART 158 - Northern European 1400-1600

Netherlandish and German art of the period. Special attention to Jan van Eyck, Rogier van der Weyden, Hugo van der Goes, Durer, Bosch, and Bruegel.

Prerequisite: ART 005.

Credits: 3.00

ART 161 - Italian Renaissance Painting

Painting in Italy from Gothic innovations of Giotto and Duccio through establishment of 15th-century Renaissance style to the High Renaissance works of Leonardo da Vinci, Raphael, Michelangelo and Titian. The development of Venetian painting. Prerequisite: ART 005.

Credits: 3.00

ART 164 - Italian Renaissance Sculpture

Sculpture in Italy from its Gothic sources through the Renaissance. Special attention to Ghiberti, Donatello, and Michelangelo. Prerequisite: ART 005.

Credits: 3.00

ART 165 - Topics European Art 1600-1800

Selected aspects of the painting, sculpture, and architecture of the Baroque, Rococo, and/or Neo-Classical periods. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: ART 006.

Credits: 3.00

ART 170 - Topics in Modern Art

Selected aspects of the painting, sculpture, and architecture of Europe and North America during the 19th and 20th centuries. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: ART 006.

Credits: 3.00

ART 172 - 19th-Century European Painting

Examination of major movements in European painting from Neo-Classicism and Romanticism through Post-Impressionism. Prerequisite: ART 006.

Credits: 3.00

ART 174 - 20th-Century Art

A survey of movements and new media in European and American painting, sculpture, mixed media, performance, and the influences of film and photography on traditional media. Prerequisites: three hours of art history and preferably ART 172 or ART 181. Alternate years.

Credits: 3.00

ART 177 - 19th&20th Cent Arch & Design

The theory and practice of building and design from the early 19th century to the recent past. Prerequisites: ART 006 or a course in Historic Preservation.

Credits: 3.00

ART 179 - Issues in Contemporary Art

A study of selected examples of recent and current art and/or architecture. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: three hours of Art History.

Credits: 3.00

ART 180 - N. American Art 1600-1900

Painting, sculpture, and architecture in the U.S. and Canada from colonial

beginnings (Hispanic, Franco, Anglo) to WWI. Emphasis on the development of nationalist sensibilities as they emerge from European sources. Prerequisites: ART 006 or International Studies 91 (Canada).

Credits: 3.00

ART 185 - Japanese Art

Architecture, sculpture, painting, prints, and decorative arts and their relationship to Japanese culture. Prerequisites: three hours in art history or one of the following Asian Studies courses: GEOG 058, HST 151, REL 021, REL 132, REL 141.

Alternate years.

Credits: 3.00

ART 187 - Chinese Painting

History of Chinese painting, emphasizing the landscape painting of the 11th to 17th centuries. Prerequisite: Six hours in art history, three at the 100 level or instructor's permission. Alternate years.

Credits: 3.00

ART 188 - Indian Painting

Mural, manuscript, and miniature painting from India from the 5th to 19th centuries. Topics to include: courtly and religious patronage and regional styles.

Prerequisites: Three hours of art history or instructor's permission.

Credits: 3.00

ART 189 - Topics in Non-Western Art

Selected aspects of the art of an area not covered in our regular European, American, and Asian courses. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: three hours in Art History.

Credits: 3.00

ART 190 - Internship: Art History

Prerequisites: junior standing, six hours of 100-level course work in appropriate field, departmental permission (a contract must be obtained from and returned to the Department of Art during preregistration).

Credits: 3.00

ART 191 - Internship: Field Experience

Prerequisites: junior standing, six hours of 100-level courses in appropriate field, departmental permission (a contract must be obtained from and returned to the Department of Art during preregistration).

Credits: 3.00

ART 192 - Inter Spec Topics in Asian Art

See Schedule of Courses for specific titles. Prerequisite: three hours in Art History or Asian Studies.

Credits: 3.00

ART 195 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Credits 1-4.

Credits: 4.00

ART 196 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

ART 197 - Rdgs & Rsch:Tutorial in Studio

Independent/individual research in studio art. Prerequisites: junior standing, six hours of studio art courses at 100 level, departmental permission (a contract must be obtained from and returned to the Department of Art during preregistration).

Credits: 3.00

ART 198 - Readings & Research

Prerequisite: departmental permission.

Credits: 3.00

ART 199 - Topics:Gender,Race,Ethn in Art

Study of selected aspects of gender, "race," or ethnicity in art, and/or of the contributions of women or ethnically diverse people to the visual arts. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: three hours in Art History.

Credits: 3.00

ART 201 - Arch, Landscape & History

(See Historic Preservation 201.) Prerequisites: six hours advanced studies in art and architecture, permission. UG only.

Credits: 3.00

ART 213 - Advanced Ceramics

Advanced investigations of methods exploring content, form, surface, and color of ceramics and elements related to the discipline. Prerequisite: ART 113 or ART 114.

Credits: 3.00

ART 215 - Advanced Drawing

Intense investigation of drawing and elements that relate to that discipline. Emphasis on conceptual method, contemporary techniques, and both objective and non-objective source material. Prerequisite: ART 115 or ART 116.

Credits: 3.00

ART 221 - Advanced Painting

Advanced explorations of painting emphasizing issues of scale, materials, and techniques both traditional and contemporary, and their relationship to both the discipline and current issues. Prerequisites: ART 121.

Credits: 3.00

ART 237 - Advanced Photography

Continuation of 137, further exploring the implications of photography and encouraging students to use the medium to better understand their relationships to the world. Prerequisite: ART 137 or ART 138.

Credits: 3.00

ART 241 - Advanced Sculpture

Advanced investigation of sculpture. Students work on individual projects under supervision of instructor. Periodic group discussion and analyses of work in progress. Prerequisite: ART 141.

Credits: 3.00

ART 244 - Advanced Digital Art

Advanced exploration of the computer as an artistic medium for creating imagery. Focus on using the computer to animate images and integrate sound. Emphasis on conceptual issues in digital art. Prerequisite: ART 144.

Credits: 3.00

ART 281 - Advanced Studies in Studio Art

Work in close consultation with faculty sponsor on a specific and advanced project. Prerequisites: senior standing, major or qualified minor in studio art, departmental permission (a contract must be obtained from and returned to the Department of Art during preregistration), six hours of 100-level courses in topic of contract.

Credits: 3.00

ART 282 - Seminar in Western Art

Selected topics in Western Art. See Schedule of Courses for specific offerings each semester. Prerequisites: six hours of 100-level Art History courses, including three hours in the area of the seminar; junior or senior standing. UG only.

Credits: 3.00

ART 283 - Advanced Seminar in Studio Art

Advanced seminar for senior studio art majors covering a range of topics. Prerequisites: senior standing, major in studio art, instructor's permission. (Not offered for graduate credit.)

Credits: 3.00

ART 285 - Seminar in Asian Art

Prerequisites: One of the following: ART 008, ART 185, ART 187, ART 188, or ART 196 (Asian); three additional hours of 100-level courses either in art history or Asian Studies.

Credits: 3.00

ART 295 - Special Topics in Studio Art

Advanced work in existing departmental offerings. Prerequisite: instructor's permission only. UG only.

Credits: 3.00

ART 296 - Adv Special Topics:Art History

See Schedule of Courses for specific titles.

Credits: 3.00

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Courses in Art Education (EDAR)

EDAR 177 - Curriculum & Pract in Elem Art

Study and implementation of curriculum in elementary school. Students work directly in an elementary classroom. Lectures and discussions. Prerequisite: Eighteen hours Studio Art; Junior standing.
Credits: 4.00

EDAR 178 - Curriculum&Pract Middle/HS Art

Study and implementation of curriculum in middle and high school. Students work directly in a middle or high school. Lectures and discussions. Prerequisite: Eighteen hours Studio Art; Junior standing.
Credits: 4.00

EDAR 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisites: Twelve hours in education and related areas. One to six hours.
Credits: 4.00

EDAR 283 - Current Issues in Art & Ed

Research and discussion of issues relevant to contemporary art and the teaching of art. Prerequisite: Senior standing or permission.
Credits: 3.00

EDAR 284 - Current Issues in Art & Ed

Research, discussions, and field work relevant to contemporary art and the teaching of art. Prerequisite: Junior standing or permission.
Credits: 3.00

EDAR 295 - Laboratory Experience in Educ

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences; One to six hours.
Credits: 3.00

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Courses in Astronomy (ASTR)

ASTR 005 - Exploring the Cosmos

Survey of ancient astronomy, planets and moons, stars and their evolution, galaxies and quasars, and Big-Bang cosmology. Includes night sky observations.
Credits: 3.00

ASTR 023 - Astr Lab I: Measuring the Sky

Measurements of the properties of the planets, stars, and galaxies using graphical analysis, computer simulations and photographs. Prerequisites: Concurrent enrollment or credit in ASTR 005.
Credits: 1.00

ASTR 053 - Moons & Planets

Celestial mechanics, formation of the stars, and planetary materials. Planets, satellites, asteroids, meteors, and comets. Planetary surfaces, interiors, and atmospheres. Origin of life. Prerequisites: ASTR 005 or other introductory science course.
Credits: 3.00

ASTR 055 - The Big Bang

Ancient cosmologies, beginning of time, origin of matter, cosmic background radiation, antimatter and dark matter, the expanding universe and origin of structure. Prerequisites: ASTR 005 or other introductory science course.
Credits: 3.00

ASTR 057 - Hist/Pract Ancient Astronomy

A cross-cultural survey of astronomical practices of ancient peoples. Sky watching, time reckoning and calendar making. Constellations, astrological practices, and planetary theories. Prerequisites: ASTR 005 or other introductory science course.
Credits: 3.00

ASTR 257 - Modern Astrophysics

Prerequisite: One 100-level course in physical science or Engineering. Cross-listed with PHYS 257.
Credits: 3.00

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Courses in Biochemistry (BIOC)

BIOC 191 - Undergraduate Research

Participation in a research program currently being pursued by a faculty member of department. Written report due at end of each semester. Prerequisites: Chemistry 31, 32 or 35, 36. Some programs may require additional courses in chemistry. Credit as arranged, up to four hours per semester.
Credits: 1.00 to 4.00

BIOC 192 - Undergraduate Research

Participation in a research program currently being pursued by a faculty member of department. Written report due at end of each semester. Prerequisites: Chemistry 31, 32 or 35, 36. Some programs may require additional courses in chemistry. Credit as arranged, up to four hours per semester.
Credits: 1.00 to 4.00

BIOC 196 - Intermediate Special Topics

Credits: 3.00

BIOC 205 - Biochemistry I

Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisites: CHEM 142 or 144. Crosslisted with CHEM 205 and MMG 205. UG only.
Credits: 3.00

BIOC 206 - Biochemistry II

Continuation of Biochemistry I. Biochemistry of nucleic acids; nucleic acid based processes, such as replication and transcription; cellular Prerequisite: 205. Crosslisted with CHEM 206 and MMG 206. information transfer, genomics, and proteomics. UG only.
Credits: 3.00

BIOC 207 - Biochemistry Lab

Introduction to biochemical tools, including spectrometry, chromatography, and electrophoresis; natural and recombinant enzyme isolation; assays of DNA-modifying enzymes; computer-based structure/function exercises. Corequisites: 205 or 206. Crosslisted with CHEM 207 and MMG 207. UG only.

Credits: 3.00

BIOC 212 - Biochemistry of Human Disease

Molecular approach to genetic, metabolic, and infectious diseases; recombinant DNA technology and medicine; molecular biology of cancer. Prerequisites: Chemistry 42 or 141.

Credits: 3.00

BIOC 240 - Macromol Struct Prot&Nucl Acid

Introduction to structural biology and macromolecular structure with an emphasis on protein-protein and protein-nucleic acids interactions. Prerequisites: Biology 1,2; Organic Chemistry; Junior standing recommended; for graduate credit. (Crosslisted with MMG 240) Alternate years; not approved

Credits: 3.00

BIOC 301 - General Biochemistry

Survey for science majors. Chemistry, structure, metabolism, and function of proteins, carbohydrates, lipids; enzymes, bioenergetics and respiratory processes. Prerequisites: Chemistry 141, 142 or 143, 144, and departmental permission.

Credits: 3.00

BIOC 302 - General Biochemistry

Survey for science majors. Amino acids, nucleic acids, protein synthesis, cellular and physiological control mechanisms. Prerequisites: Chemistry 141, 142 or 143, 144, and departmental permission.

Credits: 3.00

BIOC 305 - Medical Biochemistry

A survey course in human biochemistry, with particular emphasis on medical applications. Prerequisite: For medical students only.

Credits: 3.00

BIOC 306 - Medical Biochemistry

A survey course in human biochemistry, with particular emphasis on medical applications. Prerequisite: For medical students only.

Credits: 3.00

BIOC 307 - Special Topics in Biochemistry

Areas of biochemistry not treated in concurrent advanced course offerings. Prerequisites: 301, 302 or 305-306; Chemistry 162.

Credits: 3.00

BIOC 308 - Special Topics

Areas of biochemistry not treated in concurrent advanced course offerings. Prerequisites: 301, 302 or 305-306; Chemistry 162.

Credits: 3.00

BIOC 309 - Laboratory Research Rotations

Two sequential research projects in departmental faculty laboratories, composed of experimental work, an oral presentation, and a written report. (First semester).

Credits: 3.00

BIOC 310 - Laboratory Research Rotations

Two sequential research projects in departmental faculty laboratories, composed of experimental work, an oral presentation and a written report. (Second semester).

Credits: 3.00

BIOC 351 - Proteins I: Structure&Function

Special Topics: Introduction to concepts in protein structure and chemistry as well as exploration of ideas in a "hands on" fashion using computational resources.

Credits: 3.00

BIOC 352 - Protein:Nucleic Acid Interact

Structure of DNA and RNA, and the structure and assembly of nucleoprotein complexes will be described using examples from prokaryotes, yeast, viruses, and mammalian cells in culture. Prerequisites: MMG 211 or equivalent, AGBI 201 or BIOC 301 and 302 or equivalent. Crosslisting: MMG 352. Alternate years.

Credits: 3.00

BIOC 353 - Proteins II: Enzymology

General consideration of enzyme nomenclature, purification, assay, kinetics, mechanisms, cofactors, active sites, subunit structure, allosteric and regulatory properties, and control of multienzyme systems. Prerequisites: 301, 302, or 305-306; Chemistry 162.

Credits: 3.00

BIOC 370 - Physical Biochemistry

Protein interaction, solubility and fractionation, electrophoresis, sedimentation, phase rule study, diffusion, viscosity, spectrophotometry, and related topics.

Prerequisites: 301, 302 or 306; Chemistry 160 or 162.

Credits: 3.00

BIOC 372 - Cancer Biology

Overview of cancer biology for health science students. Foundation for cancer research. Lecture format; interdisciplinary viewpoint; outside lectures.

Prerequisites: 301-302 or 305-306; under special circumstances , 212.

Credits: 3.00

BIOC 381 - Seminar

A review of recent developments and current literature in the various fields of biochemistry. Prerequisite: Department permission.

Credits: 1.00

BIOC 391 - Master's Thesis Research

Credit as arranged.

Credits: 1.00 to 12.00

BIOC 392 - Independent Literature Rsch

Reading and literature research culminating in a paper on a topic of current interest in biochemistry.

Credits: 1.00 to 12.00

BIOC 395 - Special Topics

Credits: 1.00 to 12.00

BIOC 396 - Advanced Special Topics

Credits: 3.00

BIOC 491 - Doctoral Dissertation Research

Credit as arranged.

Credits: 1.00 to 12.00

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Courses in Biological Sciences (BSCI)

BSCI 195 - Biological Sciences Seminar

Presentations and discussion of selected topics by students, staff, and invited guests. Suggested attendance for all First-Year and transfer students in Biological Science for one semester.

Credits: 1.00

BSCI 197 - Undergrad Research

Special study and research activity under direction of qualified staff member. Requires written proposal and final project report. Prerequisite: Research advisor and Department Chair permission. Credit as approved with maximum of six hours for undergraduate program.

Credits: 1.00 to 6.00

BSCI 198 - Undergrad Research

Special study and research activity under direction of qualified staff member. Requires written proposal and final project report. Prerequisite: Research advisor and Department Chair permission. Credit as approved with maximum of six hours for undergraduate program.

Credits: 1.00 to 6.00

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Courses in Biology (BIOL)

BIOL 001 - Principles of Biology

Principles of cellular biochemistry, cell biology, genetics and evolution. Topics presented: biochemistry; metabolism, cell structure and function; respiration; photosynthesis; molecular, Mendelian and population genetics; microevolution. Credit not given for both 1 and 11.

Credits: 4.00

BIOL 002 - Principles of Biology

Principles of organismal biology; nature of scientific inquiry, plant form and function, pollination ecology, animal phylogeny illustrated by comparative anatomy and physiology; animal behavior. Credit not given for both 2 and 12.

Credits: 4.00

BIOL 003 - Human Biology

For nonscience majors. Selected biological topics relevant to humans, such as cancer, human genetics, environmental toxicants; biological concepts necessary for understanding these problems.

Credits: 3.00

BIOL 004 - The Human Body

Introduction to basic human anatomy and organ system physiology emphasizing normal homeostatic mechanisms and the changes that accompany common disorders and diseases. For nonscience majors.

Credits: 3.00

BIOL 006 - Evolutionary Biology

For nonscience majors. The process of biological evolution, evidence for evolution, mechanisms of evolutionary change, origin of adaptations, evolution of behavior, social and reproductive behavior.

Credits: 3.00

BIOL 009 - Science As a Way of Knowing

History of scientific method and its application to generation of knowledge. How science seeks to understand the origin and diversity of life. Lab research project.

Credits: 3.00

BIOL 011 - Exploring Biology

Exploring biology from cells to organisms. Topics include origin of life; ancestral organisms; uni- and multicellular energetics; evolution of respiration and metabolism; and the genetic code. Prerequisites: Biology/Zoology, Environmental Sciences (A&S) majors only, others by permission; concurrent enrollment or credit in Chemistry 31 or 32. Credit not given for both 1 and 11.

Credits: 4.00

BIOL 012 - Exploring Biology

An evolutionary perspective to exploring biology. Topics include patterns of inheritance; Darwinian evolution; evolution of biodiversity; ecology of organisms; human effects on biological systems. Prerequisites: Biology/Zoology, Environmental Sciences (A&S) majors only, others by permission; enrollment or credit in Chemistry 31 or 32. Credit not given for both 2 and 12.

Credits: 4.00

BIOL 095 - Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

BIOL 096 - Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

BIOL 101 - Genetics

Study of the basis of inheritance, covering topics from classical genetics to modern molecular studies. Analysis of genetic data emphasized. Prerequisites: 1, 2 or 11, 12; Chem 31, 32, organic chemistry recommended.

Credits: 3.00

BIOL 102 - Environmental Biology

Ecosystem and community structure; population growth; species interactions and niche dynamics; population and chromosomal genetics; speciation in fossil records; ecology of animal behavior; applied ecology. Prerequisites: 1, 2; or 11,12; Math. 19 or 21.

Credits: 4.00

BIOL 103 - Cell Function & Structure

Molecules, structures, and physiology of cell membranes; energy transformations; nuclear and cytoplasmic events; extracellular matrix; cell signaling; and cell types and fates. Prerequisite: BIOL 001, BIOL 002, or BIOL 011, BIOL 012; CHEM 031, CHEM 032, CHEM 141; BIOL 101 recommended.

Credits: 4.00

BIOL 104 - Comparative Animal Physiology

Physiology of organs and organ systems in animals emphasizing basic principles of physiology common to all forms. Prerequisites: Biol 1,2 or 11,12; 103 recommended.

Credits: 4.00

BIOL 191 - Research Apprenticeship

Participation in a faculty research project. Suitable for students in first through junior years. Students must follow all departmental guidelines. Prerequisite: Departmental permission.
Credits: 3.00

BIOL 192 - Research Apprenticeship

Participation in a faculty research project. Suitable for students in first through junior years. Students must follow all departmental guidelines. Prerequisite: Departmental permission.
Credits: 1.00 to 3.00

BIOL 193 - Internship in Biology

Professional experience, containing a substantial academic component, with an off-campus organization or campus unit other than Biology Department. Students must follow all departmental guidelines. Prerequisite: Department permission.
Credits: 3.00

BIOL 194 - Internship in Biology

Professional experience, containing a substantial academic component, with an off-campus organization or campus unit other than Biology Department. Students must follow all departmental guidelines. Prerequisite: Department permission.
Credits: 3.00

BIOL 195 - Special Topics

See Schedule of Courses for specific titles.
Credits: 3.00

BIOL 196 - Special Topics

See Schedule of Courses for specific titles.
Credits: 4.00

BIOL 197 - Undergraduate Research

Individual laboratory research under faculty guidance. Students must follow departmental guidelines or be disenrolled. Six credits given only with presentation in department Research Day or approved venue. Prerequisite: Junior or senior standing, departmental permission.
Credits: 3.00

BIOL 198 - Undergraduate Research

Individual laboratory research under faculty guidance. Students must follow departmental guidelines or be disenrolled. Six credits given only with presentation in department Research Day or approved venue. Prerequisite: Junior or senior standing, departmental permission.
Credits: 3.00

BIOL 202 - Quantitative Biology

Mathematical concepts applied to biological problems such as growth, metabolism, temperature effects, kinetics, and graphic interpretation of data. Statistics not treated. Prerequisite: At least one intermediate level course in biology, Math. 9, or instructor's permission.
Credits: 3.00

BIOL 205 - Adv Genetics Lab

Lecture/discussions alternated with laboratories to provide experiences with genetic techniques. Bench work and data analysis emphasized. Prerequisite: 101.
Credits: 4.00

BIOL 209 - Field Zoology

Collection, identification of invertebrates; September field work. Half of student's collection is general, identified to family; half is one or two groups identified to species. Prerequisite: 102 or 104.
Credits: 4.00

BIOL 212 - Comparative Histology

Anatomy of tissues, chiefly vertebrate. Tissue similarities and specializations of organs among the various groups of animals in relation to function. Prerequisite: 104.
Credits: 4.00

BIOL 217 - Mammalogy

Classification, identification, morphology, evolution, and distribution of mammals. Prerequisite: 102.
Credits: 4.00

BIOL 219 - Compar/Func Vertebrate Anatomy

(2-4) Structure, function, and phylogeny; survey of evolutionary and functional trends; investigation of the structure of all chordate groups. Prerequisite: 104. Alternate years, 2000-01.
Credits: 4.00

BIOL 223 - Developmental Biology

An analysis of the cellular, subcellular, molecular, and genetic mechanisms that operate during oogenesis and embryogenesis in invertebrate and vertebrate organisms. Prerequisites: 101, 103.
Credits: 3.00

BIOL 225 - Physiological Ecology

Processes by which animals cope with moderate, changing, and extreme environments. Prerequisites: 102, 104.
Credits: 3.00

BIOL 238 - Winter Ecology

Natural history and winter adaptation of plants and animals of western Maine. Field work during winter break; oral and written report completed during spring semester. Prerequisite: Instructor permission.
Credits: 3.00

BIOL 246 - Ecological Parasitology

Parasite-host interactions examined with evolutionary perspective. Topics include the origin of parasites, evolution of virulence, and ecological consequences of parasitism. Laboratory includes original experiments. Prerequisite: 102.
Credits: 4.00

BIOL 254 - Population Genetics

The forces that change gene frequencies in populations are examined. Topics include Hardy-Weinberg-Castle equilibrium, selection, mutation, migration, genetic drift, and quantitative genetics. Prerequisites: 102; calculus and statistics recommended.

Credits: 4.00

BIOL 255 - Compar Reproductive Physiology

Various means by which animals reproduce. Special emphasis on the embryological origin and evolutionary relationships of sex cell differentiation.

Prerequisite: 104.

Credits: 4.00

BIOL 261 - Neurobiology

Focus on molecular and cellular aspects of the nervous system. Electrical signaling, synaptic transmission, signal transduction, neural development, plasticity and disease. Prerequisite: 103. Cross-listing: ANNB 26.

Credits: 3.00

BIOL 263 - Genetics Cell Cycle Regulation

Molecular events during the cell cycle; mutants defective in cell cycling; comparison of normal and transformed (cancer) cell cycling. Prerequisite: 101 or instructor's permission. Alternate years, 1999-00.

Credits: 3.00

BIOL 264 - Community Ecology

Theoretical and empirical analyses of community structure. Topics include population growth, metapopulation dynamics, competition, predation, species diversity, niches, disturbance succession, island biogeography, and conservation biology. Prerequisites: 102; at least junior standing.

Credits: 3.00

BIOL 265 - Developmental Molecular Genetics

Current topics in developmental genetics explored through lectures and discussions of current literature; emphasis on molecular approaches.

Prerequisites: 101. Alternate years, 2000-01.

Credits: 3.00

BIOL 268 - Medical Entomology

Examines the arthropod vectors of temperate and tropical diseases that affect human health, using an ecological and a systematics approach. Prerequisites: 102 or instructor permission. UG only.

Credits: 3.00

BIOL 269 - Plant-Animal Interactions

Ecological and evolutionary interactions among plants and animals. Topics include herbivory, pollination, seed predation, biocontrol, and effects of global climate

Biology 102 recommended. UG only. change. Prerequisites: Biology 1,2 or 11,12;

Credits: 3.00

BIOL 270 - Speciation and Phylogeny

Contributions of modern research in such fields as genetics, systematics,

distribution, and serology to problems of evolutionary change. Prerequisite: 101 (102 recommended). Alternate years, 1999-00.

Credits: 3.00

BIOL 276 - Behavioral Ecology

Adaptive significance of behavior in natural environments. Evolutionary theory applied to behavior and tested with field data. Prerequisites: 102 or instructor permission. UG only.

Credits: 3.00

BIOL 281 - Biology Seminar

Review and discussion of current zoological research. Attendance required of Biology graduate students. Seniors in zoological research programs may enroll for 0 credits. Credits 0-1.

Credits: 0.00

BIOL 282 - Eco Lunch

Review and discussion of current zoological research. Attendance required of Biology graduate students. Seniors in research programs may enroll for 0 credits.

Credits: 0.00 to 1.00

BIOL 283 - Ecology-Evolution Journal Club

Review and discussion of current zoological research. Attendance required of Biology graduate students. Seniors in zoological research programs may enroll.

Credits: 0.00

BIOL 284 - Cell Lunch

Review and discussion of current zoological research. Attendance required of Biology graduate students. Seniors in research programs may enroll for 0 credits.

Credits: 0.00 or 1.00

BIOL 285 - John Dewey Honors Crs: Biology

Advanced Biology course for John Dewey Honors Students with Biology/Zoology/Environmental Sciences Majors. Requires enrollment in approved 200-level course and includes additional assignments. Prerequisites:

Departmental permission. UG only.

Credits: 0.00

BIOL 288 - Seminar in Forensic Biology

Capstone course in seminar format for undergraduates concentrating in Forensic Biology in the Biology major; discussions, readings, guest speakers.

Pre/corequisites: Chem 141, 142; Bio 101.

Credits: 1.00

BIOL 295 - Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

BIOL 296 - Advanced Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

BIOL 297 - Advanced Special Topics

See Schedule of Courses for specific titles. UG only.

Credits: 3.00

BIOL 298 - Advanced Special Topics

See Schedule of Courses for specific titles. UG only.

Credits: 3.00

BIOL 301 - Cell Biology

Advanced survey of cell organelles, their composition, origin, and the relationship between their structure and function. Emphasis on recent literature and current controversies. Prerequisite: CHEM 142; Graduate standing in Biology or Instructor permission. Cross-listed with: CLBI 301.

Credits: 3.00

BIOL 302 - Specialized Cells & Cell Proc

Current issues and research in the field of plant, invertebrate, mammalian cell, and molecular biology. Prerequisite: BIOL 301. Cross-listed with: CLBI 302.

Credits: 3.00

BIOL 371 - Graduate Colloquium

Topics of current faculty and graduate student interest presented in a seminar-discussion format. Specific titles for colloquia will be listed in the course schedule.

Credits: 1.00

BIOL 381 - Special Topics

Readings with conferences, small seminar groups, or laboratories intended to contribute to the programs of graduate students in phases of zoology for which formal courses are not available. Prerequisite: An undergraduate major in life science.

Credits: 4.00

BIOL 391 - Master's Thesis Rsch

Credit as arranged.

Credits: 1.00 to 10.00

BIOL 491 - Doctoral Dissertation Research

Credits: 1.00 to 10.00

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Courses in Biomedical Technologies (BMT)

BMT 001 - First Year Seminar

Discussion of relevant issues in the Biomedical Sciences. Topics include public health, cancer prevention, radiation science, and health and well-being. S/U grading.

Credits: 1.00

BMT 003 - Medical Terminology

Terminology related to medical science and hospital services. Fall and Spring.

Credits: 1.00

BMT 004 - Intro Radiologic Science

Introduction to ionizing radiation, emphasizing its interaction with matter, its effect on the human body, and methods of protecting patients and technologists.

Credits: 3.00

BMT 034 - Human Blood Cells

Lecture and laboratory experiences in cells of the blood, their quantitation, physiology, and alterations in disease. Spring.

Credits: 3.00

BMT 054 - Principles of Microbiology

Lectures and laboratory experiences dealing with the structure, physiology, and control of microorganisms, in particular those of medical importance. Spring.

Credits: 4.00

BMT 110 - Phlebotomy

Basic techniques in blood collection, including choice of anticoagulants, equipment, sterility, and protection from blood-borne pathogens.

Credits: 0.50

BMT 111 - Phlebotomy

Basic techniques in blood collection, including choice of anticoagulants, equipment, sterility, and protection from blood-borne pathogens.

Credits: 0.50

BMT 120 - Health Care Ethics

A study of ethical principles and applications used to help resolve dilemmas in

health care delivery. Introduction to ethical decision-making models used in the practice of modern health care. Prerequisite: Sophomore standing or Instructor permission.

Credits: 3.00

BMT 123 - Intro to Clinical Chemistry

Lectures and laboratory experiences introduce basic principles in the quantitative analysis of body fluids; test results are correlated with clinical case studies.

Prerequisite: Chemistry 23 or 31 and 32. Fall.

Credits: 4.00

BMT 229 - Seminar: Clinical Chemistry

Discussion of recent advances in clinical chemistry.

Credits: 1.00

BMT 242 - Immunology

Lecture and laboratory experiences dealing with cellular and humoral immunity, B cells and T cells, autoimmunity, immunodeficiency. Laboratory covers immunological techniques and applications. Pre/corequisites: One semester of Biochemistry.

Credits: 4.00

BMT 269 - Sem: Immunohematology

Discussion of recent advances and practices used in transfusion medicine. Spring.

Credits: 1.00

BMT 291 - Honors:Biomedical Tech

Contact the Department for specific requirements.

Credits: 3.00

BMT 292 - Honors:Biomedical Tech

Contact the Department for specific requirements.

Credits: 3.00

BMT 295 - Prin of Education & Management

Introduction to theories of education and management. Undergraduate only.

Credits: 3.00

BMT 296 - Senior Seminar

Review of case studies for clinical correlation. Fall. Undergraduate only.

Credits: 2.00

BMT 299 - Special Topics

Courses or seminars beyond scope of existing departmental offerings.

Prerequisite: Department permission. Variable credit. Undergraduate only.

Credits: 4.00

BMT 381 - Special Topics Seminar

Credits: 1.00

BMT 391 - Masters Thesis Research

Credits: 1.00 to 6.00

BMT 395 - Advanced Topics

Credits: 1.00 to 3.00

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Courses in Biomedical Technology (BMED)

BMED 281 - Molecular Applications

Lecture and laboratory course focused on application of molecular biology techniques to diagnostic testing and biotechnology. Techniques include Northern and Western blot analysis, In situ hybridization, tissue culture, immunoassay development and use. Prerequisite: CHEM 031, CHEM 032, or CHEM 023; CHEM 141, CHEM 142, or CHEM 042; BIOL 001, BIOL 002, or ANPS 019, ANPS 020. Fall.
Credits: 4.00

BMED 284 - Undergraduate Research I

Laboratory course in research methodologies. Prerequisite: Instructor permission. Undergraduate only.
Credits: 3.00

BMED 285 - Undergraduate Research II

Advanced laboratory course in research methodologies. Prerequisite: BMED 284; Instructor permission. Undergraduate only.
Credits: 3.00

BMED 286 - Undergraduate Research III

Research projects sponsored by faculty. Prerequisite: BMED 285; Instructor permission. Undergraduates only.
Credits: 3.00

BMED 293 - Research Concepts

Discussion of research methodology including analysis of primary scientific literature. Spring.
Credits: 1.00

BMED 297 - Undergraduate Research

Research projects sponsored by faculty. Prerequisite: Instructor permission. Spring, Fall.
Credits: 1.00 to 6.00

BMED 298 - Undergraduate Research Seminar

Current literature related to student research project will be presented and

discussed. Students will be required to present a seminar on their research project. Prerequisite: BMED 284, BMED 285, BMED 286 or BMED 297; advanced standing. Spring.

Credits: 3.00

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Courses in Biostatistics (BIOS)

BIOS 200 - Med Biostatistics&Epidemiology

Introductory design and analysis of medical studies. Epidemiological concepts, case-control and cohort studies. Clinical trials. Students evaluate statistical aspects of published health science studies. Prerequisite: Statistics 141 or 143 or 211. Three hours. Cross-listing: Statistics 200.

Credits: 3.00

BIOS 221 - Statistical Methods II

Multiple regression and correlation. Basic experimental design. Analysis of variance (fixed random and mixed models). Analysis of covariance. Computer software usage. Cross-listed with: STAT 221.

Credits: 3.00

BIOS 223 - Applied Multivariate Analysis

Multivariate normal distribution. Inference for mean vectors and covariance matrices. Multivariate analysis of variance (MANOVA), discrimination and classification, principal components, factor analysis. Prerequisite: Any 200-level Statistics course; STAT 221 or STAT 225 recommended; matrix algebra recommended. Cross-listed with: STAT 223.

Credits: 3.00

BIOS 231 - Experimental Design

Randomization, complete and incomplete blocks, cross-overs, Latin squares, covariance analysis, factorial experiments, confounding, fractional factorials, nesting, split plots, repeated measures, mixed models, response surface optimization. Prerequisites: 211; 221 recommended. Cross-listing: STAT 231.

Credits: 3.00

BIOS 391 - Master's Thesis Research

Credit as arranged.

Credits: 1.00 to 12.00

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Courses in Botany (BOT)

BOT 004 - Intro to Botany

Structure, function, and reproduction of plants. Fundamental aspects of plant science with implications of botanical knowledge needed for applied plant sciences. Credit not given for both Botany 4 and Biology 1.

Credits: 4.00

BOT 006 - The Green World

Evaluation of the impact of plants on the aesthetic, cultural, social, medical, and religious lives of peoples of the world. Botany and Biological Science majors will not receive credit for Botany 6 as part of program distribution requirements.

Credits: 3.00

BOT 095 - Special Topics

Credits: 4.00

BOT 096 - Special Topics

Credits: 1.00

BOT 104 - Plant Physiology

Study of the plant as a whole, growth and development, water and mineral relations, environmental factors, and regulatory processes. Prerequisites: One year of plant or biological science, beginning chemistry recommended, or instructor's permission.

Credits: 4.00

BOT 108 - Morph & Evol Vasc Pl

Evolutionary relationships of vascular plants as inferred from plant structure, ecology, geography, and reproductive biology. Synthesis includes both fossil and extant groups. Prerequisite: 4 or Biology 1, 2. Alternate years.

Credits: 4.00

BOT 109 - Systematics & Phylogeny

Classification; evolution of flowering plants; characterization and recognition of major families; species and generic concepts; biosystematics; taxonomic keys; preparation of herbarium specimens. Prerequisite: 4 or Biology 1, 2.

Credits: 4.00

BOT 117 - Plant Pathology

Diagnosis, life history, control of diseases caused by fungi, viruses, bacteria, nematodes, parasitic plants, and environmental factors. Physiology, biochemistry, and genetics of host-parasite interaction. Prerequisite: 4 or Biology 1, 2. Alternate years, 2001-02.

Credits: 4.00

BOT 132 - Principles of Genetics

Introduction to transmission and molecular genetics with reference to prokaryotic, animal, and plant systems. Prerequisites: Biology 1, 2; Chemistry 31, 32.

Credits: 3.00

BOT 151 - Plant Anatomy

Credits: 3.00

BOT 160 - Plant Ecology

Interactions among plants and their environment. Topics covered include individuals, populations, communities, and ecosystems. Field methods and experimental design covered; ecological applications. Prerequisite: Botany 4 or Biology 1, 2; Math 19 or 21 recommended. Four Hours. Molofsky.

Credits: 4.00

BOT 193 - College Honors

(For Arts and Sciences seniors.)

Credits: 3.00

BOT 194 - College Honors

(For Arts and Sciences seniors.)

Credits: 3.00

BOT 195 - Special Topics

Credits: 3.00

BOT 197 - Undergrad Research

Individual projects under direction of a faculty member. Project may involve original research, readings, or apprenticeships. Prerequisites: Junior or senior standing, departmental permission. One to six hours.

Credits: 4.00

BOT 198 - Undergrad Research

Individual projects under direction of a faculty member. Project may involve original research, readings, or apprenticeships. Prerequisites: Junior or senior standing, departmental permission. One to six hours.

Credits: 1.00 to 6.00

BOT 205 - Mineral Nutrition of Plants

Role of essential elements for plant growth including classical and modern approaches to the study of ion availability and transport. Prerequisite: BOT 104.

Credits: 3.00

BOT 209 - Biology of Ferns

Evolutionary biology; a survey of New England ferns and discussion of their phylogenetic relationships; current research emphasizing morphological,

biogeographical, genetic, and phytochemical aspects of speciation. Prerequisite: 108; 101 or 132 recommended. Alternate years.

Credits: 3.00

BOT 213 - Plant Communities

Plant sociology; structure and organization of the plant community; sampling methods and analysis of data; climatic and edaphic factors; field work.

Prerequisite: 109 or departmental permission.

Credits: 3.00

BOT 223 - Fundamentals of Field Science

Pattern and process in natural systems. Weekly discussion of unifying questions in science. Field labs teach sampling and analysis of vegetation, soils, and animals.

Prerequisite: Graduate standing or several university courses in earth sciences, life sciences, and chemistry.

Credits: 3.00

BOT 226 - Environmental Problem Solving

Students negotiate a contract, work as a team, and map and inventory forested natural areas as they apply problem solving skills to Vermont environmental project. Prerequisites: Instructor permission. One to three hours.

Credits: 1.00

BOT 232 - Botany Field Trip

Trips to selected environments outside Vermont, led by faculty members representing different fields of botany. Overall, integrated approach to ecology, structure, and function.

Credits: 1.00

BOT 234 - Ecology of Freshwater Algae

Community, population and physiological ecology of algae. Topics include taxonomy; diversity; distribution and seasonal succession; productivity and grazing; growth kinetics; and competitive and synergistic reactions. Prerequisites: Botany 160 or Natural Resources 103 or Biology 102. Alternate years.

Credits: 3.00

BOT 241 - Tropical Plant Systematics

Principles and methods of angiosperm phylogeny. Recent systematic and evolutionary research on flowering plants; survey of tropical flowering plant families. Student presentations on recent research. Prerequisite: 109. Alternate years.

Credits: 4.00

BOT 252 - Molecular Genetics II

How cells control the flow of genetic information from gene into active gene product. Distinctions between quiescent and active genes, mechanisms of genetic communication/regulation. Prerequisites: Biology 101 or Agricultural Biochemistry 201 or Biochemistry 301, or equivalent; others by instructor's permission.

Credits: 3.00

BOT 254 - Genetics of Fungi

Understanding the classical and molecular genetics of fungi with respect to their contributions in agriculture, basic genetics, biotechnology, industry, recombinant DNA, and gene expression. Prerequisites: Biology 101, or Agricultural Biochemistry 201 or Biochemistry 301 or equivalents; others by instructor's permission.

Credits: 3.00

BOT 257 - Plant Cell Physiology

Detailed study of photosynthesis, plant cell membrane function, and plant cell growth. Prerequisites: 104, Chemistry 141, 142 or Chemistry 42, Physics 11, 12 or 31, 42. Alternate years.

Credits: 4.00

BOT 258 - Biology of the Fungi

Taxonomy, genetics, physiology, ecology, and economic importance of the fungi. Representatives of each major group are explored with respect to the above. Includes microbiological technique and laboratory culture of the fungi.

Prerequisites: 101 or 104 or 132 or permission.

Credits: 4.00

BOT 260 - Plant Population Biology

Study of how environmental and life-history characteristics of plants determine the dynamics and evolution of populations. Prerequisites: Biology 102 or Botany 160 or instructor permission. UG only.

Credits: 3.00

BOT 261 - Plant Growth & Development

Concepts in plant structure and development. Biophysics of plant structure and pattern-formation. Introduction to methods of plant microscopy and microtechnique. Prerequisites: 104, 108, Intro. Physics or permission.

Credits: 4.00

BOT 281 - Botany Seminar

Presentations of personal research by faculty, graduate students, and outside guest speakers. Attendance required of botany graduate students and seniors in botanical research programs. Without credit.

Credits: 0.00

BOT 282 - Botany Seminar

See Botany 281.

Credits: 0.00

BOT 295 - Special Topics

For advanced students within areas of expertise of faculty. Aspects of ecology, physiology, genetics, cytology, bryology, pteridology, paleobotany, photobiology, membrane physiology, and cell biology. Prerequisite: Departmental permission.

Credits: 6.00

BOT 296 - Special Topics

Special Topics. UG only.

Credits: 4.00

BOT 311 - Field Naturalist Practicum

Landscape analysis; planning and designing field projects; integrated problem solving. Prerequisites: Enrollment in the Field Naturalist program. Variable hours up to three.

Credits: 0.00 to 3.00

BOT 381 - Problems in Modern Botany

Subject matter varies. Topics will stress current graduate student and staff research interests in a journal review or presentation-discussion format.

Prerequisite: Permission.

Credits: 3.00

BOT 391 - Master's Thesis Research

Credit as arranged.

Credits: 1.00 to 10.00

BOT 392 - Master Project Rsch

Credit as arranged.

Credits: 0.00 to 3.00

BOT 491 - Doctoral Dissertation Research

Credit as arranged.

Credits: 1.00 to 10.00

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Courses in Business Administration (BSAD)

BSAD 017 - Business Law

Concepts of law as related to business, including law of contracts, sales, bailments, and negotiable instruments, business and laws of agency, partnerships, and corporations. Prerequisite: Sophomore standing.

Credits: 3.00

BSAD 018 - Business Law

Concepts of law as related to business, including law of contracts, sales, bailments, and negotiable instruments, business and laws of agency, partnerships, and corporations. Prerequisite: Sophomore standing.

Credits: 3.00

BSAD 040 - Information Technology & Mgmt

Introduction to use of technology and computers in decision-making functions of management. Includes coverage of information technology, computer software applications, and programming. Credit cannot be received for Computer Science 2 or Computer Science 3 after completion of BSAD 40.

Credits: 3.00

BSAD 060 - Financial Accounting

Introduction to generally accepted accounting principles and techniques regarding corporations, partnerships, and proprietorships as they apply to income determination and financial position presentation. Prerequisite: Sophomore standing.

Credits: 4.00

BSAD 061 - Managerial Accounting

Introduction to use of accounting for planning, cost behavior and control, and decision making. Prerequisite: BSAD 60 or 65.

Credits: 4.00

BSAD 065 - Fundamentals of Accounting

Overview of the financial accounting model and basic managerial accounting concepts, including accounting for service, merchandising and manufacturing companies, financial Statement components (assets, liabilities and equity), cost analysis, and budgeting. Prerequisite: Sophomore standing. Business

Administration majors will not receive credit for BSAD 65.

Credits: 4.00

BSAD 095 - Special Topics

Credits: 3.00

BSAD 096 - Special Topics

Credits: 4.00

BSAD 120 - Prin Mgmt & Org Behavior

Fundamentals of management, organization theory, behavior, and interpersonal communication in a transnational context. Prerequisite: Junior standing.

Credits: 3.00

BSAD 121 - ST in Organizational Behavior

Focuses on ways in which individuals and work groups within organizations can be better utilized as organizational resources. Prerequisite: BSAD 120.

Credits: 3.00

BSAD 123 - Collective Barg & Conflict Res

Focuses on union-employer relations and on developing the student's negotiation skills. Topics include the union contract, the causes of strikes, and the techniques for resolving conflict. A bargaining simulation is incorporated. Prerequisite: BSAD 120.

Credits: 3.00

BSAD 127 - International Management

Reviews special problems in the management of human resources in a global economy. Focuses on cultural differences, a comparison of labor-management systems in a number of countries, the role of multinational corporations, and the impact of foreign enterprises on employment practices in host countries.

Prerequisite: BSAD 120; Senior standing.

Credits: 3.00

BSAD 132 - Legal & Political Envir of Bus

Interaction of business and society. Emphasis on business roles in the complex and dynamic, legal, political, and social environment. Prerequisites: Economics 11, 12; junior standing.

Credits: 3.00

BSAD 137 - Entrepreneurship

Understanding of the business challenges that confront entrepreneurs and their approaches to opportunities. Emphasizes real-world information gathering and integrated approaches needed for entrepreneurial success. Prerequisite: Junior standing and strong personal motivation.

Credits: 3.00

BSAD 138 - New Venture Creation I

Students develop business plans for their own new business ideas. Evaluate market and financial feasibility and develop strategy and business objectives for the new venture. Prerequisite: BSAD 137 or permission of the instructor plus strong personal motivation.

Credits: 3.00

BSAD 139 - New Venture Creation II

Continuation of BSAD 138. Students develop detailed and integrated operational business plans to support the business concept, strategy and objectives developed in BSAD 138. Prerequisite: BSAD 138.

Credits: 3.00

BSAD 141 - Mgmt Information Systems

Integrates computer hardware and software concepts with a classical methodology for developing business information systems. Presents the relevant factors in the development of information systems. Discusses the problems of analyzing, designing, and implementing such systems. Prerequisites: Statistics 141 or 111, Math 20 or 21, BSAD 40 or Computer Science major, junior standing.

Credits: 3.00

BSAD 142 - Structured Business Prgmming

Fundamental principles of business computer programming. Topics include: the constructs of structured programming, modular development, sequential and nonsequential access techniques. Exercises include data editing, reporting, file updating. An on-line program development mode is used. Credit cannot be received for both CS 014 and BSAD 142. Prerequisite: BSAD 141.

Credits: 3.00

BSAD 143 - Struc Anyl & Dsgn Business Sys

In-depth study of business information system development cycle emphasizing analysis and design phases. Structured analysis and design techniques used to develop models of business information systems. Case studies such as payroll, inventory, accounts receivables, order entry, billing. Prerequisite: BSAD 141.

Credits: 3.00

BSAD 144 - Data Base Development & Admin

Data base system development cycle from analysis to design, implementation, and administration. Central focus on complex data structure modeling, data base implementation and administration. A project involving analysis, design, and implementation required. Prerequisite: BSAD 141, BSAD 143, or Instructor permission.

Credits: 3.00

BSAD 145 - Managing Info System Resource

Theory and practice of managing resources of an organization's information system. Responsibilities and interactions of upper level, function area, and information system managers emphasized. Topics include project selection and control, staffing, organizing, planning, and managing the information system function. Prerequisites: BSAD 120, BSAD 143, concurrent enrollment in BSAD 144, or instructor's permission. Variable 3-4 hours.

Credits: 3.00

BSAD 146 - Loc Area Net/Wrk Grp & Sm Bus

Planning and installation of local area networks (LANs). Covers fundamental principles of telecommunications and networking with application to both peer to

peer and client server networks. (Offered summer session only). Prerequisites: BSAD 141 and instructor permission. Corequisite: BSAD 147.

Credits: 3.00

BSAD 147 - Local Area Networking Lab

Laboratory to accompany BSAD 146. Install, configure, and test two different network systems in a simulated small business setting; include basic network services. (Offered summer session only). Prerequisite: BSAD 141 or instructor permission. Corequisite: BSAD 146.

Credits: 3.00

BSAD 150 - Marketing Management

The place of marketing in our economy. Analysis of the market structure by function, institutions, and commodities. Consumer and organizational activities reviewed. Prerequisites: Statistics 141 or 111, Economics 11, 12; junior standing.

Credits: 3.00

BSAD 152 - Business to Business Marketing

Exploration and analysis of the marketing of goods and services to organizations. Topics include organizational buying, market segmentation, positioning, pricing, communication, physical distribution and customer service, and sales management. Prerequisite: BSAD 150.

Credits: 3.00

BSAD 153 - Consumer Behavior

Exploration and analysis of research evidence from marketing and behavioral science relevant to a theory of consumer behavior. Emphasis also given to research methodologies. Prerequisite: BSAD 150.

Credits: 3.00

BSAD 155 - Marketing Communications

Emphasizes the coordination of advertising and sales promotion into cohesive, single-minded promotional programs. Stresses the need to integrate promotional activity into the overall marketing strategy. Prerequisite: BSAD 150.

Credits: 3.00

BSAD 158 - Current Marketing Developments

Analysis of both present and future changes affecting marketing theory and practice. Topics include social changes, functional and institutional marketing system changes. Individual research projects required. Prerequisite: BSAD 150.

Credits: 3.00

BSAD 159 - Mrktg Planning & Programming

The use of advanced cases to aid in the formulation of overall policies and planning strategies for marketing programs. Topics include product planning and channel selection. Prerequisite: BSAD 150 and one other marketing course.

Credits: 3.00

BSAD 161 - Intermediate Accounting

Principles, concepts, techniques, and issues involved in accounting for the assets, liabilities, and owners equity and their related effect on income determination of an

enterprise. Prerequisites: BSAD 60, junior standing.

Credits: 3.00

BSAD 162 - Intermediate Accounting

Principles, concepts, techniques, and issues involved in accounting for the assets, liabilities, and owners equity and their related effect on income determination of an enterprise. Prerequisites: BSAD 161, junior standing.

Credits: 3.00

BSAD 164 - Intro to Federal Taxation

Examination of the Internal Revenue Code primarily regarding individuals and property transactions. Tax research methodology, and the taxation of corporate and partnership income, are introduced. Prerequisites: BSAD 060 or BSAD 065; Junior standing.

Credits: 3.00

BSAD 168 - Cost Accounting

Accounting for inventory valuation and income determination, nonroutine decisions, policy making and long-range planning. Prerequisite: BSAD 061; Junior standing.

Credits: 3.00

BSAD 170 - Business Forecasting Methods

Looks inside the crystal ball at major forecasting methods (Smoothing, Regression, Econometric, Box-Jenkins, Combined), and analyzes elements of good forecasting practice in an organization. Extensive use of PC forecasting packages. Prerequisites: STAT 141, EC 011, EC 012; Junior standing.

Credits: 3.00

BSAD 173 - Production&Operations Analysis

Study of methods used in planning, analysis, and control of production and service processes. Topics include forecasting, scheduling, production and inventory control, sequencing, line balancing, learning curves, and networks. Prerequisites: Math 20 or 21, Statistics 141, junior standing.

Credits: 3.00

BSAD 174 - Manufacturing Planning&Control

Study of systems to plan and control flows of materials through manufacturing. Topics include production, materials, and capacity planning; master scheduling; shop-floor control, and just-in-time production. Prerequisite: BSAD 173 or Senior standing in Engineering or Mathematics.

Credits: 3.00

BSAD 175 - Management of Technology

Role of technology in industry, the nature of technological change, strategies, management, research and development, forecasting, product service/project selection, development, management, transition to market, and evaluation. Prerequisite: Senior standing in Engineering or Business Administration. Cross-Listed with: EMGT 175.

Credits: 3.00

BSAD 177 - Decision Analysis

Thinking through difficult decisions. Course utilizes case studies and professional software to analyze decision making, design decision models and perform risk analyses. Prerequisite: STAT 141; Junior standing.

Credits: 3.00

BSAD 178 - Quality Control

Analysis and design of systems for obtaining quality in operations. Statistical process control (SPC) emphasized, along with current management philosophies and concepts. Prerequisite: MATH 020 or MATH 021, STAT 141 or equivalent; Junior standing.

Credits: 3.00

BSAD 180 - Managerial Finance

The financial function in the corporation. Techniques for evaluating current use of resources and proposed resource acquisitions or dispositions. Prerequisites: BSAD 61 or 65, Economics 12, Statistics 141 or 111, junior standing.

Credits: 3.00

BSAD 181 - Intermediate Financial Mgmt

Examines key areas of financial decision making. With cases and problems, issues such as capital budgeting, leasing, mergers, and acquisitions examined.

Prerequisite: BSAD 180.

Credits: 3.00

BSAD 183 - International Finance Mgmt

Theories and practices of international financial management examined. Topics investigated include: systems of international exchange, spot and forward markets, and expropriation and exchange risk. Prerequisite: BSAD 180.

Credits: 3.00

BSAD 184 - Financial Institutions&Markets

Study of level and structure of interest rates and characteristics of financial institutions and markets. Topics include market vs. natural rate of interest, interest rate structure, behavior of interest rates. Prerequisite: BSAD 180.

Credits: 3.00

BSAD 191 - Business Policy

Processes of total enterprise strategy formation, implementation, and performance measurement. Uses and limits of techniques for strategy analysis. Strategic change and the job of the general manager. Prerequisite: Senior standing.

Credits: 3.00

BSAD 192 - Business Process Improvement

Familiarizes students with the basic conceptual issues of continuously improving business processes to compete more effectively on quality, time, and cost.

Prerequisite: Junior standing.

Credits: 3.00

BSAD 194 - Internship

Independent research under faculty supervision, in connection with a

preprofessional work experience. Written requirements include a substantive analysis of an aspect of the internship, linking it with the academic curriculum. Prerequisite: Completion of the Basic Business Core courses; at least one Business Field Course; cumulative GPA of at least a 3.0; permission of the School of Business Administration.

Credits: 3.00

BSAD 195 - Special Topics

Specialized or experimental courses offered as resources permit.

Credits: 6.00

BSAD 196 - Special Topics

Specialized or experimental courses offered as resources permit.

Credits: 3.00

BSAD 197 - Independent Study

Independent investigation designed by the student as a means of applying prior course work to a specialized problem. Well suited for senior projects. Prerequisite: Permission of BSAD Undergraduate Studies Committee.

Credits: 3.00

BSAD 198 - Independent Study

Independent investigation designed by the student as a means of applying prior course work to a specialized problem. Well suited for senior projects. Prerequisite: Permission of BSAD Undergraduate Studies Committee.

Credits: 3.00

BSAD 222 - Human Resource Management

Critical examination of contemporary problems in human resource management; including job analysis, recruitment, training and employee development, health and safety, compensation, performance appraisal, and related topics. Prerequisite: BSAD 120; Senior standing.

Credits: 3.00

BSAD 226 - Current Iss in Mgmt & Org Thry

Subjects may include training and development, selection and recruitment, and affirmative action. Prerequisite: BSAD 120.

Credits: 3.00

BSAD 234 - Canadian-US Business Relations

A study of the Canadian-U.S. bilateral relationship as it affects international business, emphasizing trade, investment, energy, and industrial development policies. Prerequisite: EC 011, EC 012.

Credits: 3.00

BSAD 251 - Marketing Research

The role of research in a marketing information framework. Emphasis on survey research, data collection, and analysis. Experimental designs also examined. Prerequisite: BSAD 150.

Credits: 3.00

BSAD 252 - Marketing Research Practicum

Market research field project. Students design survey instruments, collect and analyze data, and present results to clients in a business environment.

Prerequisite: BSAD 251.

Credits: 3.00

BSAD 258 - International Market Analysis

Examines the cultural, economic, historic, and political factors that affect the analysis of foreign markets. Specific attention is given to the processes by which market entry decisions are developed and implemented. Prerequisites: Senior or graduate standing; BSAD 150 or permission of instructor.

Credits: 3.00

BSAD 260 - Financial Statement Analysis

A study of the concepts and techniques underlying corporate financial statement analysis, emphasizing business equity valuation. Prerequisites: BSAD 180 or 308.

Credits: 3.00

BSAD 263 - Accounting & the Environment

An examination of the critical role of accounting in implementing and assessing the firm's environmental strategy. A variety of accounting issues are addressed through readings and case studies. Prerequisites: Junior standing, BSAD 61 or 65 or concurrent enrollment in BSAD 308.

Credits: 3.00

BSAD 266 - Advanced Accounting

Accounting for partnerships, special sales contracts, parent-subsidiary relationships, fiduciary relationships, and governmental units. Prerequisite: BSAD 162.

Credits: 3.00

BSAD 267 - Auditing

Independent and internal auditing. Topics include standards, ethics and legal responsibilities of the profession, financial statements, audit concepts, and techniques, and the audit opinion. Prerequisite: BSAD 162.

Credits: 3.00

BSAD 270 - Quant Anyl for Managerial Dec

Application of management science methods to managerial decision making, emphasizing modeling and use of solution results. Topics include mathematical programming, waiting-line analysis, and computer simulation. Prerequisite: STAT141, MATH 020 or MATH 021.

Credits: 3.00

BSAD 272 - Discrete Simulation

Discrete simulation using monte-carlo techniques and the GPSS simulation processor; mathematical modeling of systems; control systems; validation and sensitivity analysis. Prerequisites: Statistics 141 or 151, senior standing. UG only.

Credits: 3.00

BSAD 282 - Security Val & Portfolio Mgmt

Examination of theories and evidence on the investment decision process

including operations of equity securities markets, market efficiency, financial asset prices, and portfolio management. Prerequisites or Corequisites: BSAD 181 and 184 or BSAD 308.

Credits: 3.00

BSAD 285 - Options and Futures

Financial derivatives - options, futures and swaps. Topics include: structures of the markets for exchange traded and over-the counter derivatives; identification and exploitation of arbitrage opportunities; use and misuse of derivatives to hedge risk in both financial and product markets. Prerequisites or Corequisites: BSAD 181 and 184 or BSAD 308.

Credits: 3.00

BSAD 293 - Integrated Product Development

(Cross-listed with Mechanical Engineering 265, Statistics 265.) Project-based course focusing on the entire product life cycle. Team dynamics, process and product design, quality, materials, management, and environmentally-conscious manufacturing. Prerequisite: Senior standing.

Credits: 3.00

BSAD 295 - Special Topics

Advanced courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles and prerequisites. Prerequisite: Senior standing.

Credits: 6.00

BSAD 302 - Business Economics

An introduction to the principles of economics as relevant to business decision-making. The use of various analytical tools are stressed through their application in solving a variety of managerial problems. Prerequisite: MBA standing or permission of MBA Program Director.

Credits: 3.00

BSAD 305 - Fundamentals of Marketing Mgmt

Accelerated course on marketing principles and theory. Analytical approach to study of product pricing strategies; distribution, communication, and promotion; consumer behavior and development of corporate marketing strategy.

Prerequisite: MBA standing.

Credits: 3.00

BSAD 306 - Fundamentals of Accounting

Introduction to basic concepts, assumptions, conventions providing foundation for developing financial statements. Analysis, interpretation of the income statement, balance sheet, statement of changes in financial position. Prerequisite: MBA standing.

Credits: 3.00

BSAD 307 - Organization & Mgmt Studies

A survey course of the principles of management and organization behavior. The fundamentals of planning, organizing, leading, staffing, and controlling are covered. Particular attention is given to organization theory and behavior,

including topics such as motivation, group behavior and decision making. All areas are covered in an international context. Prerequisite: MBA standing.

Credits: 3.00

BSAD 308 - Corporate Finance

An introduction to financial decision making in the firm. Decisions related to acquisition and allocation of funds are examined and practiced through cases and problems. Prerequisite: MBA standing; BSAD 306.

Credits: 3.00

BSAD 309 - Fund Legal Environ of Business

General overview of areas of interaction between businesses and governments. Examination of governmental policy toward business and review of laws governing business-government interactions. Prerequisite: MBA standing.

Credits: 3.00

BSAD 331 - Health Care Management

Addresses changing challenges confronted by managers in health services delivery organizations. Examines applications and limitations of management concepts and processes in the health care context. Prerequisite: MBA standing.

Cross-listed with: PA 312.

Credits: 3.00

BSAD 340 - Production & Operations Mgmt

Study of the operations function in manufacturing and service organizations. Design, planning, and control are examined, with emphasis on managerial analysis and decision making. Prerequisite: One course in STAT.

Credits: 3.00

BSAD 341 - Forecasting

Modern forecasting methods and practices including smoothing, regression, econometric and Box-Jenkins models; combining forecasts and forecasting simulations. Professional software used for developing forecasts. Prerequisite: MBA standing; one course in Statistics or research methods.

Credits: 3.00

BSAD 345 - Management Information Systems

An introduction to the design and implementation of management information systems. A theoretical framework is developed and applied by students to an information system. Prerequisite: MBA standing.

Credits: 3.00

BSAD 346 - Decision Making Models

Application of decision-making models to administrative problems. Structuring decisions through decision trees, making choices, assessing risk, resolving conflicting objectives and overcoming organizational impediments. Prerequisite: One course in Statistics. Cross-listed with: PA 308.

Credits: 3.00

BSAD 352 - Business to Business Marketing

Exploration and analysis of the marketing of goods and services to organizations.

Topics include organizational buying, market segmentation, positioning, pricing, communication, physical distribution and customer services, and sales management. Prerequisite: MBA standing; BSAD 305.

Credits: 3.00

BSAD 365 - Managerial Accounting

Study of development, utilization of accounting information for product costing and pricing purposes, for routine planning and control of organizational activities, for decision-making purposes. Prerequisites: MBA standing, BSAD 306.

Credits: 3.00

BSAD 376 - Mgmt of Change in Organization

Applied behavioral science perspective adopted to identify conceptual issues, develop diagnostic skills, examine alternative intervention strategies relevant to accomplishment of planned changes in organizational systems. Prerequisite: MBA standing; BSAD 307.

Credits: 3.00

BSAD 380 - Managerial Finance

Focus on key financial decisions that affect the value of the firms. Topics: capital structure, leasing, mergers and acquisitions, capital market theories and evidence. Prerequisites: MBA standing, BSAD 308.

Credits: 3.00

BSAD 394 - Independent Readings&Research

Allows a student to pursue independent research under the direction of a faculty member. Normally, the course will include a research paper. Prerequisite: MBA standing; permission of the Graduate Studies Committee.

Credits: 3.00

BSAD 395 - Special Topics

Topics and material that may develop later into a regular course offering; in addition, it may include topics and material offered only once. Prerequisite: MBA standing; permission of the Graduate Studies Committee.

Credits: 3.00

BSAD 396 - Business Policy

A case course focusing on the resolution of complex cases involving simultaneous solutions of problems in two or more functional areas. Prerequisites: MBA standing; last semester of study.

Credits: 3.00

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Courses in Cell Biology (CLBI)

CLBI 295 - Special Topics

Credit as arranged.

Credits: 3.00

CLBI 301 - Cell Biology

Advanced survey of cell organelles, their composition, origin, and the relationship between their structure and function. Emphasis on recent literature and current controversies. Prerequisite: CHEM 142; Graduate standing in Biology or Instructor permission. Cross-listed with: BIOL 301.

Credits: 3.00

CLBI 302 - Spec Cells & Cell Processes

Current issues and research in the field of plant, invertebrate, mammalian cell, and molecular biology. Prerequisite: CLBI 301. Cross-listed with: BIOL 302.

Credits: 3.00

CLBI 381 - Seminar

One hour.

Credits: 1.00

CLBI 391 - Master's Thesis Research

Credit as arranged.

Credits: 3.00

CLBI 395 - Special Topics

Credit as arranged.

Credits: 6.00

CLBI 491 - Doctoral Dissertation Research

Credit as arranged.

Credits: 1.00 to 12.00

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Courses in Chemistry (CHEM)

CHEM 020 - Principles & Contemporary Appl

Lecture plus lab. Designed for nonscience majors. An integrated approach to principles of chemistry within context of contemporary technological issues.

Credits: 4.00

CHEM 023 - Outline of General Chemistry

One-semester survey of principles and concepts of general chemistry, designed primarily to meet needs of students in agricultural and health sciences. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 25, 31 or 35.

Credits: 4.00

CHEM 025 - Outline of General Chemistry

One-semester survey of principles and concepts of general chemistry, designed primarily to meet the needs of students in agricultural and health sciences. NO LABORATORY. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 23, 31 or 35.

Credits: 3.00

CHEM 026 - Outline of Organic & Biochem

Broad overview of most important facts and principles of organic and biochemistry and interrelationships between these branches of chemistry. Prerequisite: 31 or 23. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 28, 42 or 44.

Credits: 4.00

CHEM 028 - Outline of Organic & Biochem

Broad overview of most important facts and principles of organic and biochemistry and of interrelationships between these branches of chemistry. NO LABORATORY. Prerequisite: 31 or 23 or 25. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 26, 42 or 44.

Credits: 3.00

CHEM 031 - Introductory Chemistry

Basic course in principles and concepts of general chemistry. These courses, or Chemistry 35, 36 serve as suitable prerequisites for 100-level courses in

Chemistry. Prerequisite: 31 or 35 for 32.

Credits: 4.00

CHEM 032 - Introductory Chemistry

Basic course in principles and concepts of general chemistry. These courses, or Chemistry 35, 36 serve as suitable prerequisites for 100-level courses in Chemistry. Prerequisite: 31 or 35 for 32.

Credits: 4.00

CHEM 035 - General Chemistry

General chemistry for students with a strong background in physical sciences. Recommended for students concentrating in physical sciences. Prerequisites: One year of high school chemistry, concurrent enrollment or background in calculus. High school physics recommended; 31 or 35 required for 36.

Credits: 4.00

CHEM 036 - General Chemistry

General chemistry for students with a strong background in physical sciences. Recommended for students concentrating in physical sciences. Prerequisites: One year of high school chemistry, concurrent enrollment or background in calculus. High school physics recommended; 31 or 35 required for 36.

Credits: 4.00

CHEM 039 - Introduction to Research

Overview of methods, areas, and instrumentation of modern chemical research, including hands-on laboratory experiences and written and oral presentations of a research project. Prerequisite: score of 4 or 5 on the AP Chemistry examination or Department permission.

Credits: 2.00

CHEM 040 - Introduction to Research

Overview of methods, areas, and instrumentation of modern chemical research, including hands-on laboratory experiences and written and oral presentations of a research project. Prerequisite: score of 4 or 5 on the AP Chemistry examination or permission of department.

Credits: 2.00

CHEM 042 - Intro Organic Chemistry

Concepts for understanding chemistry of structurally simple organic compounds of everyday importance. These principles applied to more complex molecules such as polymers and biologically important compounds such as proteins, lipids, and carbohydrates. (Does not satisfy medical school entrance requirements for undergraduate preparation in organic chemistry.) Prerequisite: 31 or 23. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 26, 28, 44, 141 or 143.

Credits: 4.00

CHEM 044 - Intro Organic Chemistry

Concepts for understanding chemistry of structurally simple organic compounds of everyday importance. These principles applied to more complex molecules such as polymers and biologically important compounds such as proteins, lipids, and

carbohydrates. (Does not satisfy medical school entrance requirements for undergraduate preparation in organic chemistry.) NO LABORATORY.

Prerequisite: 31 or 23 or 25. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 26, 28, 42, 141 or 143.

Credits: 3.00

CHEM 095 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

CHEM 096 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

CHEM 121 - Quantitative Analysis

Theory and practice of volumetric and gravimetric analysis. Theoretical discussion of indicators, buffers, pH, etc. Introduction to data analysis, spectrophotometry, and chromatography. Prerequisite: CHEM 032 or CHEM 036.

Credits: 4.00

CHEM 131 - Inorganic Chemistry

Symmetry, group theory, molecular structure; valence shell; MO, crystal field, and ligand field bonding models; solid state, electron deficient, acid-base, and simple organo-metallic systems. Prerequisite: 142 or 144.

Credits: 3.00

CHEM 141 - Organic Chemistry

Survey of properties and reactions of organic compounds with consideration of bonding, stereochemistry, mechanisms, principles of reactivity, spectroscopy, syntheses, and utilization. Designed for premedical, pre dental, and preveterinary students and for those majoring in biological and physical sciences. Prerequisites: 31, 32 or 35, 36; 141 for 142.

Credits: 4.00

CHEM 142 - Organic Chemistry

Survey of properties and reactions of organic compounds with consideration of bonding, stereochemistry, mechanisms, principles of reactivity, spectroscopy, syntheses, and utilization. Designed for premedical, pre dental, and preveterinary students and for those majoring in biological and physical sciences. Prerequisites: 31, 32 or 35, 36; 141 for 142.

Credits: 4.00

CHEM 143 - Organic Chemistry for Majors

Survey of principles and reactions of organic chemistry for chemistry majors.

Prerequisites: 31, 32 or 35, 36; 143 for 144.

Credits: 4.00

CHEM 144 - Organic Chemistry for Majors

Survey of principles and reactions of organic chemistry for chemistry majors.

Prerequisites: 31, 32 or 35, 36; 143 for 144.

Credits: 4.00

CHEM 146 - Adv Organic Laboratory

Laboratory practice in separation, purification, synthesis, identification, spectroscopy, and physical organic techniques as applied to organic compounds. For Chemistry majors. Prerequisite: 144.
Credits: 2.00

CHEM 160 - Phys Chem for Bio Sci Students

Aspects of physical chemistry most pertinent to work in biological sciences: acid-base equilibrium, theory of solutions, thermodynamics and kinetics. Prerequisites: 32 or 36, Physics 42.
Credits: 3.00

CHEM 161 - Physical Chemistry

Elementary quantum chemistry, bonding, spectroscopy, and statistical mechanics. Prerequisites: 32 or 36; Physics 42, Math. 121 or Chem. 167.
Credits: 3.00

CHEM 162 - Physical Chemistry

Properties of gases and solutions; thermodynamics and kinetics. Prerequisites: 32 or 36; PHYS 42, MATH 121 or CHEM 167. Note: CHEM 162 may be taken before 161. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 160.
Credits: 3.00

CHEM 167 - Physical Chemistry Preparation

Review of relevant mathematical and physical concepts as applied to physical chemistry. Prerequisite: CHEM 032 or CHEM 036; MATH 022. Cross-listed with: MATH 167.
Credits: 1.00

CHEM 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.
Credits: 6.00

CHEM 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.
Credits: 6.00

CHEM 198 - Readings & Research

Credits: 2.00

CHEM 201 - Advanced Chemistry Lab

Laboratory and discussion only. Laboratory problems requiring modern analytical, physical, and inorganic synthetic techniques. Prerequisites: 146, credit for or concurrent enrollment in 161 or 162 and 221.
Credits: 3.00

CHEM 202 - Advanced Chemistry Lab

Laboratory only. Laboratory problems requiring modern analytical, physical, and inorganic synthetic techniques. Prerequisites: 201.
Credits: 2.00

CHEM 205 - Biochemistry I

Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems including enzyme catalysis, biosynthesis, regulation, and information transfer. with: BIOC 205 and MMG 205. Prerequisite: CHEM 142 or CHEM 144. Cross-listed
Credits: 3.00

CHEM 206 - Biochemistry II

Continuation of Biochemistry I. Biochemistry of nucleic acids; nucleic acid based processes, such as replication and transcription; cellular information transfer, genomics, and proteomics. Prerequisite: CHEM 205. Cross-listed with: BIOC 206 and MMG 206.
Credits: 3.00

CHEM 207 - Biochemistry Lab

Introduction to biochemical tools, including spectrometry, chromatography, and electrophoresis; natural and recombinant enzyme isolation; assays of DNA-modifying enzymes; computer-based structure/function exercises. Co-requisite: CHEM 205 or CHEM 206. Cross-listed with: BIOC 207 and MMG 207.
Credits: 2.00

CHEM 214 - Polymer Chemistry

Polymer size and weight distributions. Kinetic models for step polymerization, addition polymerization, copolymerization. Physical properties, characterization of polymers in the solid state and in solution. Prerequisites: 144, 162. Alternate years.
Credits: 3.00

CHEM 221 - Instrumental Analysis

Systematic survey of modern methods of chemical analysis. Fundamental principles and applications of spectroscopy, electrochemistry, and separation techniques. Prerequisites: Credit for or concurrent enrollment in 161 or 162.
Credits: 3.00

CHEM 222 - Advanced Analytical Chemistry

In-depth coverage of selected modern instrumental methods of chemical analysis, emphasizing most recent developments in spectroscopy, electrochemistry, and separation techniques. Prerequisite: CHEM 221.
Credits: 3.00

CHEM 223 - Mass Spectrometry

This course covers basic aspects of modern mass spectrometry instrumentation and techniques as well as specific applications relevant to the students in the course. Prerequisites: 142 or 144 and 221 or instructor's permission.
Credits: 3.00

CHEM 224 - Chemical Separations

Theory and practice of chromatographic separations. Emphasis on gas-liquid, liquid-liquid, and liquid-solid chromatography. Prerequisite: CHEM 221. Alternate years.
Credits: 3.00

CHEM 225 - Electroanalytical Chemistry

Principles of modern electrochemical analysis focusing mainly on finite current methods - voltammetry, polarography, chronoamperometry, cyclic voltammetry, etc. Introductory to modern operational amplifier instrumentation. Double layer theory and electron transfer kinetics. Prerequisite: 161. Alternate years.

Credits: 3.00

CHEM 226 - Analytical Spectroscopy

Principles of optical spectroscopic methods of analysis. Emphasis on theory and practice of atomic spectroscopy and new molecular spectroscopic methods.

Prerequisite: CHEM 221. Alternate years.

Credits: 3.00

CHEM 227 - Spec Topics in Analytical Chem

Selected topics of current interest in analytical chemistry. New techniques and methodologies, especially in chemical instrumentation. Credit as arranged.

Credits: 1.00

CHEM 228 - Spec Topics in Analytical Chem

Selected topics of current interest in analytical chemistry. New techniques and methodologies, especially in chemical instrumentation. Credit as arranged.

Credits: 3.00

CHEM 231 - Adv Inorganic Chemistry

Advanced group theory; electronic transitions in metal complexes and spectroscopic analysis; inorganic substitution and electron transfer mechanisms; homogeneous and heterogeneous catalytic processes; bioinorganic chemistry.

Prerequisite: 131.

Credits: 3.00

CHEM 234 - Organometallic Chemistry

Systematic survey of synthesis, properties, structures, bonding, and reactions of both main group and transition series organometallic compounds. Variation of structure and metal-carbon bond stability throughout periodic system. Prerequisite: 231. Alternate years.

Credits: 3.00

CHEM 236 - Physical Inorganic Chemistry

Fundamental physical basis for spectroscopic techniques and other observable phenomena important to field of inorganic chemistry. Topics include ligand field theory, magnetism, magnetic resonance, Mossbauer spectroscopy, and optical activity. Prerequisites: 161, 231. Alternate years.

Credits: 3.00

CHEM 237 - SpecTopic: Inorganic Chemistry

Areas of current interest involving inorganic systems such as bioinorganic, solid state and polymers with unusual properties. Credit as arranged.

Credits: 3.00

CHEM 238 - SpecTopic: Inorganic Chemistry

Areas of current interest involving inorganic systems such as bioinorganic, solid

state and polymers with unusual properties. Credit as arranged.

Credits: 3.00

CHEM 241 - Advanced Organic Chemistry

Stereochemistry, reactivity criteria, reaction mechanisms, and synthetic methods stressed. Reactive intermediates such as carbanions, carbocations, carbenes, and free radicals used to systematize mechanistic discussions. Prerequisites: 142, 162.

Credits: 3.00

CHEM 242 - Advanced Organic Chemistry

Detailed mechanistic descriptions of processes which may include enolate reactions and stereochemical considerations, addition processes such as halogenation, cycloadditions, hydroboration, hydride and metal-ammonia reductions, annulations such as biomimetic cyclizations, oxidation processes, rearrangements, eliminations, and examinations of approaches to multistep syntheses. Prerequisite: CHEM 241.

Credits: 3.00

CHEM 251 - Physical Organic Chemistry

Structure-reactivity relationships, molecular properties and their interpretation. Methods and results of investigations of mechanisms of common organic reactions. Prerequisites: 142, 162. Alternate years.

Credits: 3.00

CHEM 253 - Practical NMR Spectroscopy

Introduction to high resolution pulsed Fourier transform nuclear magnetic resonance spectroscopy. Chemical shifts, scalar coupling, relaxation, molecular symmetry considerations, chemical exchange effects. Prerequisite: CHEM 142 or CHEM 144, CHEM 161. Undergraduate only.

Credits: 3.00

CHEM 257 - Special Topics in Organic Chem

Advanced level discussion of specific topics in organic chemistry of current interest such as photochemistry, carbenes, bioorganic chemistry, magnetic resonance, etc. Credit as arranged.

Credits: 3.00

CHEM 258 - Special Topics in Organic Chem

Advanced level discussion of specific topics in organic chemistry of current interest such as photochemistry, carbenes, bioorganic chemistry, magnetic resonance, etc. Credit as arranged.

Credits: 3.00

CHEM 262 - Chemical Thermodynamics

Systematic study of application of thermodynamics to chemical problems. Concepts of statistical thermodynamics introduced. Prerequisites: 161, 162. Alternate years.

Credits: 3.00

CHEM 263 - Intro to Quantum Mechanics

General considerations of quantum mechanics. Development of techniques pertinent to application of quantum mechanics to chemical problems. Prerequisite: CHEM 161, CHEM 162. Alternate years.

Credits: 3.00

CHEM 264 - Fundamentals of Spectroscopy

In-depth discussion of the theory of molecular states and transitions between them, with applications to electronic spectroscopy. Explicit treatment of vibrations in molecules. Prerequisites: 161, Math.121. Alternate years.

Credits: 3.00

CHEM 266 - Molecular Orbital Theory

Introduction to Huckel molecular orbital method. Energy levels and orbitals, molecular properties and their interpretation. Effects of substituents on electronic structure. Extensions of Huckel method. Prerequisites: 142, 161. Alternate years. UG only.

Credits: 3.00

CHEM 267 - Special Topics in Phys Chem

Advanced discussion of physical chemistry and chemical physics, group theory, solid state, molecular orbital theory, irreversible thermodynamics, kinetics and mechanisms, solution theory, calculations, spectroscopy. Credit as arranged.

Credits: 3.00

CHEM 268 - Special Topics in Phys Chem

Advanced discussion of physical chemistry and chemical physics, group theory, solid state, molecular orbital theory, irreversible thermodynamics, kinetics and mechanisms, solution theory, calculations, spectroscopy. Credit as arranged.

Credits: 3.00

CHEM 282 - Senior Seminar

Oral and written presentation of a subject of current chemical interest.

Prerequisite: Audit of CHEM 381.

Credits: 1.00

CHEM 285 - Special Topics

Credits: 2.00

CHEM 286 - Special Topics

Credits: 2.00

CHEM 291 - Undergrad Research

Special study in inorganic, analytical, physical, or organic chemistry with an assigned staff member. Findings submitted in written form. Prerequisite: Departmental permission. Credit as arranged with maximum of four hours per semester and 12 hours for the undergraduate program.

Credits: 3.00

CHEM 295 - Advanced Special Topics

See Schedule of Courses for specific titles. UG only.

Credits: 3.00

CHEM 296 - Advanced Special Topics

See Schedule of Courses for specific titles. UG only.

Credits: 3.00

CHEM 342 - Natural Products: Alkaloids

The major classes of alkaloids surveyed from a biogenetic point of view. Classical and modern degradation methods, total syntheses and biosynthetic incorporation of labeled compounds. Prerequisite: Credit or concurrent enrollment in CHEM 242. Alternate years.

Credits: 3.00

CHEM 344 - Natural Products: Terpenes

The chemistry of mono, sesqui, di and triterpenes, including degradations, structure proofs, total syntheses, rearrangement reactions, and biogenesis. Prerequisite: Credit or concurrent enrollment in CHEM 242. Alternate years.

Credits: 3.00

CHEM 381 - Grad Seminar

Current problems and literature.

Credits: 1.00

CHEM 382 - Grad Seminar

Current problems and literature.

Credits: 1.00

CHEM 388 - Rsch Prob Conception&Solution

Independent origination of research problems and the methods of their solution. Required of all doctoral candidates. Prerequisite: Permission of the Department. This course shall be completed at least six months in advance of the Ph.D. dissertation defense, and in no case later than the end of the seventh semester of Graduate studies at UVM.

Credits: 1.00

CHEM 391 - Master's Thesis Research

Credits: 1.00 to 18.00

CHEM 395 - Independent Lit Rsch Project

Reading and literature research culminating in the preparation of a comprehensive and critical review of a topic of current interest in chemistry.

Credits: 6.00

CHEM 491 - Doctoral Dissertation Research

Credits: 1.00

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Courses in Chinese (CHIN)

CHIN 001 - Elementary

A study of Mandarin Chinese designed to give the beginning student the fundamental grammar and vocabulary for speaking, reading, and writing the modern national language.

Credits: 4.00

CHIN 002 - Elementary

A study of Mandarin Chinese designed to give the beginning student the fundamental grammar and vocabulary for speaking, reading, and writing the modern national language.

Credits: 4.00

CHIN 051 - Intermediate

A continuation of 1, 2 designed to enable the student to converse in everyday Chinese, and to read and write simple texts. Prerequisite: 2 or equivalent.

Credits: 4.00

CHIN 052 - Intermediate

A continuation of 1, 2 designed to enable the student to converse in everyday Chinese, and to read and write simple texts. Prerequisite: 2 or equivalent.

Credits: 4.00

CHIN 095 - Special Topics

Introductory courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

CHIN 096 - Special Topics

Introductory courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

CHIN 101 - Advanced Chinese

Structured readings with emphasis on sentence structures, vocabulary expansion, and increased fluency in self-expression. Prerequisite: 52 or equivalent.

Credits: 3.00

CHIN 102 - Advanced Chinese

Structured readings with emphasis on sentence structures, vocabulary expansion, and increased fluency in self-expression. Prerequisite: 52 or equivalent.

Credits: 3.00

CHIN 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

CHIN 196 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

CHIN 197 - Readings & Research

Individual research project or directed reading in area of special interest to student.

Prerequisite: Instructor permission. Variable credit.

Credits: 3.00

CHIN 198 - Readings & Research

Individual research project or directed reading in area of special interest to student.

Prerequisite: Instructor permission. Variable credit.

Credits: 3.00

CHIN 201 - Adv Conversation & Composition

To improve oral and written proficiency through reading news- papers and short stories, discussion, and composition. Prerequisites: 102 or equivalent for 201; 201 for 202.

Credits: 3.00

CHIN 202 - Adv Conversation & Composition

To improve oral and written proficiency through reading news- papers and short stories, discussion, and composition. Prerequisites: 102 or equivalent for 201; 201 for 202.

Credits: 3.00

CHIN 295 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: CHIN 202 or equivalent.

Credits: 3.00

CHIN 296 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisites: CHIN 202 or equivalent.

Credits: 3.00

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Courses in Civil & Environmental Engr (CE)

CE 001 - Statics

Fundamentals of statics; composition and resolution of forces; the analysis of force systems in two and three dimensions; and centroids and moments of inertia.

Prerequisite: Math. 22.

Credits: 3.00

CE 002 - CE Graphic Design

Computer-aided and hand generation of: geometric shapes, dimensioning, pipe drafting, foundations and structures, survey plots, graphs and charts, topography, and highway geometry.

Credits: 3.00

CE 010 - Surveying

Plane surveying methods including distance and angle measurements, leveling, traverse surveys and adjustments, propagation of errors in surveying measurements, and topographical mapping. Prerequisites: Math. 21, Computer Science 16 or 21.

Credits: 4.00

CE 011 - Computer-Based Tools for CE

An introduction to the basics and applications of advanced computer-based tools, including MATLAB, remote sensing, geographic information systems (GIS), and global positioning system (GPS). Prerequisites: Math 22, CS 21.

Credits: 4.00

CE 012 - Surveying Laboratory

Laboratory exercises in surveying applications: distance, angle, elevation, traverse, and topography. Prerequisites: Taken concurrently with, or following, 10.

Credits: 1.00

CE 015 - Pollution & Solutions

Introduction to environmental issues and potential solutions. Emphasis on problem solving: description, decomposition, research, analysis, and performance evaluation.

Credits: 3.00

CE 100 - Mechanics of Materials

Stress, strain, temperature relationships, torsion, bending stresses, and deflections. Columns, joints, thin-walled cylinders. Combined stresses and Mohr's circle. Prerequisites: CE 001, MATH 121, ME 012 or concurrent enrollment. Cross-listed with: ME 014.

Credits: 3.00

CE 101 - Materials Testing

Experimental stress analysis methods; fundamental properties of metals, plastics, and wood; effects of size, shape, method, speed of loading, and strain history on these properties. Prerequisite: 100.

Credits: 3.00

CE 125 - Eng Econ & Decision Analyses

Comparing engineering alternatives; economic evaluations including costs, returns, taxes, and depreciation; project optimization with linear/non-linear models; scheduling; risk and reliability analyses by simulation. Prerequisites: Math. 20 or 22, junior standing.

Credits: 3.00

CE 140 - Transportation

Analysis of transportation systems; technological characteristics; the transportation planning process and techniques of travel modeling and forecasting for both urban and rural areas. Prerequisite: CE 010; Junior standing in CE, or Instructor permission.

Credits: 3.00

CE 142 - Structural Roadway Design

Properties of construction materials; design of mixes; analyses of pavement performance; structural design of pavements; highway earthwork, drainage, and construction techniques. Prerequisites: 141, 180.

Credits: 3.00

CE 150 - Environmental Engineering

Basic phenomena and theoretical principles underlying water supply, air and water pollution control, and industrial hygiene. Prerequisite: CHEM 031 or CHEM 025, MATH 022.

Credits: 3.00

CE 151 - Water & Wastewater Engineering

Functional design of water supply systems and wastewater management facilities; population projections, estimation of water and waste quantities, sewers, distribution systems, treatment facilities; governmental regulations. Prerequisites: 150, 160.

Credits: 3.00

CE 154 - Environmental Anyl Practice

Analytical procedures used in measuring environmental parameters (includes BOD, COD, Alkalinity, Coliform). Fundamental methods applied to actual waste samples and subsequent data analysis. Prerequisites: 150; Chemistry 31, 32.

Credits: 2.00

CE 160 - Hydraulics

Mechanics of incompressible fluids; flow meters; flow in closed conduits and open channels; elements of hydraulic machinery; laboratory studies of flow and hydraulic machinery. Prerequisite: Mechanical Engineering 12.

Credits: 4.00

CE 161 - Water Resource Engineer Design

Formulation of water resource projects; development of design methods for: surface water, risk, storage, and control structures, open channels, and drainage systems; design project. Prerequisite: CE 160.

Credits: 3.00

CE 170 - Structural Analysis I

Analysis of statically determinate beams, frames, and trusses; expected loads, reactions; influence lines; moving loads; geometric methods for displacement calculations; introduction to matrix analysis for trusses. Prerequisites: 100, Computer Science 16.

Credits: 4.00

CE 171 - Structural Analysis II

Statically indeterminate structural analysis by consistent deformation and stiffness methods; determinations of deflections by energy methods; matrix analysis for frame structures and computer-aided analysis. Prerequisite: CE 170.

Credits: 3.00

CE 172 - Structural Steel Design

Theory and design of steel structures including flexural members, axially loaded members and combined stress members; design of composite members; and plastic analysis and design. Recommended Corequisite: 171.

Credits: 3.00

CE 173 - Reinforced Concrete

Analysis of stresses in plain and reinforced concrete members; design of reinforced concrete structures; and theory of prestressed concrete. Prerequisite: 171.

Credits: 3.00

CE 175 - Senior Design Project

Comprehensive design projects will integrate the multiple areas of specialization in civil engineering. Student teams will prepare and present designs to professional review panels. Prerequisite: Senior standing in CE.

Credits: 3.00

CE 176 - Senior Design Seminar

Guest lecturers from private practice discussing professional issues; integration of multidiscipline teams from student design projects; and oral and written presentations. Co-requisite: One design elective; Senior standing.

Credits: 1.00

CE 180 - Geotechnical Principles

Identification, description, and physical properties of soils; characteristics of

natural deposits; stress distribution, permeability, consolidation, shear strength, and stability of soils; laboratory testing of particulate systems. Prerequisite: 100.
Credits: 4.00

CE 181 - Geotechnical Design

Evaluation of subsoil conditions and earth pressures; design of retaining walls, substructures for buildings and bridges, and cofferdams. Prerequisite: CE 180.
Credits: 4.00

CE 191 - Special Projects

Investigation of special topic under guidance of faculty member. Library investigations, unique design problems, laboratory and field studies. Prerequisite: Senior standing; Department permission.
Credits: 3.00

CE 192 - Special Projects

Investigation of special topic under guidance of faculty member. Library investigations, unique design problems, laboratory and field studies. Prerequisite: Senior standing; Department permission.
Credits: 3.00

CE 193 - College Honors

Credits: 6.00

CE 194 - College Honors

Credits: 3.00

CE 195 - Special Topics

Prerequisite: Senior standing in Civil or Mechanical Engineering.
Credits: 4.00

CE 220 - Intro to Finite Element Anyl

Introduction to finite element analysis: applications in solid mechanics, hydrodynamics, and transport: analysis of model behavior: Fourier analysis. Computer project required. Prerequisites: computer programming, linear algebra, and PD, or permission of instructor.
Credits: 3.00

CE 226 - Civil Engineering Systems Anyl

Linear programming, dynamic programming, network analysis, simulation; applications to scheduling, resource allocation, routing, and a variety of civil engineering problems. Prerequisite: Senior or graduate standing in CEE or instructor permission.
Credits: 3.00

CE 241 - Traffic Operations & Design

Advanced concepts of traffic engineering and capacity analysis; highway and intersection capacity; traffic analysis and simulation software; design and application of controls. Prerequisite: CE 140.
Credits: 3.00

CE 248 - Hazardous Waste Mgmt Engr

Management of hazardous and industrial waste from generation to disposal;

emphasis on pollution prevention within industry; waste minimization, recovery, reuse, treatment technologies; environmental regulations, risk assessment, costs and public policy; group projects. Prerequisite: Senior standing in Engineering or sciences.

Credits: 3.00

CE 251 - Envr Facility Dsgn/Wastewater

Design of wastewater conveyance and treatment facilities; sewage treatment plant design; equipment selection. Prerequisite: CE 151.

Credits: 3.00

CE 252 - Industrial Hygiene

Industrial hygiene problems; effects of pollutants on health; threshold limit values; emphasis on the engineering evaluation of hazard and control techniques.

Prerequisites: Chemistry 25, Physics 25.

Credits: 3.00

CE 253 - Air Pollution

Sources of air pollution, methods of measurement, standards, transport theory and control techniques used. Emphasis on source measurement and contaminant control design. Prerequisites: Chemistry 25, Math. 21.

Credits: 3.00

CE 254 - Environmental Quantitative Anyl

Chemistry and microbiology of water quality management; diffusion, equilibria, reaction kinetics, acids and bases, colloids, enzymes, bacterial physiology, pollution indicator organisms; laboratories demonstrate standard techniques.

Prerequisites: Chemistry 31 or 25, Math. 22.

Credits: 4.00

CE 255 - Phys/Chem Proc Water/Wstwater

Theory of physical/chemical processes for treating waters and wastewaters; reactor dynamics, mass transfer, adsorption, ion exchange, precipitation/

Credits: 3.00

CE 256 - Biol Proc Water/Wastewater Tr

Theory and application of biological processes for treating industrial and domestic wastewaters and contaminated ground water; microbiological considerations; aerobic and anaerobic processes; reactor design, in-situ bioremediation; bench-scale and pilot-scale experimentation. Prerequisites: 151 and 154 or equivalent or permission of instructor.

Credits: 3.00

CE 260 - Hydrology

Theory of precipitation, run-off, infiltration, and ground water; precipitation and run-off data; and application of data for use in development of water resources.

Prerequisites: 160, Statistics 141.

Credits: 3.00

CE 261 - Open Channel Flow

Application of the laws of fluid mechanics to flow in open channels; design of

channels and transition structures including riprap and culverts; gradually-varied flow problems. Prerequisite: 160.

Credits: 3.00

CE 265 - Ground Water Hydrology

Principles of ground water hydraulics, well characteristics, aquifers, and use of numerical methods to solve ground water flow problems. Prerequisites: Calculus III and programming experience or instructor's permission; graduate standing or senior Civil Engineering standing.

Credits: 3.00

CE 272 - Structural Dynamics

Vibrations, matrices, earthquake engineering, stability and wave propagation.

Prerequisites: Senior or graduate standing in Engineering or physical sciences, or instructor permission. (Same as ME 272).

Credits: 3.00

CE 280 - Applied Soil Mechanics

Use of soil mechanics in evaluation of building foundations, braced excavations, earth structures; lateral earth pressures, pile foundations, caisson foundations, slope stability, and construction problems. Prerequisite: CE 180.

Credits: 3.00

CE 282 - Engr Properties of Soils

Study of soil properties influencing engineering behavior of soils: soil mineralogy, physiochemical concepts, plasticity properties, permeability, and compaction: laboratory study of soil index properties, permeability, compaction tests.

Prerequisite: CE 180 or equivalent.

Credits: 3.00

CE 283 - Designing with Geosynthetics

Geotextiles, geogrids, geonets, geomembranes, geocomposites, geopipes.

Design for separation, reinforcement, filtration, drainage, erosion, control, liners. Applications in transportation, drainage, solid waste containment. Material testing, behavior. Prerequisite: CE 180.

Credits: 3.00

CE 290 - Engineering Investigation

Independent investigation of a special topic under the guidance of a staff member. Preparation of an engineering report is required.

Credits: 3.00

CE 295 - Special Topics

Content is dictated by expanding professional interest in newly developing, or recently developed, technical areas in which there is particular need or opportunity. Prerequisite: Minimum Senior standing.

Credits: 6.00

CE 304 - Adv Engineering Analysis I

See Mechanical Engineering 304, 305. Prerequisites: Math 271 or Math 230; CE 304 for CE 305. Cross-listings: ME 304, 305; Math 275, 276.

Credits: 3.00

CE 305 - Adv Engineering Analysis II

See Mechanical Engineering 304, 305. Prerequisites: Math 271 or Math 230; CE 304 for CE 305. Cross-listings: ME 304, 305; Math 275, 276.

Credits: 3.00

CE 321 - Engr Computations on Adv Arch

Engineering computations using multiprocessing computers, concurrent processing, algorithms for numerical approximation of differential equations, linear systems. Programming projects required.

Credits: 3.00

CE 365 - Contaminant Hydrogeol&Remediat

Practical, theoretical aspects of contaminant hydrogeology, advances in technologies, mass transport and transformation in saturated and vadose zones; movement, distribution, and remediation of nonaqueous-phase liquids.

Prerequisite: CE 265 or with Instructor permission.

Credits: 3.00

CE 366 - Numerical Method/Surface Water

Development of the governing equations for geophysical hydrodynamics/transport, shallow water equations, analysis and implementation of finite element/finite difference computational algorithms. Prerequisite: CE 220.

Credits: 3.00

CE 390 - Adv Topics in Civil & Envr Eng

Special topics to intensify the programs of graduate students in civil and environmental engineering. Hours and credits to be arranged.

Credits: 4.00

CE 391 - Master Thesis Rsch

Credits: 1.00 to 12.00

CE 395 - Advanced Special Topics

Advanced topics in recently developed technical areas. Hours and credits as arranged.

Credits: 3.00

CE 491 - Doctoral Dissertation Research

Credits: 1.00 to 18.00

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Courses in Classics (CLAS)

CLAS 015 - From Letters to Literature

Topics in script, literacy, books, libraries, cultural expression, preservation, and access from ancient Mesopotamia to the age of printing and the era of electronic information.

Credits: 3.00

CLAS 021 - Classical Greek Civilization

A study of the "Golden Age of Pericles," the course covers the whole of Athenian society from art to war, culminating in the trial of Socrates. Cross-listed with: HST 021.

Credits: 3.00

CLAS 022 - Etymology

Derivation of English words from Greek and Latin bases. Training in analysis of unfamiliar words, special attention to scientific vocabulary.

Credits: 3.00

CLAS 023 - Classical Roman Civilization

Growth of the Roman Empire; political and social disruption in the Roman world from the second century B.C.E., through the first century C.E. Cross-listed with: HST 022.

Credits: 3.00

CLAS 024 - Myths/Legends Trojan War

Homeric epics, Virgil's Aeneid, selections from tragedy dealing with the Trojan War and Greco-Roman cultural identity. Examples from art and archaeology supplement the literary theme. Cross-listed with: WLIT 024.

Credits: 3.00

CLAS 035 - The End of the Roman Republic

Participants describe the Republic's end: Caesar justifies conquest and civil war; Catullus and Sallust reveal a society in turmoil; Cicero documents first-century politics: political gangs, bribery, and violence. Cross-listed with: WLIT 035.

Credits: 3.00

CLAS 037 - Early Roman Empire: Lit Trans

Poetry and prose in the first century C.E. (the age of Augustus, Nero, Trajan), emphasizing varieties and limitations of political and literary freedom. Cross-listed with: WLIT 037.

Credits: 3.00

CLAS 042 - Mythology

Greek myth in literature, art, and music from antiquity to modern times. No prerequisites. Spring semester. Cross-listed with: WLIT 042.

Credits: 3.00

CLAS 095 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

CLAS 096 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

CLAS 121 - History of Greece

Political and social developments of ancient Greece: birth of democracy, conflict of autonomy and hegemony, federal states, invention of "otherness," spatial and cultural restraints on citizenship. Prerequisite: HST 009, or CLAS 021/ HST 021, or appropriate work in Classics. Cross-listed with: HST 121.

Credits: 3.00

CLAS 122 - History of Rome

Expansion of Rome in Italy and conquest of the Mediterranean world: cultural conflict, development of a unifying national identity, and the foundation of European states. Prerequisite: HST 009, CLAS 023/HST 022, or appropriate work in Classics. Cross-listed with: HST 122.

Credits: 3.00

CLAS 145 - Comparative Epic

Interdisciplinary introduction to epic poetry and performance, from Gilgamesh and the Homeric poems to the Kalevala traditions of Finland to the griot poetry and music of West Africa. Prerequisite: Sophomore standing. Cross-listed with: WLIT 145.

Credits: 3.00

CLAS 149 - History of Ancient Near East

Survey of primary civilizations of Egypt and Mesopotamia and the secondary cultures of Anatolia, Syria-Palestine, Assyria, and Persia. Prerequisites: HST 009 or CLAS 021 (HST 021) or appropriate work in Classics. Cross-listed with: HST 149.

Credits: 3.00

CLAS 153 - Greek Drama

Plays of Aeschylus, Sophocles, Euripides, and Aristophanes in their historical and cultural setting. Prerequisite: Sophomore standing. Cross-listed with: WLIT 153.

Credits: 3.00

CLAS 154 - Stories and Histories

Creation and development of genres which the Greeks and Romans used to represent true narratives about people or events, especially the development of historical writing. Prerequisite: Sophomore standing.

Credits: 3.00

CLAS 155 - Ancient Epic

Homer, Apollonius, and Vergil, as well as readings selected from other Greek and Latin epic (including epyllia) and didactic poetry. Prerequisite: Sophomore standing. Cross-listed with: WLIT 155.

Credits: 3.00

CLAS 156 - Satiric Spirit

Comedy, satire, epigram, and prose fantasy as vehicles for political, social, and literary criticism in the Greco-Roman world. Prerequisite: Sophomore standing.

Cross-listed with: WLIT 156.

Credits: 3.00

CLAS 157 - Greek Feminism

The construction of the status of women in ancient Greek society. Readings include lyric, tragic, and comic poetry, philosophy, oratory, novel, and nonliterary documents. Prerequisite: Sophomore standing; three hours in literature, History, Anthropology, or Sociology. Cross-listed with: HST 157, WLIT 157, WST 157.

Credits: 3.00

CLAS 158 - Greco-Roman Political Thought

History of Greco-Roman political thought and political reality, as revealed by lawgivers, philosophers, politicians, and historians. Prerequisite: Sophomore standing.

Credits: 3.00

CLAS 161 - Plato

A survey of Plato's works, including the "early," "middle," and parts of the "late" dialogues. Emphasis will be laid on reading the dialogues themselves.

Prerequisite: One course in Philosophy, or one course in Classics (Greek Culture or Greek). Cross-listed with: PHIL 108.

Credits: 3.00

CLAS 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

CLAS 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

CLAS 197 - Readings & Research

Credits: 3.00

CLAS 198 - Readings & Research

Credits: 4.00

CLAS 221 - Seminar in Ancient History

Selected aspects of Near Eastern, Greek, or Roman History (e.g. trade and

colonization, imperialism, social and political institutions, cultural and intellectual developments). Prerequisite: Minimum Junior standing; Twelve hours of History.
Credits: 3.00

CLAS 222 - Seminar in Ancient History

Selected aspects of Near Eastern, Greek, or Roman History (e.g. trade and colonization, imperialism, social and political institutions, cultural and intellectual developments). Prerequisites: Junior, senior, or graduate standing, 12 hours of history. UG only.
Credits: 3.00

CLAS 295 - Special Topics

See Schedule of Courses for specific titles.
Credits: 3.00

CLAS 296 - Advanced Special Topics

See Schedule of Courses for specific titles.
Credits: 3.00

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Courses in Cmty Dev & Apld Econ (CDAE)

CDAE 001 - Drafting and Design Drawing

Basic drafting methods and procedures of architectural, three-view, oblique, isometric, and perspective drawings. Creating freehand pictorial presentation drawings.

Credits: 3.00

CDAE 002 - World Food,Population&Develop

Agricultural development emphasizing natural and economic phenomena and the effect of food supplies on population trends and policies.

Credits: 3.00

CDAE 006 - Energy Alternatives

Concepts of energy, work, and power. Energy conversion, utilization, and conservation. Alternatives to fossil fuels including solar, wind, biomass, etc.

Energy systems for rural areas.

Credits: 3.00

CDAE 015 - Design Strategies

Introduction and analysis of aesthetics and function of design in the context of communications and marketing, the built environment, and community development.

Credits: 3.00

CDAE 016 - Sketching and Illustration

Techniques of sketching, color rendering, and scale drawing in relation to nature forms, the human figure, and interior space. Preparation of portfolio. Prerequisite: 15. Spring.

Credits: 3.00

CDAE 030 - Des Studio Skills:Woodworking

Common methods, processes, materials, and equipment employed in transforming wood into useful products.

Credits: 3.00

CDAE 035 - Des Stdy Skills:Weldng/Metl Fab

Skills, tools, and processes to cut, shape, and join metallic materials intended for

artisans, designers, and craftpersons. Emphasis on welding, machining, and metal fabrication.

Credits: 3.00

CDAE 061 - Prin A&R&Community Developmt Ec

Introduction to principles of microeconomics and their application to food and agricultural markets, resource management, and community development.

Credits: 3.00

CDAE 091 - Introductory Special Topics

Credits: 3.00

CDAE 101 - Computer Aided Drafting&Design

Using a computer to create, manipulate, and record drafting and design concepts, symbols, and conventions to prepare technical and/or presentation drawings.

Prerequisite: CDAE 001 or Instructor permission.

Credits: 3.00

CDAE 102 - Sustainable Community Dev

Introduction to perspectives and methods used to develop healthy communities that are economically, socially, and environmentally sustainable with rural and urban, U.S. and international examples. Prerequisites: CDAE 61 or equivalent, and by permission.

Credits: 3.00

CDAE 110 - Entrepreneurial Indust Prodctn

Principles, concepts, methods employed in organizing capital, labor, tools, machines for producing products. Students function as labor source and mass produce and market a product. Prerequisite: CDAE 030 or CDAE 035, or CDAE 166, or Instructor permission.

Credits: 3.00

CDAE 117 - History of Costume

(See Theatre 41.) Prerequisite: Art 6 or Theatre 1. Fall

Credits: 3.00

CDAE 127 - Consumer,Markets&Public Policy

Analysis of consumer choices through the examination of consumer behavior theories, current marketplace issues and public policy. Prerequisites: Sophomore standing.

Credits: 3.00

CDAE 128 - The Consumer & Advertising

Examination of advertising strategy and how it impacts consumers and the economy. Extensive application of critical analysis to actual advertising campaigns from development through evaluation. Prerequisite: Junior standing. Fall.

Credits: 3.00

CDAE 131 - Light Frame Buildings

Site planning, building planning, material selection. Functional and structural considerations including heating, ventilating, and insulation. Consideration of environmental relationships. Prerequisite: CDAE 006 or MATH 009 or MATH 010.

Credits: 3.00

CDAE 156 - Law, Ethics & Responsibility

The roles of law and ethics in guiding the actions of individuals and organizations, and the impact of those actions on others, including consumers, employees, communities, and developing countries. Prerequisite: Sophomore standing. Spring.

Credits: 3.00

CDAE 157 - Consumer Law and Policy

Law as an expression of public policy to protect consumers in the marketplace. Emphasis on laws prohibiting deceptive advertising and marketing practices. Prerequisites: Sophomore standing.

Credits: 3.00

CDAE 158 - Personal and Family Finance

An examination of personal and family financial management concepts and topics within various income levels and stages in the life cycle. Prerequisite: EC 011 or equivalent. Fall.

Credits: 3.00

CDAE 159 - Consumer Assistance Program

Jointly sponsored by UVM and Vermont Attorney General. Under supervision of an attorney, students respond to phone and mail requests for consumer information and handle consumer complaints. Prerequisite: Sophomore standing. Three to six hours.

Credits: 3.00

CDAE 166 - Intro A&R Entrepreneurship

Introduction to the theory and practice of organizing and operating an agricultural or resource-based business. Emphasis on business development, operation, Prerequisite: Sophomore standing. financing, marketing, and social responsibility.

Credits: 3.00

CDAE 167 - Fin Mgmt: A&R Entrepreneurship

Financial management concepts for agricultural and resource-based businesses, with emphasis on interactions between business and personal financial decisions faced by entrepreneurs. Prerequisites: BSAD 65, CDAE 166 or permission.

Credits: 4.00

CDAE 168 - Marketing:A&R Entrepreneurship

Marketing concepts and methods and their applications in agricultural and resource businesses. Focus on development of marketing plan and its use in guiding business operations. Prerequisites: CDAE 61, 166.

Credits: 3.00

CDAE 169 - Small Business Computer Appl

Using the microcomputer to accomplish tasks specific to small businesses. One credit modules may include spreadsheets, databases, presentations, mapping markets, WWW, project management and local area networks. Prerequisites: 85 or equivalent. One to six hours.

Credits: 3.00

CDAE 170 - Solar Strategies Bldg Constrct

Passive, active, and hybrid heating; photovoltaic electric systems. Physical principles, site evaluation, component and system analysis, materials selection, and design of low-cost systems. Prerequisite: Math 10 or permission.

Credits: 3.00

CDAE 171 - Community&Int'l Econ Transform

Models of economic development, including constraints to economic transformation and policy approaches and strategies for promoting social welfare and sustainable development. Prerequisites: 2,61 or equivalent.

Credits: 3.00

CDAE 175 - Farm Credit Fellowship Prac/Sem

Acquaints students who have a strong interest in farm management and farm finance with financial intermediaries serving agriculture. Prerequisite: CDAE 167.

Credits: 3.00

CDAE 180 - Real Estate Appraisal

Basic concepts and methods of measuring real estate values. Prerequisite: CDAE 061 or equivalent, or Instructor permission.

Credits: 3.00

CDAE 191 - Special Problems

Independent projects under direction of a faculty member. Includes undergraduate teaching assistance. 291 number for juniors and seniors only. Prerequisites: Permission. One to six hours (maximum).

Credits: 3.00

CDAE 195 - Special Topics

Lectures or readings on contemporary issues in Community Development and Applied Economics. Enrollment may be more than once, up to twelve hours.

Credits: 9.00

CDAE 196 - Field Experience/Practicum

Professionally-oriented field experience under joint supervision by faculty and business or community representative. Total credit toward graduation in 196 and 296 cannot exceed 15 hours. Prerequisites: Permission. One to 15 hours.

Credits: 6.00

CDAE 205 - Rural Comm in Modern Society

The changing structure and dynamics of rural social organization in context of modernization and urbanization. Emphasis on rural communities in the U.S. Prerequisite: Six hours of Sociology. Cross-listed with: SOC 205.

Credits: 3.00

CDAE 208 - Agricultural Policy and Ethics

An examination of American agriculture and policies from various perspectives - historical, political, ecological, technological, social, economic, and ethical. Emphasis on contemporary issues, policy options, and future development. Prerequisites: 61 or equivalent, permission. Fall.

Credits: 3.00

CDAE 210 - Small Bus Mktg & Entrepreneur

Students learn through participation in a series of guest lectures and field trips, the challenges, opportunities, and strategies faced and employed by small business entrepreneurs in the area of marketing. Prerequisite: 168 or 207. Spring. (Not offered for graduate credit.)

Credits: 3.00

CDAE 218 - Community Ldrshp,Org&Inst Dev

Role of civic engagement, leadership, and social and political institutions in a community development context. Special attention given to problems of formulation and implementation of alternative change strategies. Prerequisites: Jr standing, CDAE 102, or permission.

Credits: 3.00

CDAE 231 - Applied Computer Graphics

Directed research, planning, design, technical experimentation, production and evaluation for computer-generated design application. Prerequisite: 15 or permission.(Not offered for graduate credit.)

Credits: 3.00

CDAE 237 - Economics of Sustainability

Economic analysis that integrates natural resource and community planning for sustainable development at local, national and international levels. or permission. and green business. Prerequisites: 61 or equivalent, Examples include land use, sustainable agriculture

Credits: 3.00

CDAE 250 - Applied Research Methods

Methods used in the collection and analysis of qualitative and quantitative data. Critical review of literature, and data collection, analysis, and interpretation for descriptive, inferential, and evaluation research. Prerequisites: Statistics 141 or permission. UG only.

Credits: 4.00

CDAE 251 - Contemp Policy Iss:Comm Devel

In-depth study of contemporary community development policy issues such as affordable housing, land use and sprawl, alternative energy, environmental sustainability, effective community planning, social and environmentally UG only. responsible business. Prerequisites: CDAE 102 or permission.

Credits: 3.00

CDAE 253 - Macroeconomics for Appl Econ

Explore macroeconomic principles and concepts as they affect individuals and businesses in local, regional, national, and global economics. Prerequisites: Economics 11, and CDAE 61 or equivalent.

Credits: 3.00

CDAE 254 - Microeconomics for Appl Econ

The study of economic choices of individuals and firms, and the analysis of

competitive and noncompetitive markets. Emphasis on application of intermediate microeconomic theory Prerequisites: 61 or equivalent. Math 19, or permission.

Credits: 3.00

CDAE 255 - Applied Consumption Economics

Analysis and application of micro-economic principles as they relate to consumers, including consumption and saving, investments in human capital, market work, household production, and leisure choices. Prerequisites: ECON 172. UG only.

Credits: 3.00

CDAE 258 - Consumer Policy: Iss & Analysis

Examination and analysis of contemporary issues underlying a variety of consumer policies such as health care, income inequality, and consumer protection. Prerequisites: 254 or permission, Political Science 21 or similar course. Spring. (Not offered for graduate credit.)

Credits: 3.00

CDAE 264 - Risk Anal & Forecast Procedures

Analytical concepts and skills and their applications in risk analysis related to agricultural and resource markets focusing on decision making processes.

Prerequisite: STAT 141, CDAE 061, MATH 019, or Instructor permission.

Credits: 3.00

CDAE 266 - Dec Making: A&R Entrepreneurshp

Quantitative decision-making methods and applications in agricultural and resource businesses. Major topics include linear programming, risk and uncertainty, inventory decisions, and e-commerce. Prerequisites: CDAE 166, Math 19, and AGRI 85 or CS 2.

Credits: 3.00

CDAE 267 - Strat Plan: A&R Entrepreneurshp

Applications of marketing, finance, and management strategies. Drafting a simulated business plan for rural entrepreneurs and economic development.

Prerequisites: ARE majors or minors, or with instructor's permission; senior standing.

Credits: 4.00

CDAE 272 - Int'l Economic Development

International trade, finance, investment and development theories and policies for community development. Prerequisites: Jr standing, CDAE 102 or instructor's permission. with 273.

Credits: 3.00

CDAE 273 - Project Development & Planning

National, community and private sector project development. Focus on planning methods and policy instruments, sectoral linkages, and contributions to the economy as a whole. Prerequisite: 171 or instructor's permission.

Credits: 3.00

CDAE 291 - Special Problems

Independent projects under the direction of a faculty member. Includes

undergraduate teaching assistance. Prerequisite: Departmental permission.
Students may enroll more than once for a maximum of 12 hours. One to six hours.
Credits: 6.00

CDAE 292 - Seminar

Reports, discussions, and investigations in selected fields. May enroll more than once up to six hours. One to three hours.
Credits: 3.00

CDAE 295 - Special Topics

Lectures or readings on contemporary issues in Community Development and Applied Economics. Enrollment may be more than once, up to twelve hours.
Credits: 9.00

CDAE 296 - Field Experience/Practicum

Professionally-oriented field experience under joint supervision by faculty and business or community representative. Total credit toward graduation in 196 and 296 cannot exceed 15 credits. UG only.
Credits: 3.00

CDAE 297 - Undergraduate Research

Work on a research problem under direction of a staff member. Findings submitted in written form as prescribed by the department. Prerequisite: Senior standing.
Credits: 3.00

CDAE 298 - Undergraduate Research

Work on a research problem under direction of a staff member. Findings submitted in written form as prescribed by the department. Prerequisite: Senior standing.
Credits: 3.00

CDAE 351 - Research Methods

Developing research projects with the scientific methods; evaluating alternative literature review, sampling, surveying, and analytic methods; and reporting the results. Prerequisite: Three hours of Statistics.
Credits: 3.00

CDAE 354 - Advanced Microeconomics

Principles and applications of advanced microeconomics: consumer and market demand, firm and market supply, perfect and imperfect markets, partial and general equilibrium, and policy analysis. Prerequisite: CDAE 254 or equivalent.
Credits: 3.00

CDAE 377 - Practicum in Extension Educ

Credits: 1.00 to 12.00

CDAE 391 - Master's Thesis Research

Credits: 6.00

CDAE 392 - Graduate Seminars

Report and discuss research projects and findings of graduate students and faculty, and offer workshops on selected topics in community development and applied economics. May enroll more than once for up to three credits.
Prerequisite: Graduate standing.

Credits: 1.00

CDAE 395 - Special Topics

Lectures or readings on contemporary issues in Community Development and Applied Economics at the graduate level. Prerequisite: Graduate standing.

Credits: 3.00

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Courses in Communication Sciences (CMSI)

CMSI 001 - Elem American Sign Language 1

Fundamentals of expression and understanding of American Sign Language, including grammar, facial markers, body classifiers, vocabulary, and fingerspelling. Elements of Deaf Culture are also explored.

Credits: 4.00

CMSI 002 - Elem American Sign Language II

Continuation of fundamentals of expression and understanding of American Sign Language, including grammar, facial markers, body classifiers, vocabulary, and fingerspelling. Elements of Deaf Culture are also explored. Prerequisites: CMSI 1 or equivalent experience.

Credits: 4.00

CMSI 020 - Intro to Disordered Comm

Survey of language, speech, and hearing disorders, emphasizing the importance of understanding such disorders as a part of the fuller understanding of human behavior.

Credits: 3.00

CMSI 051 - Intermediate Sign Language

Continuation of 1, 2 designed to foster further development of proficiency in American Sign Language and appreciation of Deaf Culture. Prerequisites: CMSI 2, or equivalent experience.

Credits: 3.00

CMSI 080 - Introduction to Linguistics

Introduction to biological, cognitive, and cultural bases of human communication through language, and to modern linguistic theory. Assignments provide opportunities for critical thinking and writing.

Credits: 3.00

CMSI 090 - Phonetics

Linguistic, acoustic, and articulatory phonetics applied to the description of speech. Stresses use of the International Phonetic Alphabet with English, foreign languages, and disordered speech.

Credits: 3.00

CMSI 094 - Dev of Spoken Language

Speech and language acquisition interpreted in light of current learning and cognitive theory, linguistic theory, and methods of linguistic analysis.

Credits: 3.00

CMSI 095 - Introductory Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

CMSI 096 - Introductory Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

CMSI 101 - Speech Science

Structure and function of the respiratory, phonatory, and articulation systems of the vocal tract utilized for production of speech. Models of speech production emphasized.

Credits: 4.00

CMSI 125 - Clinical Experience

A supervised exposure to clinical practice in speech-language pathology. Students gain experience as assistants in the University speech-language clinic.

Prerequisite: Six hours in Communication Sciences.

Credits: 3.00

CMSI 126 - Clinical Experience

A supervised exposure to clinical practice in speech-language pathology. Students gain experience as assistants in the University speech-language clinic.

Prerequisite: Six hours in Communication Sciences.

Credits: 3.00

CMSI 160 - Intercultural Communication

Exploration of communication between individuals of different races, socioeconomic status, ethnic groups, genders, and occupations. Emphasis on culturally-based misunderstanding, conflict, and resolution.

Credits: 3.00

CMSI 162 - American English Dialects

Class will examine dialects of American English and the methodology of dialectology with focus on Vermont speech and the social meaning of dialect variation.

Credits: 3.00

CMSI 164 - Structure of English Language

Using descriptive linguistic theory, this course examines basics of English grammar with emphasis on hands-on examples. Also includes exploration of politicization of English grammar. Prerequisites: 3 hours English or CMSI.

Credits: 3.00

CMSI 195 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

CMSI 196 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

CMSI 197 - Readings & Research

Credits: 3.00

CMSI 198 - Readings & Research

Credits: 2.00

CMSI 208 - Cognition & Language

(Same as Psychology 208.) Study of cognition and language in terms of mental representation models; contemporary models of memory, as well as capacity theories of language comprehension and production. Prerequisite: Psychology 109 or 101 or Statistics 101 or 141.

Credits: 3.00

CMSI 262 - Measurement of Comm Processes

Introduction to the scientific method and measurement principles used in group and single-case research on communication and as applied to persons with communication disorders. Prerequisites: CMS80, 101, 105; Statistics 111 or 141. UG only.

Credits: 4.00

CMSI 271 - Introduction to Audiology

Survey of the process of hearing and the nature and causes of hearing impairment. Examination of hearing assessment, including pure-tone, speech and immittance audiometry. Prerequisites: CMSI 101 or instructor permission.

Credits: 3.00

CMSI 272 - Hearing Rehabilitation

Examination of impact of hearing loss on communication and management. Survey of remediation strategies, including speechreading, auditory training, hearing aids, cochlear implants and assistive devices. Prerequisites: CMSI 271 or instructor permission.

Credits: 3.00

CMSI 281 - Cognitive Neuroscience

The structure and organization of the human central nervous system as related to higher cognitive and linguistic behaviors. Pre/corequisites: a college level Human Biology course, such as BIOL 4. Not for graduate credit.

Credits: 3.00

CMSI 283 - Swallowing Disorders

Introduction to normal and disordered swallowing function across the life span including etiologies, signs/symptoms of dysphagia, diagnostic procedures and treatment within an interdisciplinary model. Prerequisites: Nine hours in

Communication Sciences or instructor's permission.

Credits: 3.00

CMSI 284 - Augmentative Communication

An introduction to development and selection of augmentative/alternative communication strategies and systems for persons with severe communication challenges. Prerequisites: Nine hours in Communication Sciences or instructor's permission.

Credits: 3.00

CMSI 285 - Collab Intervntn Schl Settings

Introduction to a transdisciplinary approach to collaborative, curriculum-based assessment and intervention for students with special needs in school settings. Prerequisites: Nine hours in Communication Sciences or instructor's permission.

Credits: 3.00

CMSI 287 - Early Lang&Communicat'n Interv

Research in normal and disordered language, cognition, and social development is applied to interventions for children, birth to age 5, with language and communication problems. Prerequisite:CMSI 94.

Credits: 3.00

CMSI 291 - Clinical Study

Supervised practicum experiences with children and adults presenting disorders of speech, hearing, and language. Prerequisite: Permission

Credits: 3.00

CMSI 292 - Clinical Study

Supervised practicum experiences with children and adults presenting disorders of speech, hearing, and language. Prerequisite:Permission

Credits: 3.00

CMSI 293 - Seminar

Prerequisite: Instructor's permission. Variable credit.

Credits: 3.00

CMSI 294 - Seminar

Prerequisite: Instructor's permission. Variable credit.

Credits: 3.00

CMSI 295 - Advanced Special Topics

Advanced Special Topics Advanced courses of seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. UG only.

Credits: 3.00

CMSI 296 - Advanced Special Topics

UG only.

Credits: 3.00

CMSI 298 - Senior Seminar

Credits: 3.00

CMSI 299 - Autism Spect Dis:Assess&Interv

Assessment and intervention considerations in communication, social interaction and play, selection and use of evaluation tools, and implementation of intervention strategies for children with autism.

Credits: 3.00

CMSI 310 - Clinic Preparation&Management

Principles of behavioral observation, analysis and modification as they apply to the assessment and remediation of communication disorders. Prerequisite:permission

Credits: 3.00

CMSI 311 - Interdis Ldrshp Tr:Rsrch Sem I

Seminar exploring interdisciplinary process and collaborative teaming, cultural competence, and family-centered care as they relate to neurodevelopmental and related disabilities. Prerequisites: Permission of instructor. Variable Prelock.

Cross-listings: ECHD 295, EDSP 295, NFS 295, GRNU 296, PA 395, PSY 380, PT 381, SWSS 380.

Credits: 3.00

CMSI 312 - Intrdis Ldrshp Tr:Rsrch Sem II

Seminar exploring interdisciplinary process and collaborative teaming, cultural competence, and family-centered care as they relate to neurodevelopmental and related disabilities. Prerequisites: Permission of instructor. Variable Prelock.

Cross-listings: ECHD 295, EDSP 295, NFS 295, GRNU 296, PA 395, PSY 380, PT 381, SWSS 380.

Credits: 3.00

CMSI 371 - Audiolog Assess:Spch-Lang Path

Examination of basic hearing parameters designed for SLPs. Orientation to nature and causes of hearing impairment; assessment procedures and rationales; hearing screening and counseling/management issues. Prerequisites: CMSI 101 or instructor permission.

Credits: 3.00

CMSI 372 - Mgmt&Habil/Child w/Hearing Imp

Survey effects of hearing impairment on children's communication, academic and psychosocial development. Orientation to amplification, assistive devices, managing listening environments, auditory training, and educational planning.

Prerequisites: CMSI 271 or 371 or instructor permission.

Credits: 3.00

CMSI 380 - Rsch Methods in Comm Disorders

Empirical research methodology as applied to the study of normal and deficient speech, language, and hearing processes. Students analyze data statistically and write a research proposal.

Credits: 3.00

CMSI 381 - Advanced Readings

Readings, with conferences, intended to contribute to the programs of graduate students in phases of communication science and disorders for which formal courses are not available. Credit as arranged, up to three hours each semester.

Credits: 3.00

CMSI 382 - Advanced Readings

Readings, with conferences, intended to contribute to the programs of graduate students in phases of communication science and disorders for which formal courses are not available. Credit as arranged, up to three hours each semester.

Credits: 3.00

CMSI 383 - Seminar Lang/Lrng Disabilities

Assessment and intervention issues for school-age children and adolescents with language learning disabilities are discussed emphasizing research to practice an oral language and literacy connections. Prerequisite: 387, permission of instructor or Graduate Standing.

Credits: 3.00

CMSI 384 - Articulation-Phonological Dis

Etiology, diagnosis, pathology, and habilitation and rehabilitation of articulation of speech. Prerequisite: Permission.

Credits: 3.00

CMSI 385 - Voice Disorders

Study of normal and abnormal laryngeal anatomy and physiology as they relate to diagnoses and treatment of a wide variety of vocal pathologies. Prerequisite: Permission.

Credits: 3.00

CMSI 386 - Adult Neuropathologies

Etiology, pathology, diagnosis, and principles of rehabilitation of CNS pathologies affecting communication. Emphasis on motor speech disorders and cognitive consequences of traumatic brain injury. Prerequisites:CMSI 281, 389 or equivalent.

Credits: 3.00

CMSI 387 - Language Disorders

Identification, evaluation, and rehabilitation procedures for children with language disabilities. Prerequisite: CMSI 94.

Credits: 3.00

CMSI 388 - Stuttering

Study of adult and child fluency disorders which focuses upon symptomatology, etiology, diagnosis, and rehabilitation of stuttering patients. Prerequisite: Stuttering Boot Camp (CMSI), admission to CMSI Graduate

Credits: 3.00

CMSI 389 - Aphasia in Adults

Study of linguistic and cognitive impairments associated with stroke and other types of neuropathologies in the adult patient. Emphasis on rehabilitation strategies, principles, and procedures. Prerequisite:CMSI 281.

Credits: 3.00

CMSI 391 - Master's Thesis Research

Credits: 1.00 to 6.00

CMSI 392 - Non Thesis Research

Credits: 1.00 to 6.00

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Courses in Computer Science (CS)

CS 002 - Microcomputer Appl Software

Popular applications software packages: word processors, spreadsheets, databases. Emphasis on hands-on experience. Prerequisite: Two years high school algebra. May not be taken for credit after receipt of credit for any CS course numbered 11 or higher.

Credits: 3.00

CS 003 - Concepts of Computer Systems

Introduction to computer systems, components, system software, editors, utilities and language processors, programming, problem solving, applications. May not be taken for credit concurrently with, or following receipt of credit for, any CS course numbered higher than CS 003. Prerequisite: Two years high school algebra.

Credits: 3.00

CS 005 - Introductory Special Topics

Prerequisite: Instructor permission. Hours variable. May not be taken for credit after any Computer Science course numbered CS 016 or higher.

Credits: 3.00

CS 008 - Introduction: WWW Design (2-2)

Provides a strong foundation in HTML, working with images, beginning JavaScript programming, and web design so that the student can create a functional web site.

Credits: 3.00

CS 014 - Visual Basic Programming

Programming in the MS Windows environment using forms, objects, methods, functions, and code. Creation of regular applications and customized office suite applications.

Credits: 3.00

CS 016 - Prog MATLAB Engineers&Science

Problem solving, computer programming, and the use of standard numerical methods in the context of engineering and scientific applications using MATLAB. Prerequisite: Math. 21; or Math. 10 (or equivalent, with instructor permission) and concurrent enrollment in Math. 21.

Credits: 4.00

CS 021 - Computer Programming I

Introduction to algorithmic problem solving. Designed to provide a foundation for further studies in computer science. Credit not given for more than one in the pair CS 11, 21. Prerequisite: Math. 10 or a strong background in secondary school algebra and trigonometry.

Credits: 4.00

CS 026 - Computer Programming II

Introduction to more advanced programming concepts that provide a foundation for further study in computer science. Topics include data structures and algorithms, concepts of style, design, documentation, testing and debugging techniques. Prerequisites: 21.

Credits: 3.00

CS 031 - Computer Programming II: C

Credits: 3.00

CS 095 - Special Topics

Prerequisite: Instructor's permission.

Credits: 4.00

CS 100 - Object-Oriented Programming

Object-oriented software analysis, design, and programming using a modern object-oriented programming environment. Topics include encapsulation, information hiding, inheritance, and polymorphism. Prerequisite: 26.

Credits: 3.00

CS 101 - Computer Organization

Introduction to computer system organization including performance, assembly language, machine-level data representation, arithmetic for computers, processor datapath control, memory, and input/output. Prerequisite: CS 026.

Credits: 4.00

CS 103 - Programming Languages

Systematic treatment of principles underlying the features and implementation of programming languages. Contrast of traditional procedural languages and at least one nontraditional language. Prerequisite: CS 026.

Credits: 3.00

CS 104 - Data Structures

Lists, Strings, Arrays, Trees and Graphs. Storage systems and structures. Storage allocation and garbage collection. Searching and sorting techniques. Generalized data management systems. Prerequisite: CS 026, MATH 052 or MATH 054.

Credits: 3.00

CS 148 - Database-Driven Web Design

Design and implementation of dynamic content in web pages using XML, SQL, ASP, and PHP. Typical project involves creation of e-commerce shopping site. Prerequisites: One semester of computer programming, and CS 008(or equivalent knowledge of JavaScript and HTML).

Credits: 3.00

CS 195 - Special Topics

Prerequisite: Instructor's permission.

Credits: 6.00

CS 201 - Operating Systems

Supervisory and control software for multiprogrammed computer systems. Processes synchronization, interprocess communication, scheduling, memory management, resource allocation, performance evaluation, object-oriented systems, case studies. Prerequisites: 103, 104.

Credits: 3.00

CS 202 - Compiler Construction

Practice in design and implementation of translators for ALGOL-like languages. Regular and context-free grammars, parsing, code generation for stack and register machines. Interpreters. Run-time storage administration for block-structured languages. Prerequisites: 103, 243.

Credits: 3.00

CS 204 - Database Systems

Techniques for processing very large collections of data. Secondary storage. Database design and management. Query Prerequisites: 101, 104; 201 recommended. languages and optimization. Database recovery.

Credits: 3.00

CS 205 - Software Engineering

Treatment of software engineering problems and principles, including documentation, information hiding, and module interface specification syntax and semantics. Requires credit for 205 may not receive credit for 208 or 209. participation in a team project. Students who receive

Credits: 3.00

CS 208 - Software Requirements&Design

Project management, requirements for software products, design methodologies and formal and informal notations describing designs. Includes developing requirements and design for a substantial software product. Credit not awarded for more than one of 205 and 208. Prerequisites: CS 100, CS 104.

Credits: 3.00

CS 209 - Software Implement&Verificat'n

Covers advanced program development methodologies, software performance measuring and tuning and the verification and validation of software. Includes a significant implementation and evaluation project. Credit not awarded for more than one of 205 and 209. Prerequisites: CS 100, CS 104.

Credits: 3.00

CS 222 - Computer Architecture

Architecture of computing systems. Control unit logic, input/output processors and devices, asynchronous processing, concurrency, parallelism, and memory hierarchies. Prerequisite: 101.

Credits: 3.00

CS 224 - Analysis of Algorithms

Introduction to both analytical and experimental techniques in algorithm analysis. Basic algorithm design strategies. Introduction to complexity theory. Prerequisites: 103, 104. Math. 173 recommended.

Credits: 3.00

CS 231 - Bioinformatics

Introduction to current topics in bioinformatics. Applications may include sequence alignment, dynamic programming, hidden Markov models, phylogenetics trees, microarray data analysis, genomics, and proteomics. Prerequisites: STAT 151, CS 26, and MMG 102 desirable. Crosslisting MMG 231.

Credits: 3.00

CS 243 - Theory of Computation

Introduction to theoretical foundations of computer science. Models of computation. Church's thesis and noncomputable problems. Formal languages and automata. Syntax and semantics. Prerequisite: 104. (Same as Math 243).

Credits: 3.00

CS 251 - Artificial Intelligence

Introduction to methods for realizing intelligent behavior in computers. Knowledge representation, planning, and learning. Selected applications such as natural language understanding and vision. Prerequisites: 103, 104, STAT 151.

Credits: 3.00

CS 256 - Neural Computation

Introduction to artificial neural networks, their computational capabilities and limitations, and the algorithms used to train them. Statistical capacity, convergence theorems, backpropagation, reinforcement learning, generalization. Prerequisites: Math. 124 (or 271), Statistics 151, programming skills, graduate standing or instructor's permission.

Credits: 3.00

CS 260 - Parallel Algorithms&Prog Tech

Taxonomy of parallel computers, basic concepts for parallel computing, effectiveness and scalability, parallel algorithms for variety of problems, message-passing programming paradigm and data-parallel languages. Prerequisite: 103, 104. MATH 173 and MATH 124 recommended.

Credits: 3.00

CS 265 - Computer Networks

Introduction to the theoretical and pragmatic principles of computer networking and client-server computing. Topics include: Local Area Networks; the Internet; ATM technology; TCP programming. Prerequisite: 101, 104. MATH 173 and STAT 151 recommended.

Credits: 3.00

CS 266 - Network Security&Cryptography

Security and secrecy in a networked environment. Cryptography: public and

private key. Authentication: trusted agents, tickets. Electronic mail and digital signatures. Privacy and national security. Prerequisites: 104, Math. 124 or 271.
Credits: 3.00

CS 274 - Computer Graphics

Graphical representation of two- and three-dimensional objects on color raster displays. Line generation, region filling, geometric transformations, hidden line and surface removal, rendering techniques. Prerequisite: 104, Math. 121, Math. 124 or 271.

Credits: 3.00

CS 283 - Undergraduate Honors Thesis

See description of Honors Thesis Program in the College of EM section of this catalog.

Credits: 3.00

CS 284 - Undergraduate Honors Thesis

See description of Honors Thesis Program in the College of EM section of this catalog.

Credits: 3.00

CS 292 - Senior Seminar

Oral presentations that pertain to the ethical practice of computer science in government, industry, and academia. Topics may include computer security, copyright, and patent law. Prerequisite: Senior standing in Computer Science.

Credits: 1.00

CS 294 - Independent Readings&Research

Independent readings and investigation under the direction of faculty member. Prerequisite: Department permission.

Credits: 3.00

CS 295 - Special Topic:Computer Science

Subject will vary from year to year. May be repeated for credit.

Credits: 6.00

CS 296 - Special Topics:Computer Sci

Credits: 3.00

CS 303 - Adv Top:Prog Environ&Language

Object-oriented, functional, or procedural programming languages, language design, parsing, translation, compilation, interpretation, programming and runtime environments. May be repeated for credit with instructor permission. Prerequisites: 103, 202.

Credits: 3.00

CS 316 - Adv Topi:Computational Science

Topics chosen from engineering and scientific applications, visualization, large-scale data analysis. May be repeated for credit with instructor permission.

Prerequisite: Varies by semester. Instructor permission required.

Credits: 3.00

CS 321 - Adv Top:Computer Architecture

Topics from computer architecture, network architecture, array and vector processors, memory hierarchies. May be repeated for credit with Instructor permission. Prerequisite: CS 222.

Credits: 3.00

CS 331 - Adv Tpcs Database&Knwldg Sys

Topics chosen from database design, knowledge based systems, object-oriented and relational systems, data models, knowledge representation. May be repeated for credit with Instructor permission. Prerequisite: CS 204, CS 224.

Credits: 3.00

CS 346 - Adv Top:Theory of Computation

Topics from complexity theory, analysis of algorithms, formal languages, combinatorial and geometric algorithms, and theory of databases, networks, distributed algorithms. May be repeated with Instructor permission. Prerequisite: CS 224, CS 243.

Credits: 3.00

CS 361 - Adv Topics:Systems Software

Topics chosen from operating systems, distributed or parallel software systems, real-time systems, experimental systems, software engineering. May be repeated for credit with Instructor permission. Prerequisite: CS 201, CS 222.

Credits: 3.00

CS 381 - Seminar

Presentations by students, faculty, and guest speakers on advanced topics in Computer Science. May be repeated up to three times for credit.

Credits: 1.00

CS 391 - Master's Thesis Research

Credits: 4.00

CS 394 - Independent Study

Independent readings and investigation under the direction of a faculty member. Prerequisite: Instructor permission.

Credits: 4.00

CS 395 - Special Topics

Subject will vary from year to year. May be repeated for credit. Prerequisite: Instructor permission.

Credits: 6.00

CS 491 - Doctoral Dissertation Research

Credits: 6.00

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Courses in Counseling (EDCO)

EDCO 220 - Developmental Persp in Counsel

Survey of major and emerging theories of human development and application of theoretical concepts to self and others from a counseling perspective.

Prerequisite: Graduate standing; others by Instructor permission.

Credits: 3.00

EDCO 291 - Special Topics in Counseling

Special issues in counseling, administration and planning, social work or higher education not appropriate to content of existing courses. Courses reflect the social services orientation of the Department of Integrated Professional Studies.

Credits: 3.00

EDCO 310 - Counseling Strats for Teachers

Counseling strategies appropriate for use in the classroom for class management assessment and utilization of different learning styles, and promotion of positive behavior change. Prerequisite: permission.

Credits: 3.00

EDCO 340 - Development Guidance in Schls

An introduction to the role of the school counselor including developmental guidance program planning and implementation, consultation, crisis intervention, parent education and ethical issues. Prerequisite: Counseling majors or Instructor permission.

Credits: 3.00

EDCO 344 - Counseling Children&Adolescent

Students learn theories and will practice counseling children and adolescents: assessment intervention planning, and play therapy, client-centered, behavioral, cognitive, Adlerian, brief and narrative approaches. Prerequisites: EDCO 374- Counseling Theory and Practice, EDCO 375-Laboratory Experience in Counseling, Counseling Majors or permission.

Credits: 3.00

EDCO 350 - Prof Issues in Counseling

A seminar in which professional, ethical, and legal issues facing counselors in schools and mental health settings are addressed through reading, research,

presentation, and discussion. Prerequisite: Graduate standing or Instructor permission.

Credits: 3.00

EDCO 351 - Using Tests in Counseling

Exploration of tests and testing process used in counseling and school settings. Includes necessary statistics. Experience in taking, administering, interpreting various tests; study projects for application to any setting. Prerequisites: Graduate standing or permission.

Credits: 3.00

EDCO 361 - Practice of Mental Hlth Cnslng

Introduction to issues, needs, models and sociopolitical factors present in community and private-practice mental health counseling, with an emphasis on prevention and wellness. Prerequisite: Graduate standing or Instructor permission.

Credits: 3.00

EDCO 363 - School Counseling Practicum

Introductory supervised experience in counseling in a school field setting. Includes 100 hours working as a counselor with a minimum of 40 hours of direct counseling experience. Prerequisites: Counseling Majors or Permission.

Credits: 3.00

EDCO 364 - Internship School Counseling

Supervised counseling experience in a school counseling setting with direct client work. Prerequisite: Counseling majors or Instructor permission.

Credits: 1.00 to 8.00

EDCO 374 - Counseling Theory & Practice

Theoretical and practical approach to understanding the counseling process. Refinement of personal philosophy, theory of counseling, and implementation in practice. Prerequisite: Graduate standing or Instructor permission.

Credits: 3.00

EDCO 375 - Lab Experience in Counseling

Students learn and practice basic counseling skills and techniques. Videotaped practice sessions are supervised by course instructor. Prerequisite: EDCO 374. Counseling majors only.

Credits: 3.00

EDCO 376 - Chem Dependency: Etiology & Trtmt

Development (self, family, trauma) and resolution of chemical dependency. Cognitive-behavioral, psychoanalytic, systemic and eclectic orientations. Experiential psychotherapy technique and project required. Prerequisites Graduate standing or permission.

Credits: 3.00

EDCO 377 - Diversity Issues in Counseling

Students examine personal, cultural, political, and social factors affecting a diverse range of people with focus on developing appropriate and effective counseling skills. Prerequisite: Instructor permission.

Credits: 3.00

EDCO 378 - Diagnose&Treat Plan/Child&Adol

Etiology and diagnosis of mental disorders in children and adolescents according to DSM. Includes intake, evaluation, treatment planning, and clinical documentation skills. Prerequisite: Counseling majors or Instructor permission.

Credits: 3.00

EDCO 379 - Diagnose&Treat Plan w/Adults

Etiology and diagnosis of mental disorders in adults according to DMS. Includes intake, evaluation, treatment planning, and clinical documentation skills.

Prerequisite: Counseling majors or Instructor permission.

Credits: 3.00

EDCO 381 - Counsel/Career&Lifestyle Dev

An exploration of the theories, assessment instruments, counseling techniques, and issues most relevant in counseling for career and lifestyle development.

Prerequisite: EDCO 374, EDCO 375; Graduate standing or Instructor permission.

Credits: 3.00

EDCO 383 - Mental Health Counseling Pract

Introductory supervised experience in counseling in a mental health field setting. Includes 100 hours working as a counselor with a minimum of 40 hours of direct counseling experience. Prerequisite: Counseling majors or Instructor permission.

Credits: 1.00

EDCO 384 - Intern:Mental Hlth Counseling

Supervised counseling experience in a mental health counseling setting with direct client work. Prerequisite: Counseling majors or Instructor permission.

Credits: 3.00

EDCO 387 - Therapeutic Psychopharmacology

Introduction to neuroanatomy, neurophysiology, and pharmacology as they pertain to mental health counseling. Course also covers commonly prescribed medications, ethical issues and the referral process. Prerequisite: EDCO 360 or program permission.

Credits: 3.00

EDCO 388 - Family Counseling: Systems

Theory and process of counseling with families, including family theory and current family therapy orientations and intervention skills. Includes practice of counseling interventions. Prerequisites: 220, 374, permission.

Credits: 3.00

EDCO 389 - Family Counseling:Interventns

Supervised practice in family counseling. Prerequisites: 388, permission.

Credits: 3.00

EDCO 390 - Advanced Counseling Seminar

Analysis and practice of advanced counseling skills with focus on new developments. Emphasis on integration of theory and technique into a consistent counseling model. Prerequisites: EDCO 374, EDCO 375, and Instructor

permission.

Credits: 3.00

EDCO 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1.00 to 18.00

EDCO 392 - Group Dynamics:Theory & Exp

Encounter group experiences for prospective counselors providing increased awareness of self and models relating to others. Theory, practice of group dynamics. Prerequisites: Graduate standing and permission.

Credits: 3.00

EDCO 393 - Adv Group Counseling

Group leadership skills are developed, practiced, and refined through in-class experiences that focus on feedback exchange, group techniques, ethical issues, and group theory. Prerequisites: 220, 374, 375, 392 and permission.

Credits: 3.00

EDCO 394 - Special Topics in Counseling

Special issues in counseling, administration and planning, social work, higher education not appropriate to content of existing courses. Prerequisite: Instructor permission. Variable credit.

Credits: 3.00

EDCO 397 - Independent Study

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 3.00



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Courses in Dental Hygiene (DHYG)

DHYG 001 - Intro to Dental Hygiene

Principles of dental hygiene, orientation to clinical practice, and preclinical experience.

Credits: 4.00

DHYG 002 - Intro Clinical Dental Hygiene

A continuation of 1 with early clinical experience. Prerequisites: 1, Anatomy and Physiology 19.

Credits: 2.00

DHYG 011 - Oral Tissues I

Introduction to the morphology and physiology of the oral tissues.

Credits: 3.00

DHYG 012 - Oral Tissues II

Continuation of 11 emphasizing head and neck anatomy and oral embryology.

Prerequisites: 11, Anatomy and Physiology 19.

Credits: 3.00

DHYG 061 - Dental Radiology

Study, demonstration, and practice of fundamentals of intraoral radiographic technique. Recognition of radiographic appearance of common oral disorders.

Prerequisites: 1, 11, Anatomy and Physiology 19 or permission.

Credits: 2.00

DHYG 062 - Community Oral Health

Discussion and project participation in the planning, development, and implementation of dental health education, public health dentistry, and the private practice of dentistry.

Credits: 3.00

DHYG 091 - Dental Materials

Study and manipulation of the materials commonly used in dental practice.

Prerequisites: 2, 12 or permission.

Credits: 2.00

DHYG 141 - Clinical Dental Pharmacology

Introduction to clinical pathology and pharmacological management in the treatment of dental patients. Prerequisites: 2, 12.

Credits: 3.00

DHYG 143 - Periodontics

Morphologic and functional aspects of the supporting structures, recognition and therapy for diseases of the periodontium. Prerequisites: 2, 12, Anatomy and Physiology 20.

Credits: 3.00

DHYG 146 - Oral Pathology

Functional and organic diseases of the oral cavity and their clinical management. Prerequisite: 143 or permission.

Credits: 2.00

DHYG 181 - Senior Clinic & Seminar

Clinical practice with patients from simple to more difficult cases, both children and adults. Prerequisites: 2, 12, 61, Anatomy and Physiology 20.

Credits: 4.00

DHYG 182 - Senior Clinic & Seminar

Continuation of 181. Prerequisites: 143, 181.

Credits: 4.00

DHYG 195 - Special Topics

Prerequisites: Instructor's permission.

Credits: 1.00

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Courses in Early Childhood Pre K-3 (EDEC)

EDEC 001 - Infant/Toddler Curr Block

Study of infant/toddler development through a combination of lecture, discussion, observation, and participation in an infant/toddler group setting. Prerequisite: Majors only or permission. Offered spring semester only.
Credits: 4.00

EDEC 063 - Child Development

The biological, psychological, and social growth and development of children and their relationships with family, peers, and institutions.
Credits: 3.00

EDEC 100 - Preschool Curriculum Block

Examines the development and education of children three to five years of age through lecture, discussion, observation and participation in an early childhood preschool setting. Prerequisite: EDEC 1. Offered fall semester only.
Credits: 10.00

EDEC 187 - Field Practicum

Full semester student teaching internship in a primary (K-3) setting. Prerequisite: EDEC 189; Instructor permission.
Credits: 15.00

EDEC 189 - Early Childhood Practices

Supervised planning and conducting the Early Childhood Laboratory Center. Integrated Readings and Research, Early Childhood Seminar, and Curriculum Workshop. Prerequisite: Permission. Variable credit.
Credits: 12.00

EDEC 195 - Special Topics

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once, accumulation up to 12 hours.
Prerequisite: Varies with course.
Credits: 6.00

EDEC 200 - Contemporary Issues

Credits: 3.00

EDEC 291 - Special Problems

Reading, discussion, and special field and/or laboratory investigations.

Prerequisite: Department permission. Students may enroll more than once up to 12 hours.

Credits: 6.00

EDEC 295 - Special Topics

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once. Prerequisite: Department permission.

Credits: 5.00

EDEC 296 - Field Experience

Professionally-oriented field experience under joint supervision by faculty and community representative, credit arranged up to 15 hours. Prerequisite: Department permission.

Credits: 6.00

EDEC 397 - Problems in Education

Credits: 1.00 to 6.00

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Courses in Early Childhood Special Educ (ECSP)

ECSP 200 - Contemporary Issues

Credits: 3.00

ECSP 295 - Lab Experience in Education

Undergraduate only.

Credits: 3.00

ECSP 310 - Curriculum & Tech Special Ed

See EDSP 310,311.

Credits: 3.00

ECSP 311 - Curriculum & Tech Special Ed

See EDSP 310,311.

Credits: 3.00

ECSP 382 - Teaching Internship

Undergraduate only.

Credits: 3.00 to 8.00

ECSP 386 - Intern:Mgmt Lrng Env for Hdcpd

See EDSP 386.

Credits: 12.00

ECSP 391 - Master's Thesis Research

Credits: 1.00 to 12.00

ECSP 397 - Problems in Education

Credits: 1.00 to 6.00

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Courses in Economics (EC)

EC 011 - Principles of Macroeconomics

Introduction to economic concepts, institutions, and analysis, particularly as related to the economy as a whole.

Credits: 3.00

EC 012 - Principles of Microeconomics

Study of individual economic units with particular emphasis on market interactions among firms and households. Prerequisite: EC 011.

Credits: 3.00

EC 020 - Economic Problems

Exploration of a current economic issue. Topics vary and may include international trade, debts and deficits, environment, ethnicity, race and gender, and employment and work.

Credits: 3.00

EC 060 - Capitalism & Human Welfare

Investigates theories of growth of the capitalist economy and the historical process of the ascendance, domination, and recent relative decline of the U.S. economy.

Credits: 3.00

EC 095 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

EC 096 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

EC 110 - American Economic History

Survey of the economic history of the U.S. from colonial origins through early 20th century, emphasizing economic and institutional changes and events promoting economic growth and development. 11, 12 or instructor permission.

Credits: 3.00

EC 116 - Comparative Economic Systems

Major economic systems of mixed capitalist and socialist variety, their theoretical

models, basic institutions, and policies from a comparative point of view.

Prerequisite: EC 011, EC 012 or Instructor permission.

Credits: 3.00

EC 120 - Money and Banking

Commercial and central banking with special attention given to the Federal Reserve system, monetary theory, and policy. 11, 12 or instructor permission.

Credits: 3.00

EC 130 - Public Policy

Revenues and expenditures of federal, state, and local governments and intergovernmental relationships; the effects of expenditures and taxation upon individuals, business institutions, and the national economy. Prerequisite: EC 011, EC 012 or Instructor permission.

Credits: 3.00

EC 133 - Economics Environmental Policy

Investigation of the relationship of markets and government regulation to environmental quality. Alternative public policies to improve efficiency and equity will be evaluated. 11, 12 or instructor permission.

Credits: 3.00

EC 140 - Economic Development

Theories of economic growth applied to developing countries of the contemporary world including the political and social determinants of economic progress. 11, 12 or instructor permission.

Credits: 3.00

EC 143 - International Econ I: Trade

Trade Theory, policy, and history of international trade patterns, terms of trade, protectionism, competitiveness, structural adjustment, and international aspects of microeconomics. 11, 12 or instructor permission.

Credits: 3.00

EC 146 - International Econ II: Finance

Finance Theory, policy, and history of foreign-exchange markets, balance of payments, world monetary arrangements, and international aspects of macroeconomics and capital markets. 11, 12 or instructor permission.

Credits: 3.00

EC 150 - Labor Economics

The economics of work, including wage determination, unemployment, productivity, discrimination, unions, and policy issues. 11, 12 or instructor permission.

Credits: 3.00

EC 153 - Race, Ethnicity & Economy

Courses investigating the economic status and significance of racial and ethnic divisions in historical and contemporary U.S. society. Content varies by instructor. Prerequisite: Sophomore standing. 11, 12 or instructor permission.

Credits: 3.00

EC 156 - Women in US Economy

Historical and theoretical overview of women's participation in the U.S. economy, emphasizing economic controversies surrounding family structure and pay equity issues. 11, 12 or instructor permission.

Credits: 3.00

EC 160 - Industrial Organization

The structure, conduct, and performance of U.S. industry and appraisal of its economic efficiency and social impact, including governmental policies. 11, 12 or instructor permission.

Credits: 3.00

EC 170 - Economic Methods

Introduces statistical and mathematical methods for understanding economic literature including probability distributions, data sources, statistical concepts, and simple regression, taught using economic examples and applications.

Prerequisite: Math 19. Credit not given for both 170 and any of following STAT courses: 111, 140, 141,143.

Credits: 3.00

EC 171 - Macroeconomic Theory

Keynesian and other theories of the macroeconomy. Government policies in relation to the problems of employment, price stability, and growth. Prerequisite: Math. 19, 11, 12 or instructor permission.

Credits: 3.00

EC 172 - Microeconomic Theory

Analysis of consumer demand, supply, market price under competitive conditions and monopolistic influences, and the theory of income distribution. Prerequisite: Math 19, 11, 12 or instructor permission.

Credits: 3.00

EC 194 - ISSP Thesis

Design, research, and writing of a thesis on an economic topic for students in the Integrated Social Sciences Program. 11, 12 or instructor permission.

Credits: 3.00

EC 195 - Intermediate Special Topics

See Schedule of Courses for specific titles. 11, 12 or instructor permission.

Credits: 3.00

EC 196 - Intermediate Special Topics

See Schedule of Courses for specific titles. 11, 12 or instructor permission.

Credits: 3.00

EC 200 - Econometrics & Applications

A combination of economic theory, mathematics, and statistics for testing economic hypothesis and developing economic models. Conceptual development and applications. Prerequisite: 170 and either 171 or 172.

Credits: 3.00

EC 210 - Sem A:Econ Hst, Systems&Ideas

Economic History, Systems, and Ideas Topics on the evolution of economic systems and ideas. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.00

EC 220 - Sem B:Macroeconomics&Finance

Macroeconomics and Finance Topics such as national economic policies, income, wealth and welfare, financial markets and the macroeconomy, central banking, and other issues concerning macroeconomics and money. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.00

EC 230 - Sem C:Microeconomics & Appl

Microeconomics and its Applications Topics from microeconomics and fields applying it, such as game theory, health economics, environmental economics, the Vermont economy, and urban and regional economics.

Credits: 3.00

EC 240 - Sem D:Intern'l & Dev Economics

International and Development Economics Topics such as the economies of countries or regions, international trade agreements, international debts, deficits and structural adjustment, and aspects of development economics. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.00

EC 250 - Sem E:Labor, Race & Gender

Labor, Race, and Gender Topics such as labor-management relations, aspects of contemporary labor markets, discrimination, economics of education, and other aspects of the economics of gender and race. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.00

EC 260 - Sem F:Firms, Inst, & Growth

Firms, Institutions, and Growth Topics such as antitrust and regulation, decision making and the firm, technological change and industrial policies, and the economics of growth. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.00

EC 291 - Macro and Micro Applications

Combination of real-world work experience with a related independent study project or readings and research. Pre/corequisites: EC 170 and either EC 171,172, or both.

Credits: 3.00

EC 292 - Macro and Micro Applications

Combination of real-world work experience with a related independent study project or readings and research. Pre/corequisites: EC 170 and either EC 171,172, or both.

Credits: 3.00

EC 295 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: 170 and either 171 or

172 or both.

Credits: 3.00

EC 296 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.00

EC 297 - Readings & Research

Independent study with permission of supervising professor prior to registration. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.00

EC 298 - Readings & Research

Independent study with permission of supervising professor prior to registration. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.00

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Courses in Education (EDSS)

EDSS 001 - Schooling, Learning & Society

Introduction to issues and problems in American education: schools and learning, professional careers, individuals in systems, characteristics of learners. Required readings and papers.

Credits: 3.00

EDSS 010 - Conquering College

Transition course for students with disabilities. Students study disability issues, law, self-advocacy, and learn skills to compensate for their specific disability.

Prerequisite: Permission of instructor.

Credits: 1.00

EDSS 011 - Race and Culture

Introduction to issues of diversity, multiculturalism and cultural pluralism in our different communities and in our country as a whole.

Credits: 1.00

EDSS 012 - Race & Culture Contemp Issues

Gives an expanded introduction to US social justice issues. Forms of discrimination that shape US culture explored and skills in self-reflection and critical analysis developed.

Credits: 1.00

EDSS 055 - Special Topics

Credits: 6.00

EDSS 195 - Intermediate Special Topics

Topics vary. See Schedule of Courses for specific titles.

Credits: 6.00

EDSS 196 - Intermediate Special Topics

Topics vary. See Schedule of Courses for specific titles.

Credits: 6.00

EDSS 197 - Readings & Research

Credits: 4.00

EDSS 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

Credits: 6.00

EDSS 238 - Teaching W/Global Perspective

Approaches to teaching global and multicultural issues: justice and human rights, peace, and the environment. Development of curriculum materials. Links between local and global concerns. Prerequisite: Twelve hours of education and related areas.

Credits: 3.00

EDSS 239 - S.L.I.P. Seminar

Professional education course designed to facilitate student's integration of academic, social, personal, and career objectives through seminar or project syllabus method of support for internship experience in the community.

Prerequisite: Instructor's permission, junior standing. UG only.

Credits: 1.00 to 12.00

EDSS 245 - Microcomp Appl in Education

For elementary, secondary educators with experience in simple programming. Design of instructional procedures, integrating computers into school curriculum. Use of computer software to teach basic skills, reasoning, thinking skills.

Prerequisite: CS 003 or equivalent; Instructor permission.

Credits: 3.00

EDSS 248 - Educational Media

Modern instructional aids, theory and practice, educational media related to psychology of teaching and learning. Prerequisite: Twelve hours in Education and related areas.

Credits: 3.00

EDSS 261 - Current Dir:Curric&Instruction

Current trends, issues, literature, programs, and organizational activities in fields of curriculum and instruction emphasizing areas of individual concern. Focus on elementary and secondary school levels. Prerequisite: Twelve credits in education or equivalent.

Credits: 3.00

EDSS 295 - Laboratory Exp in Education

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 3.00

EDSS 309 - Interdisciplinary Seminar

Introduction to interdisciplinary study; the field of policy analysis and social change. Core academic experience for Interdisciplinary Majors. Prerequisite: Interdisciplinary majors; others by Instructor permission.

Credits: 3.00

EDSS 313 - Stat Meth Ed & Social Services

Basic concepts of descriptive and inferential statistics. Topics: frequency distributions; measures of central tendency, dispersion; correlation, hypothesis testing. Application of concepts to educational situations.

Credits: 3.00

EDSS 319 - Internship

Students will undertake an approved internship in an institution which reflects the particular area of interest and needs of the student. Prerequisite: Instructor permission.

Credits: 3.00

EDSS 321 - School Improvement:Thry & Prac

Analysis of research and practices pertinent to improvement of American schools. Student assignments include synthesis papers and site-specific research projects derived from course studies. Prerequisite: Twelve hours of Graduate study in education.

Credits: 4.00 to 6.00

EDSS 333 - Curr Concepts, Planning & Dev

Overview of conceptions of curriculum for elementary and secondary education; examination of contemporary curriculum trends, issues; processes for initiating, planning, developing curriculum activities and programs. Prerequisite: Twelve hours of education or Instructor permission.

Credits: 3.00

EDSS 336 - Professional Writing

Problems in writing faced by professionals in educational and human service settings. Students write reports, critiques, reviews; analyze examples of published work; receive detailed critiques of their work.

Credits: 3.00

EDSS 343 - The Study of Teaching

Study of the art and science with emphasis on students' own teaching. Current research on teaching and self-study are major foci. Prerequisite: Twelve hours of education; teaching experience.

Credits: 3.00

EDSS 363 - Sem:Anyl of Curr & Instruction

A case study analysis of the design, implementation, and evaluation of selected curricular and instructional improvements. Prerequisite: Ed.D. students have priority.

Credits: 3.00

EDSS 380 - Professional Problems in Ed

Designed to cover selected educational problems in depth. The major emphasis will be on intensive and critical analysis of the literature and practice in a given area.

Credits: 3.00

EDSS 387 - Collaborative Consultation

Adult development and group dynamics theory provide the knowledge base for collaborating with parents and teachers to meet the diverse needs of students with disabilities. Cross-listed with: EDSP 387.

Credits: 3.00

EDSS 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1.00 to 6.00

EDSS 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 3.00

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Courses in Electrical Engineering (EE)

EE 003 - Linear Circuit Analysis I

Circuit elements, laws, and analysis. Network principles and theorems. Energy-storage elements. Magnetically coupled circuits. Transient analysis and time constants. Prerequisite: MATH 022.

Credits: 3.00

EE 004 - Linear Circuit Analysis II

Sinusoids and phasors. Sinusoidal steady-state response and power. Complex frequency and network functions. Resonance. Laplace transform techniques. Fourier series and Fourier transforms. Prerequisite: EE 003. Co-requisite: MATH 271.

Credits: 3.00

EE 081 - Linear Circuits Laboratory I

Electrical instruments; oscilloscope measurements; resistive, capacitive, and inductive components; applications of operational amplifiers; digital-to-analog converters; transient response of RL and RC circuits. Co-requisite: EE 003.

Credits: 2.00

EE 082 - Linear Circuits Laboratory II

Transients in RLC circuits; steady state sinusoidal response in RLC circuits; real and reactive power in RLC circuits; operational amplifier active filters. Prerequisite: EE 081. Co-requisite: EE 004.

Credits: 2.00

EE 095 - Special Topics

Prerequisite: Departmental permission.

Credits: 3.00

EE 100 - Electrical Engr Concepts

Introduction to analog and digital electrical measurements and circuits; introduction to microprocessors. No credit for EE majors. Prerequisite: Physics 42 with 22 or 125.

Credits: 4.00

EE 101 - Digital Control w/Embedded Sys

Applications of single-chip microcomputers as embedded systems for data acquisition/real time control. Assembly language; parallel and serial ports; timers; counters; A/D and D/A. Laboratory. Prerequisite: EE 100.

Credits: 4.00

EE 113 - Electromech Energy Gen & Dist

Principles basic to electromechanical energy conversion devices and systems. Energy interchange among magnetic and mechanical circuit elements. Continuous energy conversion in ideal and practical rotating machines. Prerequisite: 141.

Alternate years.

Credits: 4.00

EE 120 - Electronics I

Theory of operation of diodes and MOS transistors. DC and transient analysis using diodes and transistors. NMOS and CMOS logic circuits and memory cells. Circuit simulation software. Prerequisite: EE 004.

Credits: 4.00

EE 121 - Electronics II

Bipolar transistor circuits. DC and high frequency amplifier design using MOS and bipolar transistors. Feedback, oscillators, and stability criteria. Operational amplifiers and switched capacitor filters. Prerequisite: EE 120.

Credits: 4.00

EE 131 - Fundamentals of Digital Design

Combinational logic simplification and design, MSI and PLD components, synchronous and asynchronous sequential design, algorithmic state machines, registers, counters, memory units, introduction to hardware design languages.

Prerequisite: Sophomore standing.

Credits: 3.00

EE 134 - Fund of Microcomp Based Syst

In-depth study and applications of a modern microprocessor in embedded digital systems for real-time control and data acquisition. Assembly language and the design of interfaces. Prerequisites: 3 or 100, and Computer Science 16 or 21; EE 131 and Computer Science 101 desirable.

Credits: 4.00

EE 141 - Electromagnetic Field Theory I

Basic laws and elementary applications of electromagnetic fields; vector analysis, steady-state electric and magnetic fields, boundary value problems, transmission lines. No credit may be received for both EE 140 (offered in prior years) and the current EE 141. Prerequisites: EE 4, Math. 271, Physics 42.

Credits: 4.00

EE 142 - Electromagnetic Field Thry II

Basic laws and elementary applications of electromagnetic fields, waves and radiation; Maxwell's equations, Poynting's theorem, plane wave propagation, wave guides, antennas. Prerequisite: EE 141.

Credits: 3.00

EE 163 - Solid State Phys Electronics I

Physical principles required to understand the operation of common semiconductor devices. Physical models of p-n junctions, Schottky barriers, and MOS field-effect transistors. Prerequisite: PHYS 042 with PHYS 022; MATH 271. Credits: 4.00

EE 164 - Solid St Phys Electronics II

Theory of operation of bipolar junction transistors. Heterojunction transistors. Compound and alloy semiconductor materials and devices. Dielectric and magnetic materials and devices. Prerequisite: EE 163. Credits: 3.00

EE 171 - Signals & Systems

Discrete and continuous-time signals and systems. Input/output descriptions and analysis. Convolution, Fourier analysis and Laplace transforms, Sampling and z-transforms. Application to electrical engineering design problems. Prerequisite: EE 004. Credits: 4.00

EE 174 - Intro to Communication Systems

Signal analysis. Wireless communication including modulation and link budget analysis. Fundamentals of digital communications including PCM, channel coding, pulse shaping and multiplexing. Modern systems survey. Prerequisite: EE 171. Credits: 4.00

EE 183 - Electronics Laboratory I

Characteristics and applications of diodes and MOSFETs; CMOS inverters and logic characterization; applications of operational amplifiers. Co-requisite: EE 120. Credits: 2.00

EE 184 - Electronics Laboratory II

Characteristics and applications of bipolar junction transistors; medium frequency and differential amplifiers; operational amplifier output stages; analog and digital filters. Prerequisite: EE 183. Co-requisite: EE 121. Credits: 3.00

EE 185 - Systems and Applications Lab

AC and DC machines; power transformers; electromagnetic waves on transmission lines; digital logic design; design project. Pre/co-requisites: Senior standing in Electrical Engineering. Credits: 2.00

EE 186 - Telecommunications Lab

Telecommunication system measurement techniques. Spectral analysis, distortion, analog and digital modulation, eye patterns, signal constellations and bit error rate. Team project. Prerequisite: Senior standing in Electrical Engineering. Co-requisite: EE 174. Credits: 2.00

EE 187 - Senior Project

Experimental or theoretical design project conducted under faculty supervision.

Credits: 4.00

EE 189 - Digital Signal Processing Lab

PC-based evaluation model and associated development tools. High-level graphical and interactive design tools. Application in real-time implementation of signal processing algorithms. Same lab as in EE 275. May not be taken after EE 275. Prerequisite: EE 171.

Credits: 1.00

EE 193 - College Honors

Credits: 3.00

EE 194 - College Honors

Credits: 3.00

EE 195 - Special Topics

Prerequisite: Departmental permission.

Credits: 4.00

EE 201 - Linear System Theory

Basic concepts in system theory; linear algebra; state space representation; stability; controllability and observability. Applications of these concepts.

Prerequisites: EE 171 or Graduate standing.

Credits: 3.00

EE 209 - Transient Phenomena

Study of complex variable basis of Laplace and Fourier Transforms; applications to transient behavior of lumped and distributed parameter systems, root locus.

Nyquist criterion and two-dimensional field problems. Prerequisite: 4. Not offered 2001-02.

Credits: 3.00

EE 210 - Introduction Control Systems

Analysis and design of continuous and discrete-time control systems; stability, signal flow, performance criteria, classical and state variable methods, simulation design tools, computer-based realizations. Prerequisite: 171.

Credits: 3.00

EE 221 - Prin VLSI Digital Circuit Des

Design of VLSI circuits using a modular approach with industrial grade software: schematic capture; circuit design languages (HDL); full-custom layouts; mixed signals; synthesis. Laboratory. Pre/corequisites: EE 131, 163,121.

Credits: 3.00

EE 222 - Prin VLSI Analog Cir Design

The design, layout, and simulation of VLSI analog circuits. Emphasis on small signal models and circuits used in operational amplifiers. Prerequisites: EE 163, EE 121, Instructor permission.

Credits: 3.00

EE 224 - Principles VLSI System Design

Survey of VLSI design. Architecture and partitioning of functions. Design for testability. Simulation including timing. Synthesis. Design verification;

manufacturing interface. Required team project and report. Prerequisites: EE 221 or Instructor permission.

Credits: 3.00

EE 227 - Biomed Measmnts Instrum & Sys

Biomedical and clinical engineering in research, industry, and health care institutions. Measurement techniques and instrumentation. Integrated biomedical monitoring, diagnostic, and therapeutic systems. Co-requisites: EE 121, ANPS 020; Instructor permission. Alternate years.

Credits: 3.00

EE 228 - Sensors

Sensor design, interrogation, and implementation. A wide variety of electrical, electronic, optical, mechanic, and cross-disciplinary devices. System designs, measurement techniques, and methodologies. Prerequisites: Senior standing in Engineering or Physics.

Credits: 3.00

EE 231 - Digital Computer Design

Hardware organization and realization, hard-wired and microprogrammed control units, interrupt and I/O systems. Hardware design language introduced and used for computer design. Prerequisites: EE 131, either EE 134 or CS 101.

Credits: 3.00

EE 232 - Digital Computer Design II

Memory designs, error control, high-speed addition, multiplication, and division, floating-point arithmetic, cpu enhancements, testing and design for testability. Prerequisites: EE 231.

Credits: 3.00

EE 241 - Electromagnetic Theory I

Maxwell-Lorentz theory emphasizing uniqueness and conservation laws. Potential theory with applications to boundary value problems, Green's function techniques, multipole expansions, and numerical methods. Prerequisites: 141; Math. 272 recommended.

Credits: 3.00

EE 242 - Electromagnetic Theory II

Macroscopic Maxwell theory, boundary conditions and dispersion relations for spatio-temporal fields. Electromagnetic wave propagation, reflection and transmission, guided waves, radiation, scattering and diffraction phenomena. Prerequisites: EE 241 or Instructor permission.

Credits: 3.00

EE 245 - Lasers&Electro-Optical Devices

A theoretical description of light-matter interactions in photon emitting resonant cavities. A practical understanding of laser design and operation. Prerequisite: 142.

Credits: 3.00

EE 246 - Engineering Optics

Applications of optics to the solution of engineering problems. Optical signal processing, fiber optic sensors, integrated optics. Prerequisites: EE 245 or Instructor permission.

Credits: 3.00

EE 250 - Test Engineering

Parametric, structural, functional, characterization and stress testing of components and subsystems. Test methods, strategies, planning, and economics. Test equipment hardware and software. Prerequisites: 121, 131. Alternate years.

Credits: 3.00

EE 251 - Digital Syst Testing & Design

Circuit failures, fault models, testing and test pattern generation, logic and fault simulation, design for testability, scan design, test interfaces, design for built-in self-test. Prerequisite: 131. Alternate years.

Credits: 3.00

EE 261 - Solid State Mat & Devices I

Energy band theory, effective mass, band structure and electronic properties of semiconductors. Transport of electrons and holes in bulk materials and across interfaces. Homojunctions, heterojunctions, and Schottky barriers. Prerequisite: EE 163.

Credits: 3.00

EE 262 - Solid State Mats & Devices II

Multijunction and interface devices. Heterostructure and optical devices. Dielectric and optical properties solids. High-frequency and high-speed devices.

Prerequisite: EE 261.

Credits: 3.00

EE 266 - Science & Tech Integrated Cir

Science and technology of integrated circuit fabrication. Interaction of processing with material properties, electrical performance, economy, and manufacturability.

Prerequisites: EE 163 or EE 261; concurrent registration in EE 164 or EE 262.

Credits: 3.00

EE 270 - Prob Thry & Stochastic Process

(Same as Statistics 270.) Probability theory, random variables, and stochastic processes. Response of linear systems to random inputs. Applications in electrical engineering. Prerequisite: 171 or equivalent.

Credits: 3.00

EE 273 - Digital Communications

Digital modulation/demodulation methods and BER performance; source entropy and channel capacity; optimal detection; convolutional codes and decoding algorithms. Pre/corequisites: EE 174 and EE 270 or STAT 151.

Credits: 3.00

EE 274 - Intro Wavelets & Filter Banks

Continuous and discrete-time signal processing. Continuous wavelet transform. Series expansion of continuous and discrete-time signals. Perfect reconstruction,

orthogonal and biorthogonal filter banks. Wavelets from filters. Prerequisites: 171, or instructor's permission.

Credits: 3.00

EE 275 - Digital Signal Processing&Filt

Sampling, aliasing, and windowing. Decimation and Interpolation. FIR and IIR filters. DFT and FFT. Digital simulation and implementation using real-time processors. Prerequisites: 171. Lab same as 189. *Students who have previously taken 189 may enroll in the lecture portion for three credits.

Credits: 4.00

EE 276 - Image Processing & Coding

Image enhancement techniques by point and spatial operations. Data compression techniques to include scalar quantization, entropy coding, transform and sub-band coding. Labs on PC hardware; PC and Unix-based software.

Prerequisites: 275; 270 recommended.

Credits: 4.00

EE 281 - Materials Science Seminar

Presentation and discussion of advanced electrical engineering problems and current developments. Prerequisite: Senior or Graduate Engineering enrollment.

Credits: 1.00

EE 282 - Seminar

Credits: 1.00

EE 285 - Engr Design Anyl & Synthesis

Advanced engineering problem solving, analytical techniques and simulations involving control systems, digital electronics, computer hardware and software; technical writing and documentation emphasized. Prerequisites: Graduate standing in EE or department permission.

Credits: 3.00

EE 295 - Special Topics

Formulation and solution of theoretical and practical problems dealing with electrical circuits, apparatus, machines, or systems. Prerequisite: 4.

Credits: 4.00

EE 310 - Digital Control Systems

Digital control system analysis and design using transform, algebraic, and state space methods. Sampled data systems, stability, quantization effects, sample rate selection, computer-based realization. Prerequisite: EE 210 or Instructor permission.

Credits: 3.00

EE 312 - Intro Optimum Control Systems

Optimal control problem formulation and solution; including the calculus of variations, Pontryagin's maximum principle, Hamilton-Jacob theory, dynamic programming, and computational methods. Prerequisite: EE 210.

Credits: 3.00

EE 314 - Nonlinear System Theory

Basic nonlinear methods including computational and geometrical techniques for analysis of nonlinear systems. Describing function methods and bifurcation and catastrophe theory. Sensitivity and stability considerations. Prerequisite: EE 201 or MATH 230.

Credits: 3.00

EE 338 - Semiconductor Dev Model&Simul

Analysis and application of computer models for semiconductor process and device simulation. Strategies for development of device models for circuit simulation. Prerequisite: EE 262; Instructor permission.

Credits: 3.00

EE 340 - ST:Electromagnetic Field Thry

For advanced students in the field of electromagnetism. Topics selected from special interests of staff with lectures and readings from current literature.

Credits: 3.00

EE 341 - ST:Electromagnetic Field Thry

For advanced students in the field of electromagnetism. Topics selected from special interests of staff with lectures and readings from current literature.

Credits: 3.00

EE 352 - Adv Semicond Device Phys & Des

MOSFET, bipolar, and CMOS device parameters, their characterization, and their relation to process technology. Description and use of computer-aided process and device models. Prerequisite: EE 262. Alternate years. Spring semester.

Credits: 3.00

EE 354 - MOS Analog Intergrtd Circ Dsgn

Analysis and design of MOS analog integrated circuits. Each student will design, layout, test, and document an analog integrated circuit using computer-aided-design techniques. Prerequisite: EE 338, EE 339.

Credits: 3.00

EE 365 - Optical Properties of Solids

Optical and optoelectronic properties of semiconductors. Applications to photodetectors, solar cells, light emitting diodes and lasers. Prerequisites: 242, 262, Physics 273.

Credits: 3.00

EE 366 - Solid State & Semicond Thry I

Energy band theory for electrons and phonons in crystalline solids. Brillouin zones. Conservation laws. Elements of statistical mechanics. Transport properties. Applications to semiconductor electronics. Prerequisite: EE 261, PHYS 273 or CHEM 263.

Credits: 3.00

EE 373 - Digital Communication

Source entropy and channel capacity; signal representation; optimal detector for Gaussian channels; digital modulation/demodulation schemes; error probability; block/convolutional codes; Viterbi algorithm; real channels. Prerequisites: 174,

270, 373 for 374.

Credits: 3.00

EE 378 - St:Stat Comm & Related Fields

Coding for communication or computer systems, pattern recognition and learning machines, artificial intelligence, etc., selected from special interests of staff with lectures and readings from current literature. Prerequisite: Instructor permission.

Credits: 3.00

EE 391 - Master's Thesis Research

Credits: 6.00

EE 395 - Advanced Special Topics

Advanced topics of current interest in electrical engineering. Prerequisite: Instructor permission.

Credits: 4.00

EE 491 - Doctoral Dissertation Research

Credits: 6.00

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Courses in Elementary Education (EDEL)

EDEL 010 - Intro to Teaching & Learning

Orientation to professional program. Introduction to research base for meaningful teaching and learning. Analysis of teaching autobiographies by successful teachers. One credit each semester for two consecutive semesters.

Credits: 2.00

EDEL 011 - Computers in EI Ed Classroom

Students use the University's network and internet, exchange e-mail, construct electronic portfolios, and examine software to help them in their studies and future classrooms.

Credits: 3.00

EDEL 024 - Learners and Learning Process

Distinctions among dominant theories of learning and development. Learning theories applied to selected issues derived from context of schools. Students work with individual learner in appropriate setting.

Credits: 3.00

EDEL 055 - Special Topics

Credits: 3.00

EDEL 056 - Teachers&the Teaching Process

Students examine lives of teachers, demands of the profession, and selected models of teaching. Student observation of teachers in appropriate settings and knowledge of learning and development. Prerequisite: EDEL 010, EDEL 024; concurrent with EDEL 177, EDSP 005.

Credits: 3.00

EDEL 155 - Lab Experience in Inquiry

Supervised practicum in field sites. Implementation of teaching methods from Inquiry Block. Documentation of classroom work, child study, and development of portfolio. Prerequisite: Admission to Elementary Teacher Education Program; concurrent with EDEL 157, EDEL 158, EDEL 159.

Credits: 3.00

EDEL 156 - Teaching Math for Meaning

Methods of teaching mathematics in elementary school. Research base for how children learn mathematics and how math curriculum is organized. Special focus on teaching diverse groupings of learners. Prerequisite: Admission to Elementary Teacher Education Program; concurrent with EDEL 175, EDEL 176, EDEL 178.
Credits: 3.00

EDEL 157 - Social Ed and Social Studies

Methods of social education for elementary-aged school children. Promoting children's efficacy by nurturing personal interests. Development of folio of developmentally-sound examples of social studies learning. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 155, 158, 159.
Credits: 3.00

EDEL 158 - Teaching Science for Meaning

Methods of science education for elementary-aged school children. Translate science content into meaningful science inquiry. Preparation of demonstration teaching lessons. Prerequisites: Admission to the Elementary Teacher Education Program; concurrent with EDEL 155, 157, 159.
Credits: 3.00

EDEL 159 - Visual & Performing Arts, K-6

Incorporation of the visual and performing arts in elementary school curriculum. Focus on artistic expression as a way of learning. Emphasis on cross-cultural art, music, drama. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with 155, 157, 158.
Credits: 3.00

EDEL 175 - Lab Experience in Literacy

Supervised practicum in a field site. Implementation of teaching methods from Literacy Block. Documentation of classroom work, child study, and development of portfolio. Prerequisite: Admission to Elementary Teacher Education Program; concurrent with EDEL 156, EDEL 176, EDEL 178.
Credits: 3.00

EDEL 176 - Language Arts&Literacy Skills

Cognitive research base for the social context of children's learning. Methods of language arts as literate activity. Emphasis on emergence of literacy in the child of special need. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 156, EDEL 175, EDEL 178.
Credits: 3.00

EDEL 177 - Children's Lit & Literacy

Learning about the breadth of literature available for use in elementary school. Developing the ability to evaluate and use literature in reading and writing activities. Emphasis on bias-free methods. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 56, EDSP 5.
Credits: 3.00

EDEL 178 - Mtg Indiv Needs:Assmt&Instruct

Methods of responding to individual differences within a heterogeneous

classroom. Sources of student variability, developing settings of least restriction, and appropriate assessment strategies. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 156, 175, 176.

Credits: 3.00

EDEL 181 - Student Teaching

Credits: 3.00 to 12.00

EDEL 185 - Student Teaching Internship

Supervised student teaching internship in field site. Fifteen-week total immersion as a beginning teacher. Responsibilities specified in internship handbook.

Documentation of activities for professional portfolio. Concurrent with EDEL 187 and EDEL 188. Prerequisite: Method Blocks in Inquiry and Literacy. Variable credit.

Credits: 12.00

EDEL 186 - Seminar in Student Teaching

Credits: 3.00

EDEL 187 - Plan, Adapt, Deliver Reading Instruction

Methods of diagnostic teaching in reading and writing. Identifying components of effective programs and use of research findings to deliver instruction in meaningful contexts. Documentation of personal model of literacy for professional portfolio.

Prerequisite: Method Block in Literacy; EDEL 156, EDEL 176, EDEL 177.

Credits: 3.00

EDEL 188 - Principles of Classroom Management

Application of basic learning principles to classroom management. Creation of behavior management plans with emphasis on social and academic behavior of diverse groupings of children. Concurrent with EDEL 185 and EDEL 187.

Prerequisite: Method Blocks in Inquiry and Literacy.

Credits: 3.00

EDEL 189 - Portfolio Development & Reflective Practice

This course develops candidates' critical reflectivity on their knowledge and expertise of classroom teaching through the construction of a professional portfolio. Prerequisite: Concurrent with EDEL 185 and EDEL 188.

Credits: 1.00

EDEL 197 - Readings & Research

Credits: 3.00

EDEL 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

Credits: 3.00

EDEL 222 - Cultivate Children's Literacy

Contemporary research and practice related to the development of strategic, motivated, and independent readers and writers. Emphasis on integrating reading and writing within collaborative environments. Prerequisite: Twelve hours in

education and/or related areas including an introductory course in reading or Instructor permission.

Credits: 3.00

EDEL 234 - Lit & Lang for Children&Youth

Characteristics, interests, reading habits of children and youth; selection, evaluation of literature. Organizing book units for teaching literature, for content areas. Emphasis on development of oral, written expression. Prerequisite: Twelve hours in education and related areas or Instructor permission.

Credits: 3.00

EDEL 236 - Multicultural Children's Lit

Current research in multicultural education and literacy informs examination of representation and perspective in literature for children and youth. Perspectives include religion, race, gender, SES.

Credits: 3.00

EDEL 241 - Science for Elem Schools

Examination of elementary school science programs. Emphasis on methods and materials relating to construction, use of science units for children in grades K-6. Prerequisite: Twelve hours in education and related areas or Instructor permission.

Credits: 3.00

EDEL 295 - Lab Experience in Education

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 12.00

EDEL 375 - Lit Assmt:Understand Indiv Dif

Designing and using assessment strategies to improve and adapt instruction. Identify, evaluate, and document literacy development, emphasizing students at risk of reading failure. Prerequisite: EDEL 222 or Instructor permission.

Credits: 3.00

EDEL 376 - Lab Exp Rdg&Related Lang Instr

Approaches for prevention, correction of reading and written language difficulties. Supervised teaching of individuals and/or small groups experiencing reading and language problems. Apprenticeships in reading instructional programs. Prerequisite: EDEL 375.

Credits: 3.00

EDEL 378 - Advanced Study & Research

Survey of research, comparison and evaluation of emerging programs design and development of projects in reading. Prerequisite: Fifteen hours in education including nine hours in the field of reading and language education or Instructor permission.

Credits: 3.00

EDEL 380 - Professional Problems in Ed

Designed to cover selected educational problems in depth. The major emphasis

will be on intensive and critical analysis of the literature and practice in a given area.

Credits: 3.00

EDEL 382 - Teaching Internship

Supervised teaching experiences on a full-time basis, with related seminars in teaching subject. Prerequisite: Permission of coordinator of Professional Laboratory Experiences.

Credits: 8.00

EDEL 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1.00 to 18.00

EDEL 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 1.00 to 6.00

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Courses in Engineering (ENGR)

ENGR 001 - Introduction To Engineering

An introduction to engineering and what engineers do. Design projects, guest lecturers and visits to engineering enterprises. S/U grading.

Credits: 3.00

ENGR 002 - Graphical Communication

Principles of computer-aided drafting/design; production of engineering drawings including: orthographic, auxiliary, section, pictorials and dimensioning, graphics and charts; applications in specific engineering disciplines.

Credits: 2.00

ENGR 095 - Special Topics

Credits: 5.00

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Courses in Engineering Management (EMGT)

EMGT 175 - The Management of Technology

Role of technology in industry, the nature of technological change, strategies, management, research and development, forecasting, product service/project selection, development, management, transition to market, and evaluation. Prerequisites: Senior standing in Engineering or Business Administration. Cross-listed with: BSAD 175. Credits: 3.00

EMGT 185 - Senior Project

Individual management engineering study designed to the particular interest of the student, utilizing and synthesizing the student's engineering management education experience. Prerequisite: Senior standing in EMBA. Credits: 3.00

EMGT 195 - Special Topics

Specialized or experimental course offered as resources permit. Credits: 3.00

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Courses in English (ENG)

ENG 001 - Written Expression

A course in writing with some selected readings as examples of style and writing strategies.

Credits: 3.00

ENG 004 - Engl for International Stdnts

Review of English grammar, practice in expository writing, vocabulary building, and improvement of speaking and listening skills. Prerequisite: Instructor's permission.

Credits: 3.00

ENG 005 - First Year Seminar

Students to write in a variety of forms, styles, and genres in response to selected texts of literary or cultural significance. Themes, texts, and writing assignments to vary by section. Prerequisites: First-year standing in College of Arts and Sciences.

Credits: 3.00

ENG 006 - First Year Seminar

Students to write in a variety of forms, styles, and genres in response to selected texts of literary or cultural significance. Themes, texts, and writing assignments to vary by section. Prerequisites: First-year standing in College of Arts and Sciences.

Credits: 3.00

ENG 011 - Types of Literature

Introduction to fiction, poetry, and drama - past and present, British and American.

Credits: 3.00

ENG 012 - Introduction to Drama

Study of the play as a work of literature and as a dramatic experience.

Continental, British, and American drama from all ages.

Credits: 3.00

ENG 013 - Introduction to Fiction

Exploration of a variety of fictional forms, including the short story, the novella, and the novel.

Credits: 3.00

ENG 014 - Introduction to Poetry

Examination of the forms of poetry, past and present, British and American. Provides a wide variety of perspectives on the poem.
Credits: 3.00

ENG 021 - British Literature

Survey of major figures in British literature such as Chaucer, Milton, Swift, Wordsworth, and Woolf.
Credits: 3.00

ENG 022 - British Literature

Survey of major figures in British literature such as Chaucer, Milton, Swift, Wordsworth, and Woolf.
Credits: 3.00

ENG 023 - American Literature

Survey of major American writers from the beginning of the 19th century to the present, such as Hawthorne, Melville, Dickinson, Twain, Hemingway, and Faulkner.
Credits: 3.00

ENG 024 - American Literature

Survey of major American writers from the beginning of the 19th century to the present, such as Hawthorne, Melville, Dickinson, Twain, Hemingway, and Faulkner.
Credits: 3.00

ENG 025 - World Literature

Survey in comparative literature dealing with the great writers of the world, to include Virgil, Dante, Goethe, and similar major figures. Students may not take for credit both English 25 and 27; or both English 26 and 28.
Credits: 3.00

ENG 026 - World Literature

Survey in comparative literature dealing with the great writers of the world, to include Virgil, Dante, Goethe, and similar major figures. Students may not take for credit both English 25 and 27; or both English 26 and 28.
Credits: 3.00

ENG 027 - Lit of Western Trad: Int Humn

Study of primary authors in the Western cultural tradition from Homer to the modern period with particular reference to history, religion, and philosophy. Students may not take for credit both English 25 and 27; or both English 26 and 28. Prerequisites: Concurrent enrollment in Religion 27, 28; History 13, 14; Integrated Humanities Program.
Credits: 3.00

ENG 028 - Lit of Western Trad: Int Humn

Study of primary authors in the Western cultural tradition from Homer to the modern period with particular reference to history, religion, and philosophy. Students may not take for credit both English 25 and 27; or both English 26 and

28. Prerequisites: Concurrent enrollment in Religion 27, 28; History 13, 14; Integrated Humanities Program.

Credits: 3.00

ENG 040 - Science Fiction & Fantasy Lit

Representative modern works of fantasy and science fiction, including works by Asimov, Tolkien, and Clarke. I, II.

Credits: 3.00

ENG 041 - Detective Fiction

A study of the historical development of American and British detective fiction from Poe to the present.

Credits: 3.00

ENG 042 - Women in Literature

Survey of women's literary tradition in English. Focuses on the ways women have written, read, written about, and been represented in 19th and 20th century literature.

Credits: 3.00

ENG 050 - Expository Writing

Writing and analysis of expository (nonfiction) essays. Prerequisite: Sophomore standing.

Credits: 3.00

ENG 053 - Writing: Poetry & Fiction

Introductory course in techniques of writing poetry and short prose fiction. Classes organized around discussion of student work; weekly writing assignments.

Prerequisite: Sophomore standing.

Credits: 3.00

ENG 057 - Race&Ethnicity Lit Stds:Intro

Introductory courses addressing the representation and construction of "race" in literature and/or the contributions of ethnically diverse writers to the American culture. Focus and readings vary by instructor. May be repeated for credit.

Credits: 3.00

ENG 061 - Intro to African Literature

Readings in African literature, concentrating on major human and political themes and literary techniques.

Credits: 3.00

ENG 065 - Survey of Folklore

Basic concepts of folklore; development of the discipline; defining the major genres; role of folklore in modern society.

Credits: 3.00

ENG 085 - Text&Context:1st Yr Prosp Mjrs

Introduction to the critical work of close reading and close writing. Readings vary by section. Recommended for first-year students planning to major in English.

Credits: 3.00

ENG 086 - Critical Approaches to Lit

Several theoretical approaches to literary study applied to specific texts. No prerequisite, but recommended only for students with sophomore standing or first-year students with Advanced Placement. Required of all English majors.
Credits: 3.00

ENG 095 - Introductory Special Topics

See Schedule of Courses for specific titles.
Credits: 3.00

ENG 096 - Introductory Special Topics

See Schedule of Courses for specific titles.
Credits: 3.00

ENG 101 - Structure of the English Lang

Descriptive study of modern American English. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.00

ENG 104 - Language Awareness

Topics will include consideration of language as part of human behavior, history of the language, dialects of American English, lexicography, language acquisition, gender differences, and cultural diversity. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.00

ENG 105 - American English Dialects

Class will examine dialects of American English and the methodology of dialectology with focus on Vermont speech and the social meaning of dialect variation. (Same as CMSI 162.) Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.00

ENG 106 - Critical Theories

Topics vary by semester and by professor. Representative topic: "Feminist Criticism." May be repeated for credit with departmental permission. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.00

ENG 108 - Tutoring Writing

Explores ways of responding to writers one-on-one, for students who will be tutoring at the Writing Center. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.00

ENG 109 - Exploring Writing Centers

Explores theoretical frameworks for writing centers and ways tutors can respond to student writers. Prerequisite: 108, 3 hours of English numbered 11-96, sophomore standing.
Credits: 2.00

ENG 111 - Stds in Composition & Rhetoric

Topics vary by semester and by professor. Representative topic: "The Composing

Process." May be repeated for credit with departmental permission. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 112 - Personal Voice

Examination of the authorial voice in nonfiction writing. Reading and writing assignments include work with both traditional and experimental styles, forms, and genres. Portfolio assessment. Prerequisite: 50 or 53, 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 114 - Reading & Writing Autobiography

Study of the autobiographical literary tradition as well as practice writing within this tradition. Prerequisites: 50, permission of instructor, 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 115 - The Art of Nonfiction

Theory, readings, and practice in literary nonfiction, including the essay and/or literary journalism. Prerequisites: 50, permission of instructor, 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 117 - Advanced Writing: Non-Fiction

Students follow their own interests in the writing of non-fiction. Prerequisites: 50; instructor's permission, 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 118 - Advanced Writing: Fiction

Students follow their own interests in the writing of fiction. Prerequisites: 53; instructor's permission. 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 119 - Advanced Writing: Poetry

Students follow their own interests in the writing of poetry. Prerequisites: 53; instructor's permission, 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 120 - Writers' Workshop

An intensive two-week workshop with assignments designed to emphasize autobiographical aspects of poetry and fiction writing. Summer only. Prerequisites: 3 hours English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 121 - Bible as Literature

Jewish and Christian scripture analyzed as literary documents. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 122 - Dante's Comedy

(Same as World Literature 173.) A study of Dante's Comedy in Modern English translation. Prerequisites: 3 hours of English numbered 11-96, sophomore

standing.

Credits: 3.00

ENG 124 - Chaucer

Study of the principal works of Chaucer, emphasizing Chaucer's literary scope, talents, and position in medieval literature. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 125 - Medieval Literature

Major works of medieval literature in translation, with some principal non-Chaucerian works in Middle English. Works by Dante and works in the Arthurian tradition will be included. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 127 - Shakespeare

A survey of plays in all genres (comedy, history, tragedy, romance) covering the early, middle, and late stages of Shakespeare's career. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 128 - Shakespeare & Renaissance Drama

A survey of drama, including the work of William Shakespeare, from the 16th and early 17th centuries in England. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 129 - Survey of Renaissance Lit

English poetry, prose, and/or drama from the late 16th and 17th centuries. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 130 - The Age of Milton

Paradise Lost, Paradise Regained, Samson Agonistes, some minor poems, and selected prose works. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 133 - Res & 18 C Prose, Poetry & Drama

Significant writers and dramatists from Dryden to Sheridan and Johnson.

Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 134 - 18th Century British Novel

Fiction from its origin through the 18th century. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 141 - Romanticisms

Late 18th and early 19th century English literature including, for example, works by Wordsworth, the Shelleys, Keats. Occasional special topics. Prerequisites: 3

hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 142 - Victorian Prose,Poetry & Drama

Literature from 1832 to 1900, including, for example, Tennyson, Browning, Darwin, Wilde. Occasional special topics.Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 143 - 19th Century American Poetry

The poetry of Walt Whitman, Emily Dickinson, and their contemporaries.Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 144 - 19th Century American Non-Fict

Essay, biography, autobiography, history, journals, and letters by such writers as Emerson, Thoreau, Douglass, Chestnut, Twain, Fuller, Parkman, Kete.

Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 145 - 19th Century American Fiction

Short stories, novellas, and novels by such writers as Cooper, Poe, Hawthorne, Melville, Stowe, James, Chopin, Crane, Gilman.Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 146 - 19th Century British Novel

British fiction of the 19th century. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 147 - 19th Century Women's Writing

Novels, short stories, and poetry by 19th century women from multiple cultures.

Prerequisites: 3 hours English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 151 - Modern Poetry

Survey of poetry from beginning of modern period to end of World War II, emphasizing poetry of Yeats, Eliot, Stevens, Auden, Frost, Williams, and others.

Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 152 - Modern British Drama

British and continental plays of the 19th and 20th centuries, including plays by Ibsen, Pinter, and Beckett. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 153 - Modern British Novel

British novelists since 1900, including Forster, Conrad, Lawrence, Woolf, and other more recent writers. Prerequisites: 3 hours of English numbered 11-96,

sophomore standing.

Credits: 3.00

ENG 154 - Modern Irish Literature

Irish literature from 1890 to the present, emphasizing Joyce and Yeats.

Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 157 - Canadian Literature

The development of a national literature. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 158 - Contemporary Canadian Lit

Post-World War II Canadian poetry and fiction in English, including Atwood and Laurence. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 160 - Literature of Vermont

An exploration of Vermont writing from the narratives of the Allen brothers to the poetry and fiction of today. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 161 - Modern Short Fiction

Late 19th and 20th century short fiction by such European and American writers as Chekhov, Kafka, Joyce, Lawrence, Hemingway, Faulkner, O'Connor, Welty, Cheever, and Carver. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 162 - Modern American Novel

American novelists from 1915 to 1945. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 166 - Slavery & American Literature

Examines connections between storytelling, bondage, and freedom. Focuses on the struggles of enslaved people to author free stories and free selves.

Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 167 - African-Amer Lit Harlem Ren

A survey of the writing of African Americans from the early poetry and prose of Phillis Wheatley, Frederick Douglass, and Frances Harper through the works of such writers as Nella Larsen, Countee Cullen, and Jean Toomer. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 168 - Afr-Amer Lit Since Harlem Ren

A survey of the writing of African Americans from the poetry and prose of Langston

Hughes and Zora Neale Hurston through the works of such contemporaries as Amiri Baraka, Toni Morrison, and Audre Lorde. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 170 - Race&Ethnicity Lit Studies:Int

Courses addressing "race" in literature and/or the contributions of ethnically diverse writers to American culture. Focus and readings vary by instructor. May be repeated for credit. Topics for 1999-00: American Indian Literature. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 172 - Colonial&Post-Colonial Wld Lit

Topics vary by semester and by professor. Representative topics: "African Theater" and "Contemporary Writing from the Non-Western World." May be repeated for credit with departmental permission. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 173 - Topics Pan-African Literature

Courses exploring experimental trends in 20th-century Pan-African literature and their relationship to Western and other literary traditions. Representative topics: "African Drama," "Survey of African Literature." Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 175 - Contemporary American Poetry

American poetry since 1950. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 176 - Contemporary American Novel

Significant American novelists since 1945. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 181 - Literary Genre

Representative topics: "Arthurian Literature;" "Medieval Drama;" "Women Writing Autobiography." Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 182 - Historical Periods

Representative topics: Literature of Civil Rights. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 183 - Major Writers

The works of one or two writers. Representative topics: "Mark Twain," "Toni Morrison." Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 184 - Popular Literature & Culture

Representative topics: "Poe's Children: Detective Fiction and Horror;" "Having a Good Cry: The Sentimental Tradition in Literature, Film, and Television;" "Children's Literature." Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 186 - Studies in Folklore

Representative topics: "American Folklore;" "Folklore and Ballad." Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 187 - American Studies

Interdisciplinary approaches to American literature and culture. Representative topics: "American Literature and American Law;" "The Vietnam War in Literature;" "Jewish-American Literature." Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 190 - Buckham Honors Seminar

Topic and instructor varies. Each seminar includes the participation of a distinguished visiting scholar or writer, such as Stephen Greenblatt, Barbara Johnson, Houston Baker, James Clifford, William Kennedy, and Stephen King. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 191 - Internship

Prerequisites: Departmental permission, junior or senior standing.

Credits: 1.00 to 6.00

ENG 192 - Internship

Prerequisites: Departmental permission, junior or senior standing.

Credits: 1.00 to 6.00

ENG 195 - Intermediate Special Topics

See schedule of courses for specific titles. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 196 - Intermediate Special Topics

See schedule of courses for specific titles. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 197 - Rdgs & Rsch

Departmental permission required. Not to exceed three hours per semester.

Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.00

ENG 198 - Readings & Research

Departmental permission required. Not to exceed three hours per

semester. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 0.50 to 6.00

ENG 201 - Sem Engl Lang or Critical Thry

Recent topics: "Origins and Development of the English Language;" "Re-disciplining the History of Literature and the Literature of History;" "Women's Texts." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.
Credits: 3.00

ENG 202 - Sem Engl Lang or Critical Thry

Recent topics: "Origins and Development of the English Language;" "Re-disciplining the History of Literature and the Literature of History;" "Women's Texts." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.
Credits: 3.00

ENG 211 - Sem in Composition & Rhetoric

Recent topics: "Writing the New Yorker;" "Writing Vermont Life;" "Editing and Publishing." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.
Credits: 3.00

ENG 212 - Sem in Composition & Rhetoric

Recent topics: "Writing the New Yorker;" "Writing Vermont Life;" "Editing and Publishing." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.
Credits: 3.00

ENG 221 - Seminar in Literature to 1800

Recent topics: "Women in 17th Century English Poetry;" "Dante and the Experience of Reading;" "Orality and Textuality in Middle English Literature." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.
Credits: 3.00

ENG 222 - Seminar in Literature to 1800

Recent topics: "Women in 17th Century English Poetry;" "Dante and the Experience of Reading;" "Orality and Textuality in Middle English Literature." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.
Credits: 3.00

ENG 241 - Seminar in 19th Century Lit

Recent topics: "Dickens;" "Reader, I Married Him: The Brontes;" "Love, Marriage, and Literary Criticism: Jane Austen;" "Reading Serially: The Victorian Novel;" "Invisible Man and 19th Century American Literature," "The Gothic." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.
Credits: 3.00

ENG 242 - Seminar in 19th Century Lit

Recent topics: "Dickens;" "Reader, I Married Him: The Brontes;" "Love, Marriage, and Literary Criticism: Jane Austen;" "Reading Serially: The Victorian Novel;"

"Invisible Man and 19th Century American Literature," "The Gothic." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.00

ENG 251 - Seminar in 20th Century Lit

Recent topics: "The Beat Generation;" "Literature and Society in Modern Ireland;" "Dostoevsky's Influence on 20th Century American Literature." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.00

ENG 252 - Seminar in 20th Century Lit

Recent topics: "The Beat Generation;" "Literature and Society in Modern Ireland;" "Dostoevsky's Influence on 20th Century American Literature." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.00

ENG 281 - Sem Lit Themes,Genres,Folklore

Recent topics: "Spiritual Journeys;" "Murder, He Said: Detective Fiction;" "Chekhov to Cheever: The Short Story." Prerequisites: instructor permission. 86, 6 hours at the intermediate level, and

Credits: 3.00

ENG 282 - Sem Lit Themes,Genres,Folklore

Recent topics: "Spiritual Journeys;" "Murder, He Said: Detective Fiction;" "Chekhov to Cheever: The Short Story." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.00

ENG 290 - Sem Prospective Tchrs of Engl

Approaches to teaching composition, literature, and the English language in secondary school. This course does not logical, artistic, economic, and sociological history of the cinema from its inception through the 1920s. Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.00

ENG 295 - Advanced Special Topics

Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.00

ENG 296 - Advanced Special Topics

Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.00

ENG 297 - Readings and Research

Departmental permission required. Not to exceed three hours per semester. UG only.

Credits: 3.00

ENG 298 - Readings and Research

Departmental permission required. Not to exceed three hours per semester. UG only.

Credits: 2.00

ENG 320 - Seminar:Major Author

In-depth study of the works, critical reception, and context of an author writing in English. Representative topics: Chaucer; Shakespeare; Milton; Austen; Dickinson; Morrison.

Credits: 3.00

ENG 330 - Seminar:Literary Period

Advanced survey of authors, themes, genres, and/or cultural context in a British or American literary period. Representative topics: British Renaissance; Restoration and Eighteenth Century; Victorian; American Renaissance.

Credits: 3.00

ENG 340 - Studies in Rhetoric & Comp

Introduction to current issues in the field. Representative topics: Rhetorical theory; gender, class, and composing; writing across the curriculum; collaborative learning, literature and composition.

Credits: 3.00

ENG 350 - Surv of Lit Theory & Criticism

Theory and Criticism.

Credits: 3.00

ENG 360 - Seminar:Special Topics

Topic varies, based on faculty research. Representative topics: orality and literacy in medieval literature; feminist theory; anthropological approaches to literature; narrative theory and Victorian novels.

Credits: 3.00

ENG 370 - Principles of Literary Rsch

Methods of literary study, research, and scholarship, including bibliographic, manuscript, and archival work.

Credits: 3.00

ENG 391 - Master's Thesis Research

Credits: 1.00 to 6.00

ENG 392 - Seminar Paper Review

Credits: 0.00

ENG 397 - Special Readings & Research

Directed individual study of areas not appropriately covered by existing courses. Permission of Graduate Director.

Credits: 3.00

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Courses in Environmental Sciences (ENSC)

ENSC 001 - Intro Environmental Sciences

Emphasizes the impacts of human activity on the environment. Attention to resources at risk and pollutant fate and effects on ecosystems.

Credits: 3.00

ENSC 101 - Pollutant Mvmt/Air, Land & Water

Physical, chemical, and biological aspects of pollutant behavior from source to ultimate fate. Laboratory methodologies for measuring pollutants and predicting their transport, behavior, and fate. Prerequisites: 1; Biology 1, 2; Chemistry 31, 32; Math. 19, 20; co-requisite Chemistry 42.

Credits: 4.00

ENSC 130 - Global Environmental Assessment

Assessment of human impacts on the global environment. Hands-on application of satellite remote sensing and geographic information systems to address key environmental issues. Prerequisite: BIOL 001 or BOT 004, CHEM 023, or equivalent, MATH 019.

Credits: 3.00

ENSC 185 - Special Topics

See Schedule of Courses for specific titles. Variable credit.

Credits: 4.00

ENSC 195 - Internship

Professionally-oriented field experience under joint supervision of faculty and business or community representative. Prerequisite: Proposal and permission of ENSC Director; Junior standing; good academic standing; Maximum of six hours. Three can be applied to elected concentration with Director permission.

Credits: 4.00

ENSC 196 - Independent Research

Special study and research activity under the directory of a faculty member. Prerequisite: Proposal and permission of ENSC Director; Junior standing; good academic standing. Up to six hours. Three can be applied to elected concentration with Director permission.

Credits: 1.00 to 6.00

ENSC 201 - Recovery&Restor Altered Ecosys

Role of stress and disturbance and the natural process of recovery in aquatic and terrestrial ecosystems. Human efforts to modify, restore, and remediate altered ecosystems. Prerequisites: Natural Resources 103 or an intermediate-level ecology course; or instructor's permission. Environmental Sciences 101 strongly recommended.

Credits: 4.00

ENSC 202 - Ecological Risk Assessment

Approaches used to identify, measure, and manage ecological risk. Problem formulation, characterization, uncertainty analysis, and risk management. Case studies. Prerequisite: ENSC 201, NR 140 or STAT 141; Senior standing, or Instructor permission.

Credits: 4.00

ENSC 222 - Pollution Ecology

Impacts of pollutants on the structure and function of ecosystems. Examination of how air, land, and water influence ecological fate and effects of pollutants.

Prerequisites: Biology 1; Chemistry 23, Natural Resources 103 or equivalent ecology course. (Not offered for graduate credit.)

Credits: 3.00

ENSC 285 - Adv Special Topics ENSC

See Schedule of Courses for specific titles. Prerequisites: Senior standing or instructor's permission. Variable credit. (Not offered for graduate credit.)

Credits: 4.00

ENSC 299 - Environmental Sciences Honors

Honors project dealing with environmental sciences. Prerequisites: By application only; see program chair.

Credits: 6.00

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Courses in Environmental Studies (ENVS)

ENVS 001 - Intro to Environmental Studies

Survey of environmental studies examining ecological, socioeconomic, aesthetic, and technological influences determining quality of life on earth. Prerequisite: First-year/Sophomore standing or Instructor permission.

Credits: 4.00

ENVS 002 - Internat'I Environmental Stds

A multidisciplinary analysis of the interaction of global and local variables in understanding and solving pervasive environmental problems. Prerequisite: First-year or sophomore standing.

Credits: 4.00

ENVS 007 - Environmental Awareness

Selected current environmental issues from evolving political, religious, scientific, and social perspectives. For non-majors. Cannot receive credit for both ENVS 001 and ENVS 007

Credits: 3.00

ENVS 095 - Special Topics

Introductory courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural areas management.

Credits: 4.00

ENVS 096 - Special Topics

Credits: 3.00

ENVS 100 - Environmental Theory

Comparative analysis of emerging concepts of human/environment relationships; the history, philosophy, and theoretical framework of environmental studies.

Prerequisites: 1,2.

Credits: 3.00

ENVS 151 - Intermed Environmental Studies

Individual investigation of interdisciplinary areas of environmental studies with emphasis on academic and career choices and preparation for senior

thesis/project. Prerequisites: Major in Environmental Studies; 1, 2; permission.
Credits: 3.00

ENVS 152 - Environment Information Skills

This course focuses on the complexities of conducting environmental research in a networked information age by teaching information concepts, skills, and broad ranging resources. Prerequisite: ENVS 151, or concurrently enrolled in ENVS 151.
Credits: 1.00

ENVS 156 - Permaculture

Cross-listed with: PSS 156. Design of agriculturally productive environments that have the diversity, stability, and resilience of the natural biosphere to harmoniously integrate landscape and people. Prerequisite: Three hours basic biological or ecological science, or permission.
Credits: 3.00

ENVS 173 - Landscape Natural History

This field-based course examines patterns and processes on local landscapes from an interdisciplinary perspective, with an emphasis on geology, soil science, plant ecology, and ecosystem geography. Prerequisites: ENVS 001; Sophomore standing.
Credits: 3.00

ENVS 174 - Nat Areas Conservation&Steward

Examines land protection and stewardship efforts of conservation organizations and public agencies. Builds on principles of conservation biology to understand issues in conserving and managing natural areas. Prerequisites: ENVS 001, NR 001, or Instructor permission.
Credits: 3.00

ENVS 177 - Intro to Landscape Restoration

Introduction to the history, philosophical foundations, and approaches to restoration of natural landscapes damaged by human activity and neglect. Case studies of selected local sites. Prerequisite: ENVS 001, NR 001, or Instructor permission.
Credits: 3.00

ENVS 178 - Environmental Ethics

Current approaches and problems in environmental ethics drawing on philosophy and case studies in animal rights, land ethics, deep ecology, wilderness protection, and human rights. Prerequisite: One environmental course; Junior standing.
Credits: 3.00

ENVS 179 - Ecofeminism

(Cross-listed with Women's Studies 179.) Investigation of the parallel dominations of women and nature, through analysis and reflection on ecofeminist theory, activism, and spirituality. Prerequisites: ENVS 001, ENVS 002 or WST 073, sophomore standing.
Credits: 3.00

ENVS 180 - Radical Environmentalism

Survey of radical environmental philosophy and activism from a liberation ethics perspective. Includes deep ecology, ecofeminism, environmental justice, and ecological resistance movements around the world. Prerequisite: ENVS 001, ENVS 002; Sophomore standing.

Credits: 3.00

ENVS 181 - Strategic Environmental Leadership

Theory and analysis of strategic environmental leadership as it varies with culture, ethnicity, and gender. Prerequisites: 1, 2, junior standing, permission of instructor.

Credits: 3.00

ENVS 182 - Religion and Ecology

Exploration of the greening of major world religious traditions in both practice and philosophy. Includes institutional, activist, and lifestyle initiatives in ecological spirituality. Prerequisites: ENVS 001 or ENVS 002; or NR 002, REL 020 or REL 021 preferred; Sophomore standing.

Credits: 3.00

ENVS 190 - Environmental Skills

Workshops to develop applied skills useful for environmental work and/or research. Topics vary by semester. Prerequisite: ENVS 001, ENVS 002.

Credits: 3.00

ENVS 191 - Environmental Practicum

Individual readings and research, internship, or field-based learning experience under direction of a faculty member or environmental practitioner. Credit arranged. Prerequisite: Permission of course coordinator.

Credits: 1.00

ENVS 195 - Special Topics

Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course; Sophomore standing.

Credits: 6.00

ENVS 196 - Special Topics

Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course; Sophomore standing.

Credits: 3.00

ENVS 197 - Student Designed Course

Course Student-taught courses beyond the scope of existing formal courses in environmental studies. Developed according to Program guidelines, with sponsorship by interested faculty. Prerequisites: 1, 2, permission.

Credits: 3.00

ENVS 201 - Research Methods

Planning, design, and methods for the required senior thesis or project. Includes

literature review and proposal writing. Prerequisites: 151, junior standing. (Not offered for graduate credit.)

Credits: 3.00

ENVS 202 - Senior Project and Thesis

Senior level project or thesis under faculty direction. Prerequisites: 201, permission of Environmental Program. Credits arranged. (Not offered for graduate credit.)

Credits: 6.00

ENVS 203 - Honors Thesis

Undergraduates only.

Credits: 1.00 to 9.00

ENVS 204 - Seminar Environmental Studies

Review and discussion of current environmental research and literature.

Prerequisites: 1, 2, junior or senior standing. (Not offered for graduate credit.)

Credits: 3.00

ENVS 284 - Teaching Assistantship

Students gain practical teaching experience through assisting with instruction, evaluation, and reflection. Tasks may include: leading discussion sessions, grading, and developing course materials. Prerequisites: Senior standing or permission of instructor, concurrent teaching assistant in ENVS course. Variable credit. May be repeated. UG only.

Credits: 1.00 to 2.00

ENVS 289 - Environmental Economics

Application of economic theory and methods to environmental problems and policies. Includes cost-benefit analysis and economic incentives as tools for environmental problem solving. Prerequisites: 1, three hours intermediate economics. For students in Arts and Sciences: Economics 11-12, intermediate course in ENVS. UG only.

Credits: 3.00

ENVS 290 - Environmental Policy

Public policy dimensions of natural resource management and environmental protection; U.S. historical context; policy analyses of contemporary issues; administration of environmental resource institutions. Prerequisites: Six hours of intermediate or advanced courses in ENVS or related areas. UG only.

Credits: 3.00

ENVS 291 - Advanced Environmental Pract

Individual readings and research, internship, or field-based learning experience at the advanced level, under direction of faculty member or environmental practitioner. Prerequisite: ENVS 001, ENVS 002; Senior/Graduate standing.

Credits: 3.00

ENVS 293 - Environmental Law

Principles of environmental law, including legal research methods, threshold issues, case law, trial procedure, and international comparisons in aspects of air,

land, and water law. Prerequisite: Junior standing.

Credits: 3.00

ENVS 294 - Environmental Education

Philosophy, concepts, and strategies of environmental education, emphasizing integration of environmental concerns into formal and nonformal educational programs for youth and adults. Prerequisite: Six hours of intermediate or advanced courses in Environmental Studies or related areas.

Credits: 3.00

ENVS 295 - Advanced Special Topics

Advanced courses of current areas of interest which may vary each semester.

Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management.

Prerequisite: One environmental course at 100 level; Junior standing.

Credits: 6.00

ENVS 296 - Advanced Special Topics

Advanced courses of current areas of interest which may vary each semester.

Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management.

Prerequisites: One environmental course at 100 level, junior standing. UG only.

Credits: 4.00

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Courses in Family&Consumer Sciences (EDFC)

EDFC 055 - Special Topics I

Credits: 2.00 to 6.00

EDFC 123 - Methods In Nutrition Education

Planning and presenting of appropriate methods, media, and materials for audiences in community, school, and institutional settings emphasizing interpersonal communication and group process skills.

Credits: 3.00

EDFC 200 - Contemporary Issues

Credits: 6.00

EDFC 220 - Fam&Consumer Sci/Contemp Schl

Required for licensure. Exploration of education options in a variety of family and Consumer Sciences related areas and in different types of schools and programs. (Not offered for graduate credit).

Credits: 3.00

EDFC 221 - Mgmt School Youth Organization

The role of youth organization advisor, particularly FCCLA. Emphasis on service learning and use of advisory councils. Includes observation and participation in school related activities. (Not offered for graduate credit).

Credits: 2.00

EDFC 222 - Curriculum Dev Human Sciences

Basic principles of curriculum development applied to human sciences education. Unique characteristics and contributions of human science education as related to educational, economic, and sociological trends. Spring in odd number years.

Credits: 3.00

EDFC 224 - Evaluation In Human Sciences

Test, questionnaire, interview schedule construction, and other non-testing means of evaluation. Usability, objectivity, validity, reliability, and discrimination of evaluation instruments. Selected sociometric techniques and evaluation in affective domain. Spring.

Credits: 3.00

EDFC 225 - Teaching Pract: Human Sciences

Teaching in middle or secondary schools under guidance of cooperating teachers and college supervisor. Credits variable up to 15 hours per semester. (Not offered for graduate credit).

Credits: 12.00

EDFC 295 - Lab Experience in Education

Credits: 3.00

EDFC 296 - Special Topics

Credits: 3.00

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Courses in Film (FILM)

FILM 005 - Dev of Motion Picture I

An overview of the technological, artistic, economic, and sociological history of the cinema from its inception through the 1920s.

Credits: 3.00

FILM 006 - Dev of Motion Picture II

An overview of the cinema's technological, artistic, economic, and sociological history from 1929-1960.

Credits: 3.00

FILM 095 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

FILM 096 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

FILM 107 - Film Criticism

Intensive analysis of films to develop appropriate critical methods and standards. Possible approaches are sociological, psychological, aesthetic, and journalistic. Organized either historically or topically. Prerequisite: FILM 005 or FILM 006.

Credits: 3.00

FILM 161 - Contemporary Cinema

A survey of the artistic trends, important personalities, economic and social factors that have shaped the past 25 years of narrative feature film history. Prerequisite: FILM 005 or FILM 006.

Credits: 3.00

FILM 162 - American Film Genres

An investigation of the circumstances surrounding the production of American film genres, especially between the years 1930-1960. Prerequisite: FILM 005 or FILM 006.

Credits: 3.00

FILM 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

FILM 196 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

FILM 197 - Readings & Research

Credits: 3.00

FILM 198 - Readings & Research

Credits: 3.00

FILM 271 - Seminar in Film

Selected topics in film. Recent topics: "The Films of Charlie Chaplin;" "The Films of Stanley Kubrick;" "Hollywood and the Jewish Connection;" "Hollywood and the Vietnam War." May be repeated with departmental permission. Prerequisite: Six hours of Film courses, including FILM 107.

Credits: 3.00

FILM 272 - Seminar in Film

Selected topics in film. Recent topics: "The Films of Charlie Chaplin;" "The Films of Stanley Kubrick;" "Hollywood and the Jewish Connection;" "Hollywood and the Vietnam War." May be repeated with departmental permission. Prerequisite: Six hours of Film courses, including FILM 107.

Credits: 3.00

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Courses in Forestry (FOR)

FOR 001 - Forest Conservation

Introduction to the ecology and management of American forests: forest distribution, ownership, and ecological factors, species interactions, multi-resource management goals, and silvicultural practices. Cannot be taken by junior- or senior-level SNR students.

Credits: 3.00

FOR 021 - Dendrology

Classification, silvical characteristics, and identification features of native and introduced trees and shrubs.

Credits: 4.00

FOR 073 - Small Woodland Management

Concepts of forest ecology, resource inventory, cultural practices, and multiple use management for small woodland areas.

Credits: 3.00

FOR 081 - Forestry Seminar

Readings and discussions introducing current issues in forestry. Prerequisite: First-Year/Sophomore standing in Natural Resources.

Credits: 1.00

FOR 120 - Forest Ecology

Forest environment and its effects on the development and distribution of forest communities. Introduction to population dynamics, systems and analysis, diversity, stability, ecosystem disturbances, and succession. Prerequisite: NR 001, or another introductory Biological Science course. Not offered 2001-02.

Credits: 3.00

FOR 121 - Forest Ecology Laboratory

Application of ecological principles in the analysis of forest communities.

Prerequisite: NR 025; a course in tree identification; previous or concurrent enrollment in NR 103.

Credits: 2.00

FOR 122 - Forest Ecosystem Analysis

An integrated field course to investigate, through quantification and interpretation, the flora, fauna, and abiotic components (soils, physiography, water, and microclimate) of a selected forest ecosystem. Prerequisite: FOR 121, NR 140.
Credits: 4.00

FOR 126 - Forest Ecology Field Trip

Assessment of southeastern forest ecosystems including Smoky Mountain communities, and upland and bottomland forests of the Georgia Piedmont and South Carolina Coastal Plain. Field trip at end of spring semester. Prerequisite: A course in plant identification; a course in ecology; Instructor permission.
Credits: 2.00

FOR 132 - Forest Fire Behavior & Mgmt

Forest fire ecology, behavior, effects, weather relationships, danger rating, prevention, detection, management, prescribed fire, smoke management, wildland/urban interface, and multi-resource perspectives. Prerequisite: A course in plant ecology or concurrent enrollment; Knowledge of plant identification. Alternate years.
Credits: 3.00

FOR 133 - Forest Entomology

(Cross-listed with Plant and Soil Science 107.)
Credits: 3.00

FOR 146 - Remote Sensing of Natural Res

Cross-listed with: NR 146, GEOG 185. Identification, interpretation, measurement, and mapping of natural resources from aerial photographs and satellite imagery. Labs include air photo interpretation and digital image analysis. Prerequisites: Junior standing. Alternate years.
Credits: 3.00

FOR 152 - Forest Resources Values

History, methods, and current issues associated with the nonmarket and market values of forest-based resources, including aesthetics, wildlife, recreation, water, and timber. Prerequisites: Economics 12 or CDAE 61. (Same as Recreation Management 152).
Credits: 3.00

FOR 158 - Stewardship: Private Woodlands

Basic financial, legal and operational aspects for long-term ownership and stewardship of woodlands; appraisals, taxation, land trusts, conservation easements, estate planning; Vermont focus. Prerequisite: Course in Economics.
Credits: 3.00

FOR 162 - Properties & Uses of Wood

Properties, uses, and identification of commercial woods of the U.S. Manufacture of major wood products. Prerequisite: A course in tree identification. Alternate years.
Credits: 3.00

FOR 163 - Timber Harvesting

Private forest emphasis; impacts of alternative techniques on cultural and natural resources; preharvest inventory, prescription, layout, contracts, bookkeeping; postharvest operations. Alternate years.

Credits: 3.00

FOR 182 - Advanced Forestry Seminar

In-depth examination of contemporary issues in forestry. Prerequisite: Junior/Senior standing in Forestry. Credit arranged.

Credits: 1.00

FOR 185 - Undergrad Special Topics

Readings, investigations, and lectures in selected forest resource subjects.

Prerequisite: Instructor permission. Credit arranged.

Credits: 4.00

FOR 191 - Forestry Work Practicum

Supervised work experience in forest resource area. Prerequisite: Instructor permission. Credit arranged.

Credits: 3.00

FOR 223 - Multi-Resource Silviculture

Theory and application of forest stand maintenance/manipulation for forest ecosystem sustainability. Topics: Silvics, regeneration, tree improvement, protection, stand structure/dynamics/tending, and multi-resource perspectives.

Prerequisites: NR 25, 103, FOR 121 (FOR 122-Forestry majors). UG only.

Credits: 4.00

FOR 225 - Tree Structure & Function

Basic anatomy and physiology of trees and other woody plants, emphasizing their unique structural and physiological adaptations to the environment. Prerequisite: Permission.

Credits: 3.00

FOR 228 - Ecosystem Ecology

Examination of the structure and function of terrestrial ecosystems using a systems approach. Laboratory sessions involve modeling and data analysis.

Prerequisites: Biology 1, 2, Chemistry 23, an intermediate ecology course, Natural Resources 140, Math. 19, Physics 11 or equivalent. Alternate years, 2002-03.

Credits: 2.00

FOR 231 - Integrated Forest Protection

Integration of concepts of forest protection using a holistic ecological approach to forest pest management. Detection, population dynamics, evaluation, prediction, and pest management considerations. Prerequisite: FOR 133, FOR 234, or Instructor permission. Alternate years, 2001-02.

Credits: 3.00

FOR 234 - Forest Pathology

An in-depth survey of diseases of forest and shade trees emphasizing identification, morphology, physiology, ecology, epidemiology, genetic relationships, integrated disease management, and multi-resource perspectives.

Prerequisites: Biology 1 & 2, knowledge of plant identification and ecology. UG only.

Credits: 4.00

FOR 272 - Sustainable Mgmt Forest Ecosys

Principles of long-term planning and plan implementation in support of sustainable forestry; Adaptive management; biodiversity and ecosystem health; major management planning project. Prerequisite: FOR 122, NR 205; concurrent or prior enrollment in FOR 223, or Graduate standing.

Credits: 4.00

FOR 285 - Advanced Special Topics

Advanced special topics courses or seminars in forestry beyond the scope of existing formal courses. Prerequisite: Graduate or advanced undergraduate standing; Instructor permission. Credit as arranged.

Credits: 4.00

FOR 291 - Senior Research

Work on research problem under direction of a staff member. Findings submitted in written form as prescribed by department. Prerequisites: Senior standing, permission. (Not offered for graduate credit.)

Credits: 3.00

FOR 292 - Senior Research

Work on research problem under direction of a staff member. Findings submitted in written form as prescribed by department. Prerequisites: Senior standing, permission. (Not offered for graduate credit.)

Credits: 3.00

FOR 299 - Honors

Honors project dealing with the biology and/or management of forest ecosystems. Prerequisite: By application only; see program chair. UG only.

Credits: 3.00 to 6.00

FOR 385 - Selected Problems in Forestry

Advanced readings, or a special investigation dealing with a topic beyond the scope of existing formal courses. Prerequisite: Instructor permission.

Credits: 4.00

FOR 391 - Master's Thesis Research

Credits: 1.00 to 6.00

FOR 392 - Master's Project Research

Credits: 1.00 to 6.00

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Courses in Foundations (EDFS)

EDFS 197 - Readings and Research

Credits: 1.00

EDFS 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

Credits: 3.00

EDFS 203 - Soc, Hst & Phil Found of Educ

Critical examination of central educational/social issues and values with special emphasis on the struggle for justice and equality. Themes include schooling and social class, race, and gender; the purposes of education; and the responsibilities of teachers. Prerequisite: Enrollment in teacher licensing program.

Credits: 3.00

EDFS 204 - Sem in Educational History

Selected topics in history of education. Education in democratic and authoritarian social orders. Topics: education of women, black heritage, American higher education in transition. Prerequisite: Twelve hours in Education and related areas or Instructor permission.

Credits: 3.00

EDFS 205 - History of American Education

Educational principals and practices in the U.S. as they relate to the main currents of social history. Key ideas of historic and contemporary significance. Prerequisite: Twelve hours in Education and related areas or Instructor permission.

Credits: 3.00

EDFS 206 - Comparative Education

Examines educational challenges confronting countries around the world. Explores issues related to sustainable development, diversity, citizenship, and justice in formal and nonformal educational contexts. Prerequisite: Twelve hours in Education and related areas.

Credits: 3.00

EDFS 209 - Intro to Research Methods

Seminars and research projects. Methods of historical, descriptive, experimental, quasi-experimental, field studies, and survey research.

Credits: 3.00

EDFS 255 - School as Social Institution

Examination of the school and related social institutions, focus on themes, including: social class, race, ethnicity, socialization, role of the family, social change. Prerequisite: Twelve hours of Education and related areas.

Credits: 3.00

EDFS 295 - Lab Experience in Education

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 3.00

EDFS 302 - Philosophy of Education

Critical examination of key beliefs and values in current philosophies of helping, e.g. phenomenological, behavioral, holistic, as practiced in a variety of educational and social service institutions. Prerequisite: Twelve hours in education and related areas.

Credits: 3.00

EDFS 303 - Ethics Helping Relationships

Clarification of ethical dimensions of professional rights and obligations for educators, counselors, administrators, other helping professionals. Examination of selected ethical controversies currently facing the helping professionals.

Prerequisite: Twelve hours in education and related areas.

Credits: 3.00

EDFS 304 - Religion, Spirituality & Ed

A narrative approach to thinking about religion and spirituality and theoretical and practical implications for policy making, pedagogy, curriculum development, and educational leadership.

Credits: 3.00

EDFS 309 - Schol Pers Narr Writing:ED&SS

A workshop for educational writers of theses, dissertations, and scholarly articles. Students will be introduced to critical theory, postmodern, feminist, and narrativist conceptions of educational writing.

Credits: 3.00

EDFS 314 - Modes of Inquiry

A critical analysis of the various conceptual and methodological foundations of theory and practice in education and the human services. Prerequisite: Twelve hours in education and related areas.

Credits: 3.00

EDFS 322 - Chall Multicultrsm/Ed&Soc Inst

Critical analysis of social, historical, and philosophical dimensions of

multiculturalism. Examination of identity, empowerment, and justice and their relationships to educational/social policies and practices. Prerequisite: Twelve hours in education and related areas.

Credits: 3.00

EDFS 347 - Qualitative Research Methods

Introduces students to qualitative methods as a research paradigm and develops skills in ethnographic techniques of field observation, interviewing, and data analysis. Out-of-class fieldwork required. Prerequisite: Master's or doctoral level standing or Instructor permission.

Credits: 3.00

EDFS 348 - Analyze&Write Qualitative Rsch

This course extends students' knowledge of and experience with qualitative research analysis and writing. Students must come with data collected previous to the start of the course. Prerequisite: EDFS 347 or Instructor Permission.

Credits: 3.00

EDFS 352 - Aesthetic Ed & Social Justice

Exploration of art that deepens understanding of educational and social problems. Focus on artists who challenge dominant powers. Incorporates democratic perspectives on art and aesthetics. Prerequisite: Twelve hours in education and related areas.

Credits: 3.00

EDFS 354 - Anth Persp on Ed & Soc Serv

Examination of formal and non-formal education as means to produce and alleviate cultural conflict. Incorporates an autobiographical approach to studying socio-cultural implications of schooling and social services. Emphasis on Third World situations. Prerequisite: Twelve hours in education and related areas.

Credits: 3.00

EDFS 369 - Ethics in Ed & Soc Serv Admin

Critical examination of theories of ethical decision making. Implications for leadership in educational, social service settings. Ethical investigation utilizing research, scholarship, actual incidents, case studies, role playing. Prerequisite: Ed.D. students have priority.

Credits: 3.00

EDFS 377 - Seminar Educational Psychology

Personal values, attitudes, beliefs related to learning. Psychological research of the teaching-learning process. Research use in analysis of educational processes. Applications for educational settings. Prerequisite: Twelve hours in education and related areas.

Credits: 3.00

EDFS 380 - Professional Problems in Educ

Designed to cover selected educational problems in depth. The major emphasis will be on intensive and critical analysis of the literature and practice in a given area.

Credits: 3.00

EDFS 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1.00 to 18.00

EDFS 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 3.00

EDFS 455 - Soc Process & Institutional Chg

Critical analysis of theory and research related to justice, caring, and change in education and other social institutions. Focus: ideology, diversity, and management of knowledge. Prerequisite: Doctoral level standing.

Credits: 3.00

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Courses in French (FREN)

FREN 001 - Elementary I

Fundamentals of French composition, comprehension, pronunciation, speaking, reading, writing. Structure of the basic French sentence. No prior knowledge expected.

Credits: 4.00

FREN 002 - Elementary II

Continuation of FREN 001. Prerequisite: FREN 001 or equivalent.

Credits: 4.00

FREN 009 - Basic French Grammar Review

Thorough review of French grammar in preparation for intermediate level. Considerable emphasis on written exercises.

Credits: 3.00

FREN 051 - Intermed Rdg & Conversation I

Designed to help students move from a basic knowledge of French to the ability to read, speak, and understand French better. Some grammar review and short compositions. Prerequisite: FREN 002 or FREN 009 or equivalent.

Credits: 3.00

FREN 052 - Intermed Rdg & Conversation II

Continues building on skills developed in FREN 051. Less stress on grammar review. Reading selections and compositions are longer and more sophisticated than in FREN 051. Prerequisite: FREN 051 or equivalent.

Credits: 3.00

FREN 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

FREN 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

FREN 101 - Writing Workshop

Improvement of functional skills: writing, listening, and speaking. Development of

techniques to explain, elaborate, support opinions, convince, and persuade in both writing and speaking. Prerequisite: FREN 052 or equivalent.

Credits: 3.00

FREN 104 - Contemporary France

Study of selected aspects of France today. Improvement of language skills; emphasis on reading, writing, and analysis of a variety of materials FREN 101. (literature, journalism, images). Pre/co-requisite:

Credits: 3.00

FREN 105 - French Culture

Study of the fundamentals of French culture from historical and structural perspectives, including a review of sociopolitical institutions. Pre/co-requisite: FREN 101.

Credits: 3.00

FREN 107 - Focus on Oral Expression

Guided practice of oral-aural skills through vocabulary and pronunciation exercises, readings, and oral presentations. Writing exercises reinforce oral work. Prerequisite: FREN 052 or equivalent.

Credits: 3.00

FREN 111 - French Lit in Context I

A study of significant texts in the history of French literature from the Middle Ages through the 18th century, in their historical and cultural contexts. Prerequisites: FREN 101; Senior French majors with Instructor permission only.

Credits: 3.00

FREN 112 - French Lit in Context II

A study of significant texts in the history of French literature from the French Revolution to the present, in their historical and cultural contexts. Prerequisites: FREN 101; Senior French majors with Instructor permission only.

Credits: 3.00

FREN 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

FREN 196 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

FREN 197 - Readings & Research

Permission of Chair required.

Credits: 1.00

FREN 198 - Readings & Research

Permission of Chair required.

Credits: 1.00 to 6.00

FREN 201 - Adv Composition & Conversation

Course activities (discussions, exposes, written work, etc.) designed to lead to mastery of French oral and written expression. Prerequisite: 101. (Not offered for

graduate credit.)

Credits: 3.00

FREN 209 - Advanced Grammar

Comparative grammatical study centered on the specific problems encountered by Anglophones in written and spoken French. Prerequisite: 101.

Credits: 3.00

FREN 211 - History of French Language

The development of French through sound and structure, from late Latin through the 12th century. Prerequisite: FREN 101.

Credits: 3.00

FREN 216 - Stylistics

Study of idiomatic difficulties faced by people who learn French; translation; analysis of the various "levels of speech" in French, with their stylistic features.

Prerequisite: FREN 101.

Credits: 3.00

FREN 225 - Medieval French Literature

First semester: Old French language; 12th century epics, e.g. La Chanson de Roland, Breton lays; Marie de France. Prerequisite: Either FREN 111 or FREN 112 or both.

Credits: 3.00

FREN 235 - Lit of French Renaissance

Readings in fiction, poetry, and essays: Rabelais, the lyric poets Ronsard, and Du Bellay, the tales of Marguerite de Navarre; Montaigne. Prerequisites: Either 111 or 112 or both.

Credits: 3.00

FREN 247 - 17th Century Theatre

Works of Corneille, Moliere, and Racine studied in the context of the evolution of 17th century thought. Prerequisites: Either 111 or 112 or both.

Credits: 3.00

FREN 255 - 18th Century Literature

Writers of the early Enlightenment. Possible topics: the impact of the new science; the literary reflection of new social types; the "pursuit of happiness." Prerequisite: Either FREN 111 or FREN 112 or both.

Credits: 3.00

FREN 256 - 18th C Literature

Rousseau, Diderot, Laclos, Sade: the generation before the Revolution. Possible topics: the attempts to define "natural man;" the relationship between the arts and morality, between liberty and libertinism. Prerequisites: Either 111 or 112 or both.

Credits: 3.00

FREN 265 - Rom,Symb,Decadence:19th C Lit

Evolution of the idealist tradition: the Romantic movement (Chateaubriand, Sand, Hugo, Musset, Flaubert); the Symbolists (Baudelaire, Verlaine, Rimbaud); fin de siècle Decadents (Huysmans). Prerequisites: Either 111 or 112 or both.

Credits: 3.00

FREN 266 - Rev&React in 19th C Narrative

Study of the representations of major social issues of the period, such as power, class, money, and women. Representative authors: Balzac, Flaubert, Sand, Stendhal, Zola. Prerequisites: Either 111 or 112 or both.

Credits: 3.00

FREN 275 - 20th Century Literature

Selected topics dealing with poetry and/or narrative related either to an historical period or a literary movement. Prerequisites: Either 111 or 112 or both.

Credits: 3.00

FREN 276 - 20th C Literature

Selected topics dealing with poetry and/or narrative related either to an historical period or a literary movement. Prerequisites: Either 111 or 112 or both.

Credits: 3.00

FREN 279 - Women's Autobiographies

Study of several autobiographies written by contemporary French/Francophone women. Representative authors include Colette, de Beauvoir, Sarraute, Duras, Ernaux, Martin. UG only.

Credits: 3.00

FREN 285 - Quebec Literature I

A study of contemporary (1960-1985) major works of fiction, poetry, and drama. Authors studied include Anne Hebert, Michel Tremblay, Jacques Godbout, Gaston Miron. Prerequisites: Either 111 or 112 or both.

Credits: 3.00

FREN 289 - African Lit: French Expression

Study of West African poetry, theatre, novel, and civilization as an expression of the Black experience in the language of the French colonizer. Prerequisites: Either 111 or 112 or both.

Credits: 3.00

FREN 292 - Topics in French Culture

In-depth study of a major aspect of French culture. See Schedule of Courses for specific offering. Prerequisites: 104 or 105 or permission.

Credits: 3.00

FREN 293 - Quebec Culture

Sociocultural study of the Francophone culture of Canada. Prerequisite: One 100-level French course.

Credits: 3.00

FREN 295 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

FREN 296 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing

departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

FREN 297 - Advanced Readings & Research

Permission of Chair required.

Credits: 3.00

FREN 298 - Advanced Readings & Research

Permission of Chair required.

Credits: 3.00

FREN 391 - Master's Thesis Research

Credits: 1.00 to 18.00

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Courses in Geography (GEOG)

GEOG 001 - World Regional Geography

Basic introduction to Geography by way of a regional approach to human and environmental topics.

Credits: 3.00

GEOG 002 - World Natural Environments

The patterns of the natural environment with particular attention to landforms, climate, soil, vegetation, and water resources.

Credits: 3.00

GEOG 043 - Weather & Climate

Introduction to the fundamentals of the weather, as well as midlatitude and tropical climates. Topics include cloud formation, hurricanes, tornadoes, winter weather, climate change.

Credits: 3.00

GEOG 051 - Africa

The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base.

Credits: 3.00

GEOG 052 - Canada

The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base.

Credits: 3.00

GEOG 055 - Europe

The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base.

Credits: 3.00

GEOG 056 - Latin America

The character and development of the contemporary cultural, economic, and

political patterns of the area against the background of its physical and resource base.

Credits: 3.00

GEOG 057 - The United States

The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base.

Credits: 3.00

GEOG 060 - Geography/Race&Ethnicity in US

Examination of the ways in which spatial and locational processes shape and are shaped by ethnic and racial identities, struggles, and relationships.

Credits: 3.00

GEOG 073 - Geography of Global Economy

Distribution of global economic activity and power. Processes of uneven development and globalization including industrialization, the "global assembly line," trade, investment, and migration.

Credits: 3.00

GEOG 081 - Geotechniques

Introduction to cartography, geographic information systems (GIS), and remote sensing. Map design and analysis using topographic/satellite data, air photo interpretation, digitizing, and Internet resources.

Credits: 3.00

GEOG 090 - International Field Studies

Field course abroad (e.g. South Africa or England). Intensive study of the geography of a country or region, with attention to related issues.

Credits: 3.00

GEOG 092 - Vermont Field Studies

Field course on a geographical theme (e.g. physical or regional geography) in the Burlington area or surrounding region. Cross-listed with: VS 092.

Credits: 3.00

GEOG 095 - Special Topics in Geography

See Schedule of Courses for specific titles.

Credits: 6.00

GEOG 096 - Special Topics in Geography

See Schedule of Courses for specific titles.

Credits: 3.00

GEOG 143 - Climatology

Analysis of regional and local climatic data with special reference to climatic controls; special laboratory projects. Prerequisite: 43 or instructor permission.

Credits: 3.00

GEOG 144 - Geomorphology

Prerequisite: GEOL 001 or GEOL 055. Cross-listed with: GEOL 151.

Credits: 4.00

GEOG 145 - Geography of Water

Examination of the spatial dimensions of water distribution from local to global scales, and the social, political, and economic dimensions of its use. Same as NR 102.

Credits: 3.00

GEOG 151 - Southern Africa

A regionally focused course. Topics will include: information economy, legacy of apartheid, impacts of HIV/AIDS, race, class, gender, land, governance and social justice. Prerequisite: 51.

Credits: 3.00

GEOG 154 - Geography of Third World Dev

Problems of poverty, insecurity, inequality and environmental degradation in the Third World. Economic change, migration, regional development, role of women. Focus on Africa and Asia.

Credits: 3.00

GEOG 155 - Historical Geography of Europe

European geography within a framework of past times; the historical development and distribution of settlement, economic, and political patterns. Prerequisite: GEOG 055. Cross-listed with: HST 120.

Credits: 3.00

GEOG 170 - Historical Geography

(Same as History 170.) Examination of the tools, techniques, and perspectives used in studying the historic development of places and landscapes. Vermont and other North American case studies. Prerequisites: 57 recommended or History 11 or 12 or instructor permission .

Credits: 3.00

GEOG 171 - Cultural Geography

Distribution of race, ethnicity, language, and religion at different geographical scales and how these factors contribute to world and regional events.

Prerequisites: 1 or Anthropology 21 or Sociology 1.

Credits: 3.00

GEOG 173 - Political Ecology

Human-environment interactions under globalization. Social and economic causes of global and local environmental problems. Environmental movements and sustainable livelihoods in First and Third Worlds.

Credits: 3.00

GEOG 174 - Agricultural Geography

Credits: 3.00

GEOG 175 - Urban Geography

Analysis of the morphology, function and social structure of cities. Consideration of the nature, history and theories of urban growth and development. Prerequisites: 1 or 73 or instructor permission.

Credits: 3.00

GEOG 177 - Political Geography

(Same as Political Science 161.) Examines the relationships between nation states and political identity. Other political-spatial constructs are also examined, including the private and public dichotomy, cyberspace, and borders.

Prerequisites: Recommended 1 or 73 or Political Science 51 or 71.

Credits: 3.00

GEOG 178 - Gender, Space & Environment

(Same as Women's Studies 170.) Examination of the ways in which human relationships to both the built and the natural environment are mediated by gender. Prerequisites: Six hours in geography or women's studies, or instructor's permission.

Credits: 3.00

GEOG 179 - Cultural Ecology

(Same as Anthropology 179.) Interrelationships of social groups and their natural environments and resource bases, with primary emphasis on nonindustrial cultures, examined from the perspectives of anthropology and geography.

Prerequisite: 1 or Anthropology 21.

Credits: 3.00

GEOG 185 - Remote Sensing

Examinations of the earth's surface from aerial photographs and satellite imagery. Emphasis is on image interpretation, classification, change detection, multivariate analysis (e.g. principal components analysis). Prerequisite: GEOG 081 recommended. Cross-listed with: FOR 146, NR 146.

Credits: 3.00

GEOG 190 - International Field Studies

Field course abroad (e.g. South Africa or England.) Intensive study of the geography of a country or region, with attention to related issues. Prerequisite: Three hours in Geography.

Credits: 3.00

GEOG 191 - Geography Internship

Supervised internship in applied geography working with a local public agency or private firm. Individually arranged. Prerequisite: Junior/Senior standing; department permission.

Credits: 4.00

GEOG 192 - Vermont Field Studies

Field course on a geographical theme (e.g. physical or regional geography) in the Burlington area or surrounding region. Prerequisite: Three hours in Geography.

Cross-listed with: VS 192.

Credits: 3.00

GEOG 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

GEOG 196 - Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

GEOG 197 - Readings & Research

Credits: 3.00

GEOG 198 - Readings & Research

Credits: 3.00

GEOG 202 - Research Methods

A systematic overview of the art and science of geographical inquiry. Examination of key research and methodological approaches in the discipline. Prerequisite: Junior/Senior standing; nine hours in Geography.

Credits: 3.00

GEOG 203 - Contemp Geog Thought Context

A survey of paradigms and issues in contemporary geography. Attention paid to the social and historical contexts of geographic thought. Prerequisite: Nine hours in Geography or Instructor permission.

Credits: 3.00

GEOG 204 - Spatial Analysis

Analysis of spatial pattern and interaction through quantitative models; introduction to measurement, sampling, and covariation in a spatial framework. Prerequisite: Senior/Graduate standing; at least nine hours in Geography, or Instructor permission.

Credits: 3.00

GEOG 245 - Adv Top:Human Env Interactions

Advanced offerings on various manifestations of social-environmental relationships. Possible topics include sustainable development, environmental justice, and urban ecology. Prerequisite: Senior/Graduate standing with nine hours in Geography or Instructor permission.

Credits: 3.00

GEOG 246 - Adv Top:Climate&Water Resource

Advanced analysis of regional climatology, hydroclimatological hazards, or fluvial geomorphology. Special topics might include droughts, severe weather, floods and floodplain management, mountain and lowland rivers. Prerequisites: Senior or graduate standing with nine hours in Geography, or instructor permission.

Credits: 3.00

GEOG 272 - Adv Top:Space, Power, Identity

Advanced offerings on topics related to the spatial regulation and geographic construction of social identity, paying particular attention to race, gender and sexuality. Prerequisite: Senior/Graduate standing with nine hours in Geography or Instructor permission.

Credits: 3.00

GEOG 273 - Adv Top:Political Econ&Ecology

Advanced offerings in political ecology and political economy, particularly at global and regional scales. Possible topics include Third World economic restructuring,

globalization, international environmental movements. Prerequisite:
Senior/Graduate standing with nine hours in Geography or Instructor permission.
Credits: 3.00

GEOG 274 - Adv Top:Critical Urban&Soc Geo

Advanced offerings in urban and critical social geography. Possible topics include social justice and the city, human rights, geographies of social control.

Prerequisite: Senior/Graduate standing with nine hours in Geography, or Instructor permission.

Credits: 3.00

GEOG 281 - Adv Topic:GIS & Remote Sensing

Advanced offerings in GIS or remote sensing focusing on landscape interpretation for decision-making practices. Incorporation of applications from Vermont public and private sectors. Prerequisites: Senior or Graduate standing with nine hours in Geography; or Instructor permission.

Credits: 3.00

GEOG 295 - Advanced Special Topics

See schedule of courses for specific titles.

Credits: 4.00

GEOG 296 - Advanced Special Topics

See schedule of courses for specific titles.

Credits: 3.00

GEOG 297 - Readings & Research

Credits: 4.00

GEOG 298 - Readings & Research

Credits: 3.00

GEOG 300 - Graduate Tutorial

Readings and research on topics arranged individually by students with instructors; attendance in appropriate undergraduate courses may be required.

Prerequisite: Instructor permission.

Credits: 3.00

GEOG 391 - Master's Thesis Research

Credits: 1.00 to 18.00

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Courses in Geology (GEOL)

GEOL 001 - Introductory Geology

Process, agents, and their effects on materials, structures, and morphology of earth's crust. Laboratory includes field trips, study and interpretation of rocks, minerals, and maps.

Credits: 4.00

GEOL 003 - Fire & Ice

Introduction to volcanoes/plate tectonics ("fire") and glaciers/climate change ("ice") using lectures, slides, discussion, and field trips. Considers Vermont and world-wide geological examples.

Credits: 3.00

GEOL 005 - Ecol & Geol of Lake Champlain

Introduction to the principles and processes of ecology and geology applicable to the Lake Champlain basin. A topical, project-oriented format rather than a comprehensive overview. Priority to first-year students.

Credits: 4.00

GEOL 007 - Earth Hazards

Understand geological and societal causes of death and destruction by earthquakes, landslides, floods, volcanoes, storms, and avalanches around the world.

Credits: 3.00

GEOL 010 - Geological Oceanography

Characteristics and development of the oceans, their basins and shorelines, including plate tectonic history and basic physical, chemical, and biological processes. Prerequisite: GEOL 001 or introductory science course.

Credits: 3.00

GEOL 053 - Planetary Geology

Characterizes the differences and similarities between the Terrestrial and Jovian Planets, the dynamic processes that shape our home planet and compares the geologic Introductory science course or ASTR 005. processes active in our Solar System. Prerequisites:

Credits: 3.00

GEOL 055 - Environmental Geology

Introduction to geologic processes and materials pertinent to environmental problems: ground water movement, supply, and contamination, waste disposal, flooding, subsidence, and landslides. Local field trips. Designed for intended Natural Science majors.

Credits: 4.00

GEOL 062 - Earth Env & Life Through Time

This course presents an overview of how the Earth has changed over time and how this has influenced the history of life. Prerequisites: GEOL 1,3,4,5, or 55.

Credits: 4.00

GEOL 095 - Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

GEOL 096 - Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

GEOL 101 - Field Geology

Geological evolution of western Vermont as seen through actual field mapping in the Burlington area. Specifically designed for sophomores majoring or minoring in Geology or related sciences. Prerequisite: GEOL 001, GEOL 055, or Instructor permission.

Credits: 4.00

GEOL 102 - Plate Tectonics & Evol Earth

Tectonic processes on Earth related to the origins of continents and oceans following concepts of Plate Tectonics. Laboratory sessions examine earth materials and geologic processes. Prerequisite: Any introductory Geology course.

Credits: 4.00

GEOL 112 - Mineralogy&Optic Crystallgrphy

Credits: 2.00

GEOL 116 - Glacial Geology

Examines the Dynamics of glacier flow and landforms glaciers produce. Lectures, labs, and field trips emphasis processes in both modern and ancient glaciers.

Prerequisites: GEOL 1,5,7, or 55.

Credits: 4.00

GEOL 131 - Igneous/Metamorph/Sedmnt Petro

(3-3) Description, classification, and genesis of igneous and metamorphic rocks. Introduction to petrogenetic models of the earth's crust and mantle. Prerequisite: GEOL 112.

Credits: 4.00

GEOL 151 - Geomorphology

Examines, using lectures, labs, and field-based independent study research projects, processes which change Earth's surface and the history of landscape development. Considers fundamental geologic constraints on environmental

problems. Prerequisite: GEOL 001 OR GEOL 055. Cross-listed with: GEOG 144.
Credits: 4.00

GEOL 153 - Strat & Sedimentary Petrology

Properties of physical sedimentation, principles of stratigraphy and basin analysis, and comparison of modern and ancient environments. Lab includes description and classification of sedimentary rocks. Prerequisite: 131.

Credits: 4.00

GEOL 155 - Fluvial Geology

A discussion of fluvial systems including hydrology, sedimentation, geomorphology, water chemistry, and human impacts. Prerequisite: Instructor permission.

Credits: 4.00

GEOL 172 - Regional Geology

Discussion of the geology of a selected region of North America. A four-week summer field trip to the area in question. Prerequisites: one other Geology course or permission.

Credits: 4.00

GEOL 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

GEOL 196 - Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

GEOL 197 - Research in Geology

Supervised research and readings in a selected field of geology. Students from allied sciences, Mathematics, and Engineering may elect a research problem that combines their major field of study and geology. Prerequisite: Department permission.

Credits: 3.00

GEOL 198 - Research in Geology

Supervised research and readings in a selected field of geology. Students from allied sciences, mathematics, and engineering may elect a research problem that combines their major field of study and Geology. Prerequisite: Department permission.

Credits: 3.00

GEOL 201 - Advanced Field Geology

Advanced field mapping techniques, analysis of field data, preparation of geological maps and reports. Prerequisite: GEOL 260.

Credits: 3.00

GEOL 210 - Systems Dynamics & Earth Sci

Analysis of generic systems with examples from physical and natural sciences. Geological systems emphasized. Laboratories involve computer analysis of system structure and behavior over time. Prerequisites: A major or minor in

science, mathematics, natural resources, engineering, or permission of instructor.

UG only.

Credits: 3.00

GEOL 230 - Adv Igneous&Metamorphic Petrol

Application of phase equilibria, elemental and isotopic data, and textural interpretations to problems in igneous and metamorphic petrology, stressing modern theories of tectonics and petrogenesis. Prerequisite: GEOL 131.

Credits: 4.00

GEOL 233 - Environmental Isotope Geochem

Course focuses on stable isotope geochemistry of low temperature processes occurring on and near the earth surface through lecture, laboratory, and seminar.

Prerequisite: Introductory Chemistry.

Credits: 3.00

GEOL 234 - Global Biogeochemical Cycles

Integrated perspective on biogeochemical cycles describing the transformation and movement of chemical substances in the natural environment, as seen on the global context. Prerequisite: Introductory Chemistry.

Credits: 3.00

GEOL 235 - Geochemistry of Natural Waters

Basic concepts of chemical equilibria applied to natural waters, including thermodynamics, pH, oxidation-reduction, weathering, and solution equilibria.

Prerequisites: Chemistry 1, 2.

Credits: 3.00

GEOL 240 - Tectonics

Applications of igneous and metamorphic petrology to problems in tectonophysics, including petrochemistry of the earth's crust and upper mantle and the internal structure of orogenic belts. Prerequisite: 101, 102.

Credits: 3.00

GEOL 241 - Clastic Depositional Systems

Selected readings and field studies emphasizing the interpretation of clastic sedimentary deposits including transportation, processes of sedimentation, and geomorphology of ancient and recent sedimentary environments. Prerequisite: GEOL 153. Alternate years.

Credits: 3.00

GEOL 243 - Clastic Petrology Laboratory

Study of clastic rocks in hand specimen and thin section. Prerequisite: Concurrent enrollment in GEOL 241.

Credits: 1.00

GEOL 245 - Carbonate Depositional Environ

Paleoenvironmental analysis of carbonate rocks including selected readings, field investigations, and petrographic studies. Prerequisite: GEOL 153. Alternate years.

Credits: 3.00

GEOL 255 - Geohydrology

Field-based projects address hydrologic processes in geological context; precipitation, runoff, ground water flow, river behavior, and hillslope stability. Stresses data analysis, writing, and practical approaches to water-related environmental problems. Prerequisite: Major in science or engineering or permission.

Credits: 4.00

GEOL 260 - Structural Geology

Examines processes and problems concerning the mechanical behavior of the Earth's crust and surface. Includes rock deformation stress, strain, and the interpretation of geological structures. Prerequisites: 101, 102, Physics 11 or permission.

Credits: 4.00

GEOL 272 - Regional Geology

Discussion of the geology of a selected region of North America; a four-week summer field trip to the area in question. Prerequisite: GEOL 101, GEOL 110, equivalent. or

Credits: 4.00

GEOL 273 - Geology of the Appalachians

Origin of mountain belts; the Appalachian mountain system discussed in terms of tectonics and geologic processes active in modern continental margins.

Prerequisites: 101, 102, or permission.

Credits: 3.00

GEOL 278 - Principles of Aquatic Systems

See NR 278.

Credits: 3.00

GEOL 295 - Advanced Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

GEOL 296 - Advanced Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

GEOL 301 - Intro to Graduate Studies

For first year graduate students in Geology. Includes orientation to faculty, abstract and grant writing, comprehensive exams, talk preparation and scientific method in the Geosciences. Prerequisite: Graduate standing in Geology.

Credits: 1.00

GEOL 302 - Intro Graduate Studies Geology

For first year graduate students in Geology. Includes orientation to faculty, abstract and grant writing, comprehensive exams, talk preparation and scientific method in the Geosciences. Prerequisite: Graduate standing in Geology.

Credits: 1.00

GEOL 351 - Surface Proc & Quaternary Geol

Discussion and critique of scientific literature pertaining to Earth surface history

and processes. Critical examination of author's methods, data, and assumptions. Student-led discussions. Specific focus changes yearly. Prerequisites: Graduate standing in science, natural resources or engineering, or Instructor permission. Credits: 1.00 to 3.00

GEOL 352 - Environmental Geology Seminar

Geologic constraints on environmental problems including: groundwater flow, contaminant transport, slope stability, climate change, sedimentation, deforestation and earthquake hazards. Extensive readings and student-led discussions. Prerequisites: Graduate standing in science, natural resources, or engineering, or Instructor permission. Credits: 1.00 to 3.00

GEOL 353 - Crit Writing Earth&Env Science

Review of manuscripts and grants prepared by UVM students and faculty. Learn to write better by presenting writing, grammar and logic critiques in a seminar format. Prerequisite: Instructor permission. Credits: 1.00 to 2.00

GEOL 360 - Structural Anyl Deformed Rocks

Mechanisms of rock deformation; fracture phenomena and analysis; fault zone characteristics; fold generation analysis. Stress and strain interpretation of deformational features in rocks and minerals. Field work. Prerequisite: GEOL 260 or equivalent. Credits: 4.00

GEOL 361 - Advanced Structural Geology

Selected topics in analytical structural geology. Prerequisite: GEOL 260 or equivalent. Credits: 3.00

GEOL 371 - Advanced Readings

Readings and research problems intended to contribute to the program of graduate students in areas of geology for which formal courses are not available. Prerequisite: Graduate standing in Geology. Credits: 3.00

GEOL 391 - Master's Thesis Research

Credits: 1.00 to 9.00

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Courses in German (GERM)

GERM 001 - Elementary

An introduction to all aspects of contemporary standard German: Speaking, listening, reading, writing. Cultural components include topics such as: music, art, literature, and current events. No previous knowledge of German needed for 1. Credits: 4.00

GERM 002 - Elementary

An introduction to all aspects of contemporary standard German: Speaking, listening, reading, writing. Cultural components include topics such as: music, art, literature, and current events. No previous knowledge of German needed for 1. Credits: 4.00

GERM 051 - Intermediate

Comprehensive review of German grammar, vocabulary-building skills, development of reading strategies and compositional abilities, study of contemporary German culture through literary texts. Prerequisite: 1, 2 or equivalent for 51; 51 for 52. Credits: 3.00

GERM 052 - Intermediate

Comprehensive review of German grammar, vocabulary-building skills, development of reading strategies and compositional abilities, study of contemporary German culture through literary texts. Prerequisite: 1, 2 or equivalent for 51; 51 for 52. Credits: 3.00

GERM 095 - Special Topics

See Schedule of Courses for specific titles. Credits: 4.00

GERM 096 - Special Topics

See Schedule of Courses for specific titles. Credits: 3.00

GERM 103 - Composition & Conversation

An intensive language course concentrating on more advanced syntax, vocabulary

building, and idiomatic expression through written compositions, translations, and oral presentations. Prerequisite: GERM 052 or equivalent.

Credits: 3.00

GERM 121 - Culture & Civilization to 1900

Historical, intellectual, and artistic developments of German culture and civilization from Roman times through the 19th century, stressing written and oral work.

Prerequisite: GERM 052 or equivalent.

Credits: 3.00

GERM 122 - 20th C Culture & Civilization

Social, cultural, and political developments in the German-speaking countries since the turn of the century, stressing written and oral components. Prerequisite: 52 or equivalent.

Credits: 3.00

GERM 155 - Survey of German Lit to 1830

Selected prose, drama, and poetry from Medieval through Baroque literature, in-depth readings and analyses of major works by Lessing, Goethe, Schiller, and the Romantics. Prerequisite: 52 or equivalent.

Credits: 3.00

GERM 156 - Survey of German Lit from 1830

Major literary and intellectual movements and figures of the period through in-depth analyses of works by Buchner, Mann, Kafka, and Brecht. Prerequisite: 52 or equivalent.

Credits: 3.00

GERM 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

GERM 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

GERM 197 - Readings & Research

Credits: 3.00

GERM 198 - Readings & Research

Credits: 1.00 to 6.00

GERM 202 - Expository Writing

Improvement of writing skills through work with authentic texts from different content areas (literature, media, science, business). Emphasis on stylistic development and sophisticated vocabulary-building. Prerequisite: Two 100-level courses.

Credits: 3.00

GERM 213 - History of the German Language

Historical and linguistic development of the German language from Indo-European to the present, emphasizing sound shifts, the 16th century, and the modern age.

Prerequisite: GERM 155 or GERM 156; one other 100-level course.

Credits: 3.00

GERM 214 - Middle Ages

Analysis and discussion of several "Minnesang" poets (esp. Walther and Neidhart), the Nibelungenlied, the courtly epics Erec, Parzival, and Tristan, and the satirical epic Helmbrecht. Prerequisite: GERM 155 or GERM 156; one other 100-level course.

Credits: 3.00

GERM 225 - Goethe

Study of Goethe's accomplishments in poetry, drama, and the novel during major phases of his literary career: "Sturm und Drang," Classicism, and Romanticism.

Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 226 - Schiller

Major attention will be paid to Schiller's development as a dramatist (from Die Rauber to Wilhelm Tell) as well as to his contributions to German Classicism.

Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 237 - 19th-Century Prose

Literary and stylistic analysis of prose works by Tieck, Kleist, Stifter, Gotthelf, Droste-Hulshoff, Storm, Keller, and Hauptmann with emphasis on Romanticism, Poetic Realism, and Naturalism. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 238 - 19th Century Drama

Analysis of plays by Tieck, Kotzebue, Kleist, Buchner, Grillparzer, Nestroy, Hebbel, and Hauptmann. Consideration of traditional Viennese "Volks theater" and the period's major literary movements. Prerequisite: GERM 155 or GERM 156 and one other 100-level course

Credits: 3.00

GERM 247 - German Lit from 1890 to 1945

Naturalism, Symbolism, Expressionism and subsequent trends through readings of authors such as Hauptmann, Rilke, Kaiser, Kafka, Mann, and Brecht.

Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 248 - Contemporary German Literature

Literary movements and their major representatives from 1945 to the present, including relevant sociopolitical, intellectual, and cultural aspects. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 251 - German Folklore

Verbal folklore genres (fairy tales, legends, folk songs, and proverbs) treated in their relation to literature, mass media, and popular culture. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 263 - German Romanticism

Study of major works by authors such as Friedrich Schlegel, Novalis, Brentano, Hoffmann, and Eichendorff in their literary, artistic, philosophical, and sociopolitical contexts. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 271 - Proverbs

Diachronic and synchronic survey of German proverbs, proverbial expressions, and wellerisms, emphasizing their use and function in literature, art, mass media, advertisements, and oral communication. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 273 - German Intellectual Movements

A survey of developments in art, music, philosophy, and social thought from the Enlightenment to 1945, with particular attention to their impact on German literature. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 275 - Fin-de-Siecle

Prevalent literary and intellectual movements at the turn of the 20th century in their historical, sociopolitical, and cultural contexts. Study of Nietzsche, Freud, Rilke, Hofmannsthal, Schnitzler, and Mann. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 276 - Brecht & the Modern Drama

Brecht's revolutionary concept of "epic theatre" in theory and practice and its influence on subsequent dramatists, including Durrenmatt, Frisch, Handke, Hochhuth, Muller, and Weiss. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 278 - GDR Fiction

GDR fiction in its literary, historical, and social contexts, with reference to major developments in the GDR from 1949-89. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 279 - German Short Story after 1945

Aesthetic and thematic evolution of the short story and its relation to historical, political, and cultural developments from 1945 to the present. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 281 - Sem in Lit Genre,Period,Theme

Study of a literary genre, period, or theme through close readings of representative texts supplemented by lectures and reports on sociocultural context. May be repeated. Prerequisite: GERM 155 or GERM 156 and one other

100-level course.

Credits: 3.00

GERM 282 - Sem on Particular Author

Study of author(s) through close readings of representative texts supplemented by lectures and reports on the works' socio-cultural context. May be repeated.

Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.00

GERM 295 - Advanced Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

GERM 296 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

GERM 391 - Master's Thesis Research

Credits: 6.00

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Courses in Greek (GRK)

GRK 001 - Elementary

Credits: 4.00

GRK 002 - Elementary

Credits: 4.00

GRK 003 - Self-Paced Greek

Fundamentals of Classical Greek through tutorial instruction, credit dependent on amount of material learned. May be repeated for credit. No credit with GRK 001 and GRK 002.

Credits: 8.00

GRK 051 - Intermediate

Review of syntax. Fall semester: Readings from Plato, Herodotus, and Euripides. Spring semester: Readings from Homer.

Credits: 3.00

GRK 052 - Intermediate

Review of syntax. Fall semester: Readings from Plato, Herodotus, and Euripides. Spring semester: Readings from Homer.

Credits: 3.00

GRK 095 - Introductory Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 4.00

GRK 096 - Introductory Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 4.00

GRK 111 - Greek Prose Style

Readings in literary prose analyzed stylistically and imitated in composition. Required of Greek majors.

Credits: 3.00

GRK 112 - Greek Prose Style

Readings in literary prose analyzed stylistically and imitated in composition.

Required of Greek majors.

Credits: 3.00

GRK 195 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

GRK 196 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

GRK 197 - Readings & Research

Credits: 3.00

GRK 198 - Readings & Research

Credits: 3.00

GRK 201 - Greek Orators

Selected speeches of Lysias and Demosthenes. B. Saylor Rodgers. Alternate years, as needed.

Credits: 3.00

GRK 202 - Greek Comedy

Two plays of Aristophanes. Alternate years, as needed.

Credits: 3.00

GRK 203 - Greek Historians

Thucydides, Books I and II; selections from Herodotus and Xenophon's Hellenica. Alternate years, as needed.

Credits: 3.00

GRK 204 - Greek Tragedy

Sophocles' Antigone, and Euripides' Medea, or two equivalent plays. Alternate years, as needed.

Credits: 3.00

GRK 205 - Greek Philosophers

Dialogues of Plato with attention to language and dialectical method; Aristotle, Xenophon or Presocratic philosophers may be read. Alternate years, as needed.

Credits: 3.00

GRK 206 - Greek Epic

Reading in the Iliad and Odyssey. Problems of epic composition and language together with mythological and historical background. Alternate years, as needed.

Credits: 3.00

GRK 227 - Greek Lyric Poetry

A study of early Greek personal, elegiac, and choral poetry from Archilochus to Pindar, including Sappho and Alcaeus, Simonides and Bacchylides. Prerequisites: Two years of college Greek or equivalent. Alternate years, as needed.

Credits: 3.00

GRK 295 - Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

GRK 296 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

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Courses in Greek & Latin (GKLT)

GKLT 295 - Special Topics

UG only.

Credits: 1.00 to 3.00

GKLT 300 - Proseminar

Introduction to philology. Students will normally take this their first semester.

Credits: 3.00

GKLT 381 - Seminar

Intensive study at the graduate level of Greek and Latin authors not read in the candidate's undergraduate program.

Credits: 3.00

GKLT 391 - Master's Thesis Research

Credits: 5.00

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Courses in HELiX (HLX)

HLX 095 - Introductory Special Topics

See schedule of courses for specific titles. Cross-listings: Bio 95, 96.

Credits: 1.00

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Courses in Health Education (EDHE)

EDHE 046 - Personal Health

Concepts of personal health related to problems of daily living. Mental health, sex education, nutrition and weight control, fatigue and relaxation, chronic and communicable disease, stimulants and depressants.

Credits: 3.00

EDHE 150 - Sem: Health Educ

Research, discussion, and critical examination of selected topics and special issues in health not currently covered in existing courses. Prerequisite: Six hours in health education or Instructor permission. Variable credit, one to four hours.

Credits: 3.00

EDHE 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

Credits: 3.00

EDHE 208 - School Health Programs

Organization of the total school health program. Problems and administration in the area of school environment, health services, health education, and school-community relationship. Prerequisite: EDHE 046 or equivalent.

Credits: 3.00

EDHE 211 - Community Health Ed

Government and voluntary agencies' sociological, historical, educational, environmental, and medical influences. Role of community health educator in these influences and major American health concerns. Prerequisite: EDHE 046 or equivalent.

Credits: 3.00

EDHE 220 - Stress Mgmt Hlth Professionals

Physiological, psychological, and sociological aspects of stress. Theory, practices, teaching techniques, and application relevant to teaching students and/or clients. Prerequisite: EDHE 046 or equivalent.

Credits: 3.00

EDHE 295 - Lab Experience in Educ

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 3.00

EDHE 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1.00 to 12.00

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Courses in Hebrew (HEBR)

HEBR 001 - Elementary

The spoken language of everyday use with oral, aural, and written practice in speaking, reading, and comprehension.

Credits: 4.00

HEBR 002 - Elementary

The spoken language of everyday use with oral, aural, and written practice in speaking, reading, and comprehension.

Credits: 4.00

HEBR 051 - Intermediate

Reading, translation, and discussion in Hebrew of texts selected to show the development of Hebrew culture from Biblical times to the present. Prerequisites: 1, 2 or equivalent for 51; 51 for 52.

Credits: 3.00

HEBR 052 - Intermediate

Reading, translation, and discussion in Hebrew of texts selected to show the development of Hebrew culture from Biblical times to the present. Prerequisites: 1, 2 or equivalent for 51; 51 for 52.

Credits: 3.00

HEBR 095 - Special Topics

Credits: 3.00

HEBR 096 - Special Topics

Credits: 3.00

HEBR 195 - Int Special Topics

Credits: 3.00

HEBR 196 - Intermediate Special Topics

Credits: 3.00

HEBR 197 - Readings & Research

Credits: 3.00

HEBR 198 - Readings & Research

Credits: 3.00

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Courses in Higher Education (EDHI)

EDHI 055 - Special Topics

Credits: 3.00

EDHI 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

Credits: 3.00

EDHI 202 - Human Rel in Univ Res Halls

Emphasis on human relations, group dynamics, advising models, student development theory, organizational development, and contemporary student issues in a residential environment. Prerequisite: Residence hall staff. (Not offered for graduate credit.)

Credits: 1.00

EDHI 213 - Ldr:Theories,Styles&Realities

Introductory course in leadership development designed for student leaders. Includes study of planning, time management, organizational theory, communication skills, group process, team building. (Not offered for graduate credit.)

Credits: 2.00

EDHI 214 - Adv Seminar in Leadership

Focuses on student leaders' experiences and how those experiences relate to activities beyond the University setting.

Credits: 2.00

EDHI 297 - Special Topics

Learning modules may vary each semester as the need to address topics arises. Learning modules are five week classes.

Credits: 1.00

EDHI 319 - Internship

Students will undertake an approved internship in an institution which reflects the particular area of interest and needs of the student. Prerequisite: Instructor

permission.

Credits: 1.00 to 6.00

EDHI 332 - Adult Development & Education

Critical examination of research on adult learners in higher education, development theory, and reentry issues facing older students. Analysis and application of proposals for new adult-oriented educational programs.

Credits: 3.00

EDHI 360 - Higher Education in America

Critical, contemporary overview of the American university. Implications of conflicting value philosophies for theory, practice of higher education.

Credits: 3.00

EDHI 361 - The (Un)Changing Academy

This course examines the historical trends that have shaped higher education and the tensions around stability and change affecting colleges and universities.

Prerequisite: Graduate standing.

Credits: 3.00

EDHI 362 - The American College Student

Examination of the diversity of college students today, and the developmental issues arising during the college experience.

Credits: 3.00

EDHI 375 - Cultural Pluralism Higher Ed

This course explores cultural pluralism philosophies, racial identity development, racial incidences, and educational practices related to racism and diversity for implementation in higher education. Prerequisite: Graduate standing.

Credits: 3.00

EDHI 380 - Professional Problems in Educ

Designed to cover selected educational problems in depth. The major emphasis will be on intensive and critical analysis of the literature and practice in a given area.

Credits: 3.00

EDHI 383 - Higher Ed Admin & Organization

Introduction to concepts of administration and organization as applied to contemporary higher education setting. Characteristics of organizations, dynamic elements of administration, and theories and processes of change.

Credits: 3.00

EDHI 385 - Student Affairs Profession

Overview of the work of the student affairs profession, including philosophical base, historical development, current practices, and future trends. Prerequisite: Enrollment open only to Higher Education and Student Affairs students.

Credits: 3.00

EDHI 387 - Seminar in Higher Education

Designed for graduate students concentrating in programs in Higher Education. Analysis and discussion of current issues and problems in higher education.

Credits: 3.00

EDHI 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 3.00

EDHI 395 - Lab Experience in Education

Practica internships, offered in various University departments and offices, enable students to integrate conceptual knowledge with professional practices.

Prerequisite: Graduate standing in HESA.

Credits: 2.00

EDHI 396 - Capstone:Eth,Val&Mean/High Ed

An applied student affairs seminar featuring ethical problem-solving, appreciation of religious pluralism, and approaches to facilitating the search for moral and spiritual meaning in the American university.

Credits: 3.00

EDHI 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 3.00

EDHI 491 - Doctoral Dissertation Research

Credits: 1.00 to 12.00

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Courses in Historic Preservation (HP)

HP 200 - History American Architecture

Study of architectural history to gain fluency in the stylistic terms so essential to historic preservation and to public support for conserving our architectural heritage. Prerequisite: Open to non-HP majors by permission.

Credits: 3.00

HP 201 - History on the Land

Identifying and interpreting evidence of the cultural forces - early settlement patterns, transportation, industry, agriculture, planning, conservation - that have shaped our land, buildings, towns and cities. Cross-listed with: HST 201.

Credits: 3.00

HP 202 - Special Topics

Courses are offered under this number in specialized areas of historic preservation through Continuing Education.

Credits: 3.00

HP 204 - Historic Pres: Devlpmnt Econ

Survey of economic, financial aspects of real estate development pertaining to preservation and adaptive use of historic buildings (market studies, pro-formas). Field trips. Actual proposal development for underutilized properties. Prerequisite: HP 201.

Credits: 3.00

HP 205 - Historic Preservation Law

Legal issues in conservation of the built environment. Basic legal techniques for protection of historic structures (historic districts, protective legislation, easements, covenants). Study of significant court decisions. Prerequisite: HP 201.

Credits: 3.00

HP 206 - Rschg Historic Structure/Sites

Methods for researching historic structures and sites using archival and physical evidence, deciphering archaic building technologies, and documenting structures through professional reports, architectural photography, measured drawings.

Prerequisite: HP majors or by permission.

Credits: 3.00

HP 302 - Community Preservation Project

Third-semester graduate students apply developed professional skills to actual community preservation problems. Projects include strategy development, securing and allocating funds, research, advocacy, and implementation.

Prerequisite: HP 301; Historic Preservation majors.

Credits: 3.00

HP 303 - Grad Internship

Participants will devote a semester to preservation within an appropriate institution or agency. Prerequisite: Historic Preservation majors only.

Credits: 3.00

HP 304 - Contemp Preservation Plan&Pol

This introduction to the professional practice of preservation planning traces the evolution of the historic preservation movement and examines contemporary preservation policy-making issues. Prerequisites: Historic Preservation Graduate majors only.

Credits: 3.00

HP 305 - Hst Preservation Pract Methods

This course introduces students to professional practice methods for conducting historic site and structures surveys. National Register nominations, and rehabilitation investment tax credit application projects. Prerequisites: Historic Preservation Graduate majors only.

Credits: 3.00

HP 306 - Architectural Conservation I

An examination of the physical properties of historic building materials, their deterioration mechanisms, and strategies for assessing conditions, conserving and rehabilitating historic resources. Lecture and lab. Prerequisites: Historic Preservation majors or by Instructor permission.

Credits: 3.00

HP 307 - Architectural Conservation II

A continuation of Architectural Conservation I, emphasizing an integrated examination of historic preservation through lectures, seminars, and field and laboratory research projects. Prerequisite: HP 306.

Credits: 3.00

HP 391 - Master's Thesis Research

Total of six hours required.

Credits: 6.00

HP 395 - Advanced Special Topics

Credit as arranged.

Credits: 3.00

HP 397 - Special Readings & Research

Credit as arranged.

Credits: 3.00

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Courses in History (HST)

HST 009 - Global History to 1500

The development and cross-fertilization of civilizations in Eurasia, Africa, and the Americas from about 3500 B.C.E. to A.D. 1500.

Credits: 3.00

HST 010 - Global History Since 1500

Character, development, and emerging interdependence of the world's major civilizations since 1500.

Credits: 3.00

HST 011 - History of the US

Survey from the pre-Revolutionary period to 1876.

Credits: 3.00

HST 012 - History of the US

Survey from 1876 to the present.

Credits: 3.00

HST 013 - Ideas in the Western Tradition

Great books of Western civilization in their historical setting. Greece and Rome.

Prerequisites: Concurrent enrollment in English 27, 28; Religion 27, 28; Integrated Humanities Program.

Credits: 3.00

HST 014 - Ideas in the Western Tradition

Great books of Western civilization in their historical setting. Renaissance to Existentialism. Credit will not be given for History 14 and History 25 or 26.

Prerequisites: Concurrent enrollment in English 27, 28; Religion 27, 28; Integrated Humanities Program.

Credits: 3.00

HST 019 - Western World Since 1945

Comparative history of European nations and the United States since 1945.

Credits: 3.00

HST 021 - Classical Greek Civilization

Cross-listed with: CLAS 021.

Credits: 3.00

HST 022 - Classical Roman Civilization

Cross-listed with CLAS 023.

Credits: 3.00

HST 023 - The Birth of Europe

Survey of history of Western Europe from the late Roman Empire to the stabilization of Medieval Civilization around A.D. 1000.

Credits: 3.00

HST 024 - High & Later Middle Ages

The stabilization and expansion of Western European civilization in the Age of the Crusades; the crisis of the 14th century; 15th century recovery.

Credits: 3.00

HST 025 - European Civilization to 1815

Introduction to political, social, and intellectual movements which have shaped the foundations of Western civilization from the Renaissance to the French Revolution.

Credits: 3.00

HST 026 - Europe 1815 - 1945

Europe from the fall of Napoleon to the end of World War II, focusing on political, social, economic, and intellectual developments.

Credits: 3.00

HST 027 - Modern Eastern Europe

Eastern Europe since 1772, especially areas comprising present-day states of Bosnia-Herzegovina, Croatia, the Czech Republic, Hungary, Macedonia, Poland, Slovakia, Slovenia, and Yugoslavia. Focus on politics and culture of nationalism.

Credits: 3.00

HST 040 - African History to C-1870

Introduction to the political, social and economic history of Africa, focusing on the major events and forces that shaped the continent before the colonial period.

Credits: 3.00

HST 041 - Africa From C-1870 to Present

Introduction to African history from European conquest to the present, with special attention paid to African resistance, the nature of colonialism, and African independence movements.

Credits: 3.00

HST 045 - Hst Islam&Middle East to 1258

Introduction to the major institutions evolved in the Middle East from the advent of Islam to the Mongol conquest of Baghdad in 1258.

Credits: 3.00

HST 046 - Hst Islam&Mid East Since 1258

Introduction to the major institutions evolved in the Islamic Middle East since the Mongol conquest of Baghdad in 1258 to the present.

Credits: 3.00

HST 050 - China & Japan to 1800

Historical development of the politics, economics, social structure, philosophy, religion, and the arts in East Asia from neolithic times to 1800.

Credits: 3.00

HST 051 - China & Japan Since 1800

Continuity and change in the politics, economics, society, and culture of China and Japan in the 19th and 20th centuries.

Credits: 3.00

HST 062 - Colonial Latin American Hist

Comparative survey concentrating on the complex cultural, economic, and political development of Spanish and Portuguese America from pre-Conquest to 1820.

Credits: 3.00

HST 063 - Modern Latin American History

Comparative survey concentrating on Latin America from the independence movements to the present with emphasis on cultural, political, and economic development and U.S. intervention.

Credits: 3.00

HST 065 - History of Canada

Survey of Canadian history from aboriginal settlement to the present. Themes include Indian-White relations, colonial societies, national identities, American influence. Field trip to Canada.

Credits: 3.00

HST 068 - History U.S. Peoples of Color

Comparative survey of historical experiences of African-Americans, Latinos, Asian-Americans, and Native Americans in U.S. Racism, conquest, slavery, exploitation, civil rights, militancy, liberation movements, and cultural renaissance.

Credits: 3.00

HST 085 - History of Science

Survey of the history of the physical and biological sciences from antiquity to the present. Stresses science as an intellectual activity within the contemporary context of philosophy, religion, and social organization.

Credits: 3.00

HST 086 - History of Science

Survey of the history of the physical and biological sciences from antiquity to the present. Stresses science as an intellectual activity within the contemporary context of philosophy, religion, and social organization.

Credits: 3.00

HST 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 6.00

HST 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

HST 120 - Historical Geography of Europe

Cross-listed with: GEOG 155.

Credits: 3.00

HST 121 - History of Greece

Cross-listed with CLAS 121.

Credits: 3.00

HST 122 - History of Rome

Expansion of Rome in Italy and conquest of the Mediterranean world: cultural conflict, development of a unifying national identity, and the foundation of European states. Prerequisites: HST 009, CLAS 023/HST 022, or appropriate work in Classics. Cross-listed with: CLAS 122.

Credits: 3.00

HST 125 - The Renaissance

European society from the 14th to early 16th century, emphasizing the transition from medieval to "modern" society and the roots of Renaissance Italy's cultural and artistic brilliance. Prerequisite: 9 or 10 or 14 or 25 or 26.

Credits: 3.00

HST 126 - The Reformation

European society from the Renaissance to mid-17th century. Emphasis on religious struggles growing out of Protestant Reformation and their impact on the social, political, economic, and cultural movements of the era. Prerequisites: 10 or 14 or 25.

Credits: 3.00

HST 127 - European Culture&Soc 1914-1945

Survey of European high modernism, focusing on the avant-garde, Stalinism, fascism, and popular culture. Prerequisite: 26 or 128 or three hours history.

Credits: 3.00

HST 128 - Eur Soc & Culture 1880-1920

European society and culture before and during "The Great War." Transitions in the arts, philosophy, science and technology, industry, dance, theatre, attitudes, and diplomacy. Prerequisite: 26.

Credits: 3.00

HST 130 - European Intellectual History

The history of ideas in Europe from the 15th to the 20th centuries. Topics vary according to instructor. Prerequisites: 25 or 26.

Credits: 3.00

HST 132 - Modern Irish History

Ireland 1600 to present. English subjugation of Ireland, Anglo-Irish, emergence of Irish nationalism, Irish Literary Renaissance, Irish Free State, and ongoing problem of Northern Ireland. Prerequisite: 25 or 26.

Credits: 3.00

HST 136 - Topics in History of France

Varying themes on the political, cultural, and intellectual history of France from the

French Revolution to the present. Prerequisite: Three hours history.

Credits: 3.00

HST 137 - History of Russia

Russian political, social, and intellectual history from Kievan Rus' to the Revolutions of 1917, focusing on the Imperial period (1700-1917). Prerequisite: 10 or 26.

Credits: 3.00

HST 138 - History of the Soviet Union

Soviet political and social history, 1917-1991, centering on the Stalin era and on efforts of post-Stalin regimes to deal with the Stalinist legacy. Prerequisite: 10, 26 or 137.

Credits: 3.00

HST 139 - Modern Germany

Political, cultural, and social history of Germany from unification in 1871 through the Wilhemine empire, Weimar Republic, Nazi era, and postwar period.

Prerequisites: 10 or 14 or 26 or work in German.

Credits: 3.00

HST 140 - W Africa:Holy War-Colonialism

Lecture survey. Topics include: Sudanic states, Islamic revolution, slavery and the slave trade, European scramble and the African resistance, colonialism and the colonial state, African nationalism. Prerequisite: HST 040 or HST 041.

Credits: 3.00

HST 141 - History of Southern Africa

Lecture survey, covering the history of Southern Africa from the Bantu Migrations to the end of Apartheid. Prerequisite: HST 040 or HST 041.

Credits: 3.00

HST 149 - History of Ancient Near East

Survey of primary civilizations of Egypt and Mesopotamia and the secondary cultures of Anatolia, Syria-Palestine, Assyria, and Persia. Prerequisites: HST 009 or CLAS 021 (HST 021) or appropriate work in Classics. Cross-listed with: CLAS 149.

Credits: 3.00

HST 150 - China:The 19th&20th Centuries

China from the late Qing Dynasty to the present, with particular attention to the influence of Western imperialism, the process of revolution, and the Communist era. Prerequisite: Six hours of history, 50 recommended.

Credits: 3.00

HST 151 - Modern Japan

Transition from tradition to modernity in Japan from the Meiji Restoration, 1868 to the present. Prerequisite: Six hours of history, 50 recommended.

Credits: 3.00

HST 152 - The Chinese Revolution

Examination of the ongoing process and significance of the Chinese Revolution of

the 20th century, emphasizing the socio-economic and cultural aspects of the changes it wrought. Prerequisite: Six hours of History; HST 051 recommended.
Credits: 3.00

HST 157 - Greek Feminism

The construction of the status of women in ancient Greek society. Readings include lyric, tragic, and comic poetry, philosophy, oratory, novel, and nonliterary documents. Prerequisite: Sophomore standing; three hours in literature, History, Anthropology, or Sociology. Cross-listed with: CLAS 157, WLIT 157, WST 157.
Credits: 3.00

HST 161 - Caribbean & Latin American Hst

Topics include colonialism, plantation economy, slavery, race relations, gender issues, economic development, and U.S. influence. Prerequisite: HST 062 or HST 063 or permission.
Credits: 3.00

HST 163 - Early Caribbean History

Exploration of the economic, political and cultural developments in the Caribbean, pre-Conquest to the 19th century. Prerequisite: Three hours History; HST 062 or HST 063 recommended.
Credits: 3.00

HST 164 - Mod Carib Hist:Cannons-Cricket

Exploration of the economic, political and cultural developments in the Caribbean, 19th century to the present. Prerequisite: Three hours History; HST 062 or HST 063 recommended.
Credits: 3.00

HST 165 - Canadian-American Relations

Canada's relationship with the U.S. from the Revolutionary War to the present, emphasizing diplomatic, economic, social, and environmental relations in the 19th and 20th centuries. Prerequisite: Three hours in U.S. or Canadian history.
Credits: 3.00

HST 168 - Native American History

A survey of North American Indian history from European contact to the present. Cultural and military conflicts, resistance movements, accommodation, and cultural adaptation within the U.S. Prerequisite: Three hours History.
Credits: 3.00

HST 169 - Hist Native American Thought

An examination of Native American philosophies, spiritualities, political theories, and ecological perspectives. Traditional Native American thought, intellectuals and intellectual movements, and contemporary resistance and reform movements. Prerequisite: Three hours.
Credits: 3.00

HST 170 - Historical Geography of the US

(Same as Geography 170.)
Credits: 3.00

HST 171 - Social History of the U.S.

Selected topics in history of American society, including community structures, family life, work patterns, value systems, social class, and mobility. Prerequisite: HST 011 or HST 182.

Credits: 3.00

HST 172 - Social History of the U.S.

Selected topics in history of American society, including community structures, family life, work patterns, value systems, social class, and mobility. Prerequisite: HST 012 or HST 182.

Credits: 3.00

HST 173 - US Foreign Relations to 1914

The domestic and international contexts of U.S. relations with the rest of the world, 1776-1914. Prerequisites: 10 or 11.

Credits: 3.00

HST 174 - US Foreign Relations 1914 On

The domestic and international contexts of U.S. relations with the rest of the world, 1914-present. Prerequisites: 10 or 12.

Credits: 3.00

HST 177 - American Revolution

Survey of the Revolutionary Era, 1760-1791. Causes of the Revolution, War for Independence, establishment of the Constitution. Prerequisite: Six hours of history or other social sciences of which History 25 is highly recommended.

Credits: 3.00

HST 179 - U.S. History Since 1960

Topical review of U.S. history since 1960, emphasizing problems of interpreting and reconstructing the recent past. Prerequisite: 12.

Credits: 3.00

HST 181 - Film and History

Topics in the history of American and European cinema and society, focusing on the filmmaker as historian and the film as historical artifact. Prerequisite: Three hours History or Film.

Credits: 3.00

HST 182 - History of Women in the US

Survey of the origins and changes in images, status, and roles of women in American society since the colonial period. Prerequisite: Three hours in History (HST 011 or HST 012 recommended), or WST minor. Cross-listed with: WST 161.

Credits: 3.00

HST 183 - US Military History

Development of the U.S. military establishment within the framework of U.S. history from the Colonial era to the present. Prerequisite: HST 010, HST 011, or HST 012.

Credits: 3.00

HST 184 - Vermont History

Survey of Vermont history from early times to the present. Prerequisite: HST 011 or HST 012. Cross-listed with: VS 184.

Credits: 3.00

HST 186 - The Scientific Revolution

Interrelationship between European scientific activity and social change during 16th and 17th centuries. Emphasis on philosophical, religious, artistic, and social context of the times. Prerequisite: HST 085 or six hours of European history, or science major.

Credits: 3.00

HST 187 - Afr Amer Hst:1619 to Civil War

Economic, social, political, and intellectual developments in U.S. history as they have affected and been affected by African-Americans, 1619 to Civil War.

Prerequisite: Three hours History.

Credits: 3.00

HST 188 - Afr Amer Hst:Civil War-present

Economic, social, political, and intellectual developments in U.S. history as they have affected and been affected by African-Americans, Civil War to present.

Prerequisite: Three hours History.

Credits: 3.00

HST 189 - Hist African-American Women

An exploration of the experiences of women of African descent from their arrival in America to contemporary times. Prerequisites: Any one of the following: HST 011; HST 012; HST 182, HST 187, HST 188; WST 073; HST 174, HST 235, HST 273.

Credits: 3.00

HST 190 - The Holocaust

Study of the background, events, and aftermath of the Holocaust in Nazi Germany and Europe under German control. Prerequisite: 10 or 26 or 27 or instructor's permission.

Credits: 3.00

HST 191 - World War II

Causes, conduct, and consequences of global war from 1931-1945, including social, economic, political, and diplomatic as well as military aspects. Prerequisite: 10 or 12 or 26 or 51.

Credits: 3.00

HST 195 - Intermediate Special Topics

See Schedule of Courses for specific titles. Prerequisites: Junior or senior standing, six hours of history.

Credits: 3.00

HST 196 - Intermediate Special Topics

See Schedule of Courses for specific titles. Prerequisites: Junior or senior standing, six hours of history.

Credits: 3.00

HST 197 - Readings & Research

Prerequisite: May be prescribed by an individual Instructor; Junior/Senior standing.
Credits: 3.00

HST 198 - Readings & Research

Prerequisite: May be prescribed by an individual Instructor; Junior/Senior standing.
Credits: 6.00

HST 199 - Internship in History

Supervised cooperative internship work in history in archives, museums, libraries, etc. To be individually arranged for each student. Prerequisite: Junior/Senior standing; department permission.
Credits: 3.00

HST 201 - History on the Land

(Same as Historic Preservation 201; Art 201.)
Credits: 3.00

HST 209 - Seminar in Global History

Selected topics on the nature and results of interactions among the world's peoples. HST 209: to 1500. HST 210: since 1500. Prerequisite: Minimum Junior standing; twelve hours of History including HST 009 or HST 010.
Credits: 3.00

HST 210 - Seminar in Global History

Selected topics on the nature and results of interactions among the world's peoples. HST 209: to 1500. HST 210: since 1500. Prerequisite: Minimum Junior standing; twelve hours of History including HST 009 or HST 010.
Credits: 3.00

HST 221 - Seminar in Ancient History

(See Classics 221, 222.)
Credits: 3.00

HST 222 - Seminar in Ancient History

(See Classics 221, 222.)
Credits: 3.00

HST 224 - Seminar in Medieval Europe

Selected topics on Europe from the Fall of Rome to the Renaissance.
Prerequisites: Twelve hours of history including 23 or 24; junior, senior, or graduate standing.
Credits: 3.00

HST 225 - Seminar in Early Modern Europe

Selected topics on European history from the Renaissance to the French Revolution. Prerequisite: Junior/Senior/Graduate standing and twelve hours of History.
Credits: 3.00

HST 226 - Seminar in Modern Europe

Selected topics on European history from 1815 to present. Prerequisites: Junior, senior, or graduate standing; 12 hours history.
Credits: 3.00

HST 227 - Seminar in Modern Europe

Selected topics on European history from 1815 to present. Prerequisites: Junior, senior, or graduate standing; 12 hours history.

Credits: 3.00

HST 237 - Seminar in Russia before 1917

Selected topics in Russian intellectual, social, and cultural history focusing on the period 1825-1917. Prerequisites: Junior, senior, or graduate standing, 12 hours of history including 137.

Credits: 3.00

HST 238 - Seminar in Soviet History

Selected topics in Soviet social and cultural history from the Bolshevik Revolution to the death of Stalin (1917-53). Prerequisite: Junior/Senior/Graduate standing; twelve hours of History including HST 138.

Credits: 3.00

HST 240 - Comparative Slavery:Hist Persp

History of slavery from a comparative perspective, including Classical Antiquity, Islam and the Middle East, Africa, Latin America, and the Southern United States. Prerequisite: Minimum Junior standing.

Credits: 3.00

HST 241 - Seminar in African History

Topics in African history. Generally, the seminar will focus on one of three themes: Islam, slavery or urbanism. Prerequisite: Junior/Senior/Graduate standing; twelve hours History.

Credits: 3.00

HST 250 - Seminar in East Asian History

Topics in the history of East Asia. Prerequisite: Junior/ Senior/Graduate standing; twelve hours of History.

Credits: 3.00

HST 252 - Seminar on China

Selected topics on the history of China. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History, including HST 150 or equivalent.

Credits: 3.00

HST 262 - Sem Caribbean & Latin Amer Hst

Selected topics in Caribbean and Latin American history. Prerequisite: Junior/Senior/Graduate standing; HST 062 or HST 063, or permission.

Credits: 3.00

HST 265 - Seminar in Canadian History

Topics in 19th and 20th century Canadian history; national development, regionalism, multiculturalism, and international relations. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

Credits: 3.00

HST 271 - Seminar in US Social History

Topics in U.S. Social History. HST 271: to the Civil War; HST 272: Civil War to the

present. Prerequisite: Junior/ Prerequisite: Minimum Junior standing; twelve hours of History.

Credits: 3.00

HST 272 - Seminar in US Social History

Topics in U.S. Social History. HST 271: to the Civil War; HST 272: Civil War to the present. Prerequisite: Junior/Senior/ Graduate standing; twelve hours of History.

Credits: 3.00

HST 273 - Seminar in Modern U.S. History

Selected topics in U.S. history, among them foreign relations, the role of the presidency, World War II, and the Cold War. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

Credits: 3.00

HST 274 - Seminar in Modern U.S. History

Selected topics in U.S. history, among them foreign relations, the role of the presidency, World War II, and the Cold War. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

Credits: 3.00

HST 284 - Seminar in Vermont History

Topical approach to Vermont history through original research utilizing primary sources available at UVM, the Vermont Historical Society, and the Vermont State Archives. Prerequisite: Junior/Senior/Graduate standing; twelve hours History, including HST 184 or permission.

Credits: 3.00

HST 285 - Seminar in History of Science

Selected topics in the history of science. Prerequisite: Junior/Senior/Graduate standing; 12 hours of History.

Credits: 3.00

HST 287 - Seminar in Historiography

Topics and methods in contemporary historical writing. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

Credits: 3.00

HST 295 - Special Topics Seminar

See Schedule of Courses for specific titles. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

Credits: 3.00

HST 296 - Special Topics Seminar

See Schedule of Courses for specific titles. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

Credits: 3.00

HST 300 - Graduate Tutorial

Readings and research in a specific area; topics to be individually arranged; attendance in appropriate undergraduate courses may be required (see undergraduate catalogue). Prerequisite: Instructor Permission. Variable credit.

Credits: 3.00

HST 301 - Intro to Grad Study in History

Historical methods, philosophy of history, and the history of history writing.

Credits: 3.00

HST 351 - American Cultural History

Intended primarily for students in Historic Preservation, but open to other Graduate students.

Credits: 3.00

HST 391 - Master's Thesis Research

Required of all candidates for the M.A. Normally arranged for two semesters at three hours each. Credits: 1-6.

Credits: 6.00

HST 395 - Special Topics

Credits: 3.00

HST 397 - Special Readings and Research

Directed individual study of areas not appropriately covered by existing courses.

Variable credit. Credits 1-6.

Credits: 3.00

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Courses in Holocaust Studies (HS)

HS 017 - German Literature:Translation

See Schedule of Courses for specific titles.

Credits: 3.00

HS 027 - Modern Eastern Europe

Eastern Europe since 1772, especially areas comprising present-day states of Bosnia-Herzegovina, Croatia, the Czech Republic, Hungary, Macedonia, Poland, Slovakia, Slovenia, and Yugoslavia. Focus on politics and culture of nationalism.

Cross-listed with: HST 027.

Credits: 3.00

HS 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

HS 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

HS 117 - German Literature:Translation

See Schedule of Courses for specific titles. Cross-listed with: WLIT 117.

Credits: 3.00

HS 139 - Modern Germany

Political, cultural, and social history of Germany from unification in 1871 through the Wilhelmine Empire, Weimar Republic, Nazi era, and post-war period.

Prerequisites: History 10, 14, or 26, or work in German; Crosslisted with HST 139.

Credits: 3.00

HS 180 - Moral&Rel Persp on Holocaust

A study of the Holocaust in relation to questions of moral responsibility, justice, guilt, and human suffering, focusing on Jewish responses. Cross-listed with: REL 180.

Credits: 3.00

HS 190 - The Holocaust

Study of the background, events, and aftermath of the Holocaust in Nazi Germany

and Europe under German control. Prerequisites: History 10 or 26 or 27 or instructor's permission. Crosslisted with HST 190.

Credits: 3.00

HS 191 - World War II

Causes, conduct, and consequences of global war from 1931-1945, including social, economic, political, and diplomatic as well as military aspects.

Prerequisites: History 10 or 12 or 26 or 51. Crosslisted with HST 191.

Credits: 3.00

HS 197 - Readings and Research

May be prescribed by an individual instructor. Junior /Senior standing.

Credits: 1.00 to 6.00

HS 198 - Readings and Research

May be prescribed by an individual instructor. Junior/ Senior standing.

Credits: 1.00 to 6.00

HS 226 - Seminar in Modern Europe

Selected topics on European history from 1815 to present. Prerequisites: Junior or senior standing; 12 hours of history.

Credits: 3.00

HS 227 - Seminar in Modern Europe

Selected topics on European history from 1815 to present. Prerequisites: Junior or senior standing; 12 hours of history.

Credits: 3.00

HS 282 - Sem:Lit Genre, Period or Theme

Study of a literary genre, period, or theme through close readings of representative texts supplemented by lectures and reports on socio-cultural context. May be repeated. Cross-listed with: GERM 282.

Credits: 3.00

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Courses in Honors (HON)

HON 093 - Introductory Special Topics

Seminars restricted to First-Year John Dewey Honors Program Students.
Prerequisite: Admission to the John Dewey Honors Program.
Credits: 3.00

HON 094 - Introductory Special Topics

Seminars restricted to First-Year John Dewey Honors Program Students.
Prerequisite: Admission to the John Dewey Honors Program.
Credits: 3.00

HON 095 - Introductory Special Topics

This seminar accompanies the visit of the Carol G. Simon Speaker to the John Dewey Honors Program each spring. Prerequisite: Admission to the John Dewey Honors Program. Satisfactory/Unsatisfactory.
Credits: 1.00

HON 100 - Knowledge and Theory

Using selected examples of knowledge from across the arts and sciences, this course inquires into the production of knowledge and theoretical models in different fields. Prerequisite: Admission to the John Dewey Honors Program.
Credits: 3.00

HON 195 - Intermediate Special Topics

This seminar is usually taken by John Dewey Honors Program students in their Junior year. See schedule of courses for specific titles. Prerequisite: Admission to the John Dewey Honors Program.
Credits: 3.00

HON 196 - Honors

Credits: 3.00

HON 201 - JDHP Thesis Seminar

This seminar brings John Dewey Honors Program students writing their college honors theses together in semi-monthly meetings to share their research problems, concerns and findings. Satisfactory/Unsatisfactory.
Credits: 0.00

HON 202 - Honors: Anthropology

Credits: 3.00

HON 203 - Honors: Anthropology

Credits: 3.00

HON 204 - Honors: Studio Art

Credits: 3.00

HON 205 - Honors: Studio Art

Credits: 3.00

HON 206 - Honors: Art History

Credits: 3.00

HON 207 - Honors: Art History

Credits: 3.00

HON 208 - Honors: Biology

Credits: 3.00

HON 209 - Honors: Biology

Credits: 3.00

HON 210 - Honors: Botany

Credits: 3.00

HON 211 - Honors: Botany

Credits: 3.00

HON 212 - Honors: Chemistry

Credits: 3.00

HON 213 - Honors: Chemistry

Credits: 3.00

HON 214 - Honors: Classics

Credits: 3.00

HON 215 - Honors: Classics

Credits: 3.00

HON 216 - Honors: Communication Science

Credits: 3.00

HON 217 - Honors: Communication Science

Credits: 3.00

HON 218 - Honors: Economics

Credits: 3.00

HON 219 - Honors: Economics

Credits: 3.00

HON 220 - Honors: English

Credits: 3.00

HON 221 - Honors: English

Credits: 3.00

HON 222 - Honors: French

Credits: 3.00

HON 223 - Honors: French

Credits: 3.00

HON 224 - Honors: Geography

Credits: 3.00

HON 225 - Honors: Geography

Credits: 3.00

HON 226 - Honors: Geology

Credits: 3.00

HON 227 - Honors: Geology

Credits: 3.00

HON 228 - Honors: German

Credits: 3.00

HON 229 - Honors: German

Credits: 3.00

HON 230 - Honors: Greek

Credits: 3.00

HON 231 - Honors: Greek

Credits: 3.00

HON 232 - Honors: History

Credits: 3.00

HON 233 - Honors: History

Credits: 3.00

HON 234 - Honors: Area & Int'l Studies

Credits: 3.00

HON 235 - Honors: Area & Int'l Studies

Credits: 3.00

HON 236 - Honors: Latin

Credits: 3.00

HON 237 - Honors: Latin

Credits: 3.00

HON 240 - Honors: Music

Credits: 3.00

HON 241 - Honors: Music

Credits: 3.00

HON 242 - Honors: Philosophy

Credits: 3.00

HON 243 - Honors: Philosophy

Credits: 3.00

HON 244 - Honors: Physics

Credits: 3.00

HON 245 - Honors: Physics

Credits: 3.00

HON 246 - Honors: Political Science

Credits: 3.00

HON 247 - Honors: Political Science

Credits: 3.00

HON 248 - Honors: Psychology

Credits: 3.00

HON 249 - Honors: Psychology

Credits: 3.00

HON 250 - Honors: Religion

Credits: 3.00

HON 251 - Honors: Religion

Credits: 3.00

HON 252 - Honors: Russian

Credits: 3.00

HON 253 - Honors: Russian

Credits: 3.00

HON 254 - Honors: Sociology

Credits: 3.00

HON 255 - Honors: Sociology

Credits: 3.00

HON 256 - Honors: Spanish

Credits: 3.00

HON 257 - Honors: Spanish

Credits: 3.00

HON 258 - Honors: Theatre

Credits: 3.00

HON 259 - Honors: Theatre

Credits: 3.00

HON 260 - Honors: Environmental Studies

Credits: 3.00

HON 261 - Hon: Environmental Studies

Credits: 3.00

HON 262 - Honors: Women's Studies

Credits: 3.00

HON 263 - Honors:Women's Studies

Credits: 3.00

HON 264 - Honors:Individually Designed

Credits: 3.00

HON 265 - Honors:Individually Designed

Credits: 3.00

HON 266 - Honors:Computer Science

Credits: 3.00

HON 267 - Honors:Computer Science

Credits: 3.00

HON 288 - Honors: Mathematics

Credits: 3.00

HON 289 - Honors: Mathematics

Credits: 3.00

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Courses in Human Development & Fam Studies (HDFS)

HDFS 001 - Int Hum Dev&Fam Std&Acad Serv

Seminar designed to introduce concepts and practices of Human Development and Family Studies through integrating academic service-learning in developmental settings with critical thinking about development. Prerequisite: Majors only.

Credits: 4.00

HDFS 005 - Human Development

A comprehensive survey of life span individual and family development within social and historical context.

Credits: 3.00

HDFS 020 - Aging:Change & Adaptation

Individual and social meanings of aging and old age; physical, physiological, psychological, and sociological changes accompanying aging; individual, family, community, and societal adaptations to aging. Cross-listed with NURS 020 and SOC 020.

Credits: 3.00

HDFS 055 - Special Topics I

Credits: 6.00

HDFS 060 - Family Context of Development

Developmental ecological approach to analysis of the family as a system in which individuals develop.

Credits: 3.00

HDFS 065 - Human Relationships&Sexuality

Sexual responsibility and the biological, social, psychological growth, and development of human beings in terms of sex role identity.

Credits: 3.00

HDFS 152 - Biology of Aging

Cross-listed with: NURS 100.

Credits: 3.00

HDFS 161 - Social Context of Development

Developmental ecological approach to analysis of social institutions as influences on human development. Focus on education, community, health care, and social services. Pre/co-requisite: HDFS 060.

Credits: 3.00

HDFS 167 - Sexual Identities

Exploration of diverse lesbian, gay, bisexual, and/or transgender identities, families, and communities, and their current personal, social, and cultural meanings and contexts. Prerequisites: Three hours in Human Development or related field; sophomore standing.

Credits: 3.00

HDFS 195 - Special Topics

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once, accumulation up to 12 hours.

Prerequisite: Varies with course.

Credits: 3.00

HDFS 197 - Readings & Research

Credits: 3.00

HDFS 200 - Contemporary Issues

Undergraduates only.

Credits: 3.00

HDFS 260 - Family Ecosystem

Family viewed in and as an environment for human development. The family ecological approach applied to practical family concerns. Prerequisites: Senior standing or instructor's permission.

Credits: 3.00

HDFS 263 - Advanced Child Development

Survey of professional literature in child development with special emphasis on influence of early life experiences throughout the life cycle.

Credits: 3.00

HDFS 264 - Contemporary Issues Parenting

Contemporary cultural factors that influence adult lifestyles and their relationship to successful parenting. Prerequisites: Nine hours in Human Development or instructor's permission. May be taken more than once.

Credits: 3.00

HDFS 266 - Seminar in Human Development

Intensive study of issues in human development and their application in a wide variety of professional areas. May be taken more than once up to a maximum of 12 hours. Prerequisite: Junior standing; nine hours in Human Development & Family Studies or Instructor permission.

Credits: 3.00

HDFS 267 - Adv Seminar Sexual Identities

Intensive study of lesbian, gay, bisexual, and/or transgender identities, families, and communities in diverse individual, social, political, and cultural contexts.

Prerequisite: Junior standing; nine hours in Human Development & Family Studies or Instructor permission.

Credits: 3.00

HDFS 268 - Sem In Close Relationships

Causal conditions influencing formation, maintenance, and dissolution of intimate adult relationships. Draws on theory and students' personal experiences to explicate the nature of close relationships in contemporary American society.

Prerequisite: Junior standing; nine hours in Human Development & Family Studies or Instructor permission. Offered in alternate years.

Credits: 3.00

HDFS 291 - Special Problems

Reading, discussion, and special field and/or laboratory investigations.

Prerequisite: Department permission. Students may enroll more than once up to twelve hours.

Credits: 1.00 to 6.00

HDFS 295 - Special Topics

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once, accumulation up to 12 hours.

Prerequisite: Departmental permission.

Credits: 3.00

HDFS 296 - Field Experience

Professionally-oriented field experience under joint supervision by faculty and community representative, credit arranged up to 15 hours. Prerequisite: Department permission.

Credits: 6.00

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Courses in Humanities (HUMN)

HUMN 095 - Special Topics

Credits: 4.00

HUMN 096 - Special Topics

Credits: 3.00

HUMN 195 - Special Topics

Intermediate courses or seminars on topics beyond the scope of existing offerings. See Schedule of Courses for specific titles.

Credits: 3.00

HUMN 196 - Special Topics

Credits: 5.00

HUMN 295 - Advanced Special Topics

Credits: 3.00

HUMN 300 - Modern Literary Theory

A survey of modern literary theory, including Slavic and Anglo-American formalism, marxism, feminism, structuralism, hermeneutics, deconstruction, and new historicism. Prerequisites: Graduate standing at UVM; or an A.B. in some humanities discipline; Instructor permission. Alternate years.

Credits: 3.00

HUMN 301 - Humanities Graduate Seminar

Varying interdisciplinary topics for humanities graduate students. Prerequisites: Graduate standing at UVM; or an A.B. in some humanities discipline; Instructor permission.

Credits: 3.00

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Courses in Individually Designed Majors (IDM)

IDM 264 - Honors:Individually Des Majors

See pages 61 and 62, and contact program for specific requirements.

Credits: 3.00

IDM 265 - Hon:Individually Des Majors

See pages 61 and 62, and contact program for specific requirements.

Credits: 3.00

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Courses in Italian (ITAL)

ITAL 001 - Elementary I

Fundamentals of Italian composition, comprehension, pronunciation, speaking, reading, writing. Structure of the basic Italian sentence. No prior knowledge expected.

Credits: 4.00

ITAL 002 - Elementary II

Continuation of ITAL 001. Prerequisite: ITAL 001 or equivalent.

Credits: 4.00

ITAL 051 - Intermediate Rdg & Conv I

Designed to help students move from a basic knowledge of Italian to the ability to read, speak, and understand Italian better. Some grammar review and short compositions. Prerequisite: ITAL 002 or equivalent.

Credits: 3.00

ITAL 052 - Intermediate Rdg & Conv II

Continues building on the skills developed in ITAL 051. Less stress on grammar review. Reading selections and compositions are longer and more sophisticated than in ITAL 051. Prerequisite: ITAL 051 or equivalent.

Credits: 3.00

ITAL 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

ITAL 121 - Issues in Italian Culture

An introduction to the cultural realities of Italy, from politics to pop music, food to fashion. Emphasis on improving linguistic fluency. Prerequisite: ITAL 052 or equivalent.

Credits: 3.00

ITAL 122 - Italian Literature & Film

A study of the multiple relationships between literary and cinematic texts and their role as a window on Italian culture. Emphasis on improving linguistic fluency. Prerequisite: ITAL 052 or equivalent.

Credits: 3.00

ITAL 157 - Modern Italian Fictions

An introduction to Italian literature from the 18th century to today, with attention to art, music, cinema, and the Internet. Emphasis on improving linguistic fluency.

Prerequisite: ITAL 052 or equivalent.

Credits: 3.00

ITAL 158 - Early Italian Lit in Context

An introduction to Italian literature from its beginnings through the early-modern period. Authors may include Dante, Boccaccio, Machiavelli. Emphasis on improving linguistic fluency. Prerequisites: 52 or equivalent.

Credits: 3.00

ITAL 170 - Cultures of Women in Italy

A study of Italian women writers, journalists, artists, and film directors. Emphasis on reading and discussion. Prerequisite: ITAL 052 or equivalent.

Credits: 3.00

ITAL 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

ITAL 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

ITAL 197 - Readings & Research

Permission of Department Chair required.

Credits: 3.00

ITAL 198 - Readings & Research

Permission of department chair required.

Credits: 1.00 to 6.00

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Courses in Japanese (JAPN)

JAPN 001 - Elementary Japanese

An introduction to spoken and written Japanese through aural-oral drills and grammar presentation. The three writing systems of Japanese (hiragana, katakana, and kanji) are introduced. Prerequisite: No prior knowledge for 1. Credits: 4.00

JAPN 002 - Elementary Japanese

An introduction to spoken and written Japanese through aural-oral drills and grammar presentation. The three writing systems of Japanese (hiragana, katakana, and kanji) are introduced. Prerequisite: 1 or Equivalent. Credits: 4.00

JAPN 051 - Intermediate Japanese

A continuation of 2 designed to enable the student to converse in everyday Japanese and to read and write simple texts. Prerequisites: 2 or equivalent. Credits: 4.00

JAPN 052 - Intermediate Japanese

A continuation of 2 designed to enable the student to converse in everyday Japanese and to read and write simple texts. Prerequisites: 51 or equivalent. Credits: 4.00

JAPN 095 - Special Topics

See Schedule of Courses for specific titles. Credits: 3.00

JAPN 096 - Introductory Special Topics

See Schedule of Courses for specific titles. Credits: 1.00

JAPN 101 - Advanced Japanese

Further development of oral proficiency and advanced study of grammatical structure of modern Japanese, supplemented by audiovisual materials and authentic written texts of several kinds. Prerequisites: 52 or equivalent. Credits: 3.00

JAPN 102 - Advanced Japanese

Further development of oral proficiency and advanced study of grammatical structure of modern Japanese, supplemented by audiovisual materials and authentic written texts of several kinds. Prerequisites: 101 or equivalent.

Credits: 4.00

JAPN 121 - Japanese Conversation I

Development of speaking and listening skills related to concrete topics through total immersion in Japanese. Prerequisite: JAPN 052 or equivalent.

Credits: 1.00

JAPN 122 - Japanese Conversation II

Development of functional skills to carry out daily conversation in varied social contexts. Prerequisite: JAPN 052 or equivalent.

Credits: 1.00

JAPN 195 - Intermediate Special Topics

See Schedule of Courses for special titles. Prerequisite: JAPN 052 or equivalent.

Credits: 3.00

JAPN 196 - Intermediate Special Topics

See Schedule of Courses for special titles. Prerequisite: JAPN 052 or equivalent.

Credits: 3.00

JAPN 197 - Readings and Research

Independent study of a specific area, subject, or theme with an approved instructor.

Credits: 1.00

JAPN 198 - Readings and Research

Independent study of a specific area, subject, or theme with an approved instructor.

Credits: 3.00

JAPN 201 - Studies of Japanese Texts

Directed reading of authentic texts and guided practice of conversational skills in multiple social contexts. Courses can be repeated with different content.

Prerequisites: 102 or equivalent.

Credits: 3.00

JAPN 202 - Studies of Japanese Texts

Directed reading of authentic texts and guided practice of conversational skills in multiple social contexts. Courses can be repeated with different content.

Prerequisites: 102 or equivalent.

Credits: 3.00

JAPN 221 - Japanese for Communication I

Training in skills to communicate on concrete and abstract topics. Repeatable with different content. Prerequisite: JAPN 102 or equivalent.

Credits: 1.00

JAPN 222 - Japanese for Communication II

Development of skills to present information and view points in varied social contexts. Repeatable with different content. Prerequisite: JAPN 102 or equivalent.

Credits: 1.00

JAPN 295 - Advanced Special Topics

Contact department for details.

Credits: 3.00

JAPN 296 - Advanced Special Topics

Contact department for details.

Credits: 3.00

JAPN 297 - Adv Readings and Research

Advanced independent study of a specific area, subject, or theme with an approved instructor. Prerequisite: JAPN 102 or equivalent.

Credits: 1.00 to 6.00

JAPN 298 - Adv Readings and Research

Advanced independent study of a specific area, subject, or theme with an approved instructor. Prerequisite: JAPN 102 or equivalent.

Credits: 1.00 to 6.00

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Courses in Latin (LAT)

LAT 001 - Elementary

For students who present less than two years of high school Latin.
Credits: 4.00

LAT 002 - Elementary Latin

For students who present less than two years of high school Latin.
Credits: 4.00

LAT 003 - Self-Paced Latin

Fundamentals of Classical Latin through tutorial instruction, credit dependent on amount of material learned. May be repeated for credit. No credit with LAT 001 and LAT 002.
Credits: 3.00

LAT 051 - Intermediate

Fall semester: Selections from Cicero and other prose authors. Spring semester: Selections from Vergil and Ovid.
Credits: 3.00

LAT 052 - Intermediate Latin

Fall semester: Selections from Cicero and other prose authors. Spring semester: Selections from Vergil and Ovid.
Credits: 3.00

LAT 095 - Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.
Credits: 3.00

LAT 096 - Elementary Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.
Credits: 3.00

LAT 101 - Survey Latin Literature

Selections from principal Roman authors.
Credits: 3.00

LAT 102 - Survey Latin Literature

Selections from principal Roman authors.

Credits: 3.00

LAT 111 - Latin Prose Style

Readings in literary prose analyzed stylistically and imitated in composition.

Required of B.A. and B.Ed. Latin majors.

Credits: 3.00

LAT 112 - Latin Prose Style

Readings in literary prose analyzed stylistically and imitated in composition.

Required of B.A. and B.Ed. Latin majors.

Credits: 3.00

LAT 195 - Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

LAT 196 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

LAT 197 - Readings & Research

Credits: 3.00

LAT 198 - Readings & Research

Credits: 3.00

LAT 203 - Republican Prose

Extensive reading in Caesar and Sallust, and in the speeches of Cicero. Alternate years, as needed.

Credits: 3.00

LAT 204 - Epic Poets

Extensive reading in Lucretius, Vergil, Ovid, and others. Alternate years, as needed.

Credits: 3.00

LAT 227 - Roman Lyric Poets

Selections from the works of Catullus, Horace, Propertius, and Tibullus. Alternate years, as needed.

Credits: 3.00

LAT 251 - Roman Letters

Letters of Cicero, Horace, and Pliny. Alternate years, as needed.

Credits: 3.00

LAT 252 - Comedy

Two plays of Plautus and Terence. Study of the precursors of this literary form. Alternate years, as needed.

Credits: 3.00

LAT 253 - Roman Oratory

Selections from Cicero's De Oratore, Orator, Brutus, and from his speeches. Historical development of forensic and other rhetorical canons. Alternate years, as needed.

Credits: 3.00

LAT 255 - Historians of the Empire

Historians of the Empire. Augustus, Res Gestae; Tacitus, Annals, I-IV; selections from Suetonius and Ammianus Marcellinus. Alternate years, as needed.

Credits: 3.00

LAT 256 - Satire

Selections from Horace, Persius, Juvenal, Petronius. Study of the development of this literary form. Alternate years, as needed.

Credits: 3.00

LAT 271 - Silver Latin

Extensive reading of post-Augustan authors not included in other advanced courses. Alternate years, as needed.

Credits: 3.00

LAT 295 - Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

LAT 296 - Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 6.00

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Courses in Leadership and Policy Studies (EDLP)

EDLP 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in education and related areas.
Credits: 6.00

EDLP 264 - Evaluation in Ed & Soc Svcs

For educational and social service personnel. Overview of the state-of-the-art of evaluation, emerging concepts, related models. Potential applications to settings; systematic data analysis. Prerequisite: Twelve hours in education or Instructor permission.
Credits: 3.00

EDLP 266 - Educational Finance

National, state, and local practices in educational financing and taxation; educational policies and incentives in funding; other revenue sources; financial expenditure procedures. Prerequisite: Twelve hours in education or Instructor permission.
Credits: 3.00

EDLP 268 - Educational Law

Legal basis for education. State and Federal statutes; related court cases; Attorney General opinions; Special Education procedures; Vermont State Board and State Education Department policies; regulations. Prerequisite: Twelve hours in education or Instructor permission.
Credits: 3.00

EDLP 280 - Schl Business Mgmt

Analysis of basic management concepts applied to administering schools. Topics include leadership/management trends, types of budgets, risk management, planning, and other personnel and business operations issues. Prerequisite: Twelve hours in education.
Credits: 3.00

EDLP 291 - Spec Tpcs in Org&Hum Res Dev

Special issues in counseling, administration and planning, social work, or higher

education not appropriate to content of existing courses. Courses will reflect the social services orientation of the Department of Education.

Credits: 3.00

EDLP 295 - Lab Experience

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 3.00

EDLP 319 - Internship

Students will undertake an approved internship in an institution which reflects the particular area of interest and needs of the student. Prerequisite: Instructor permission.

Credits: 3.00

EDLP 334 - Effecting & Managing Change

Change processes and models, the dynamics of change within the organization, and external factors affecting change. Managerial, leadership, and organizational factors and conditions impacting on innovations; change phases of initiation, implementation, and institutionalization. Prerequisite: Twelve hours of Graduate study.

Credits: 3.00

EDLP 335 - Staff Evaluation & Development

Supervisory roles, behavior, responsibilities, and relationships in educational and social service organizations; processes for evaluating the performance, promoting the development of staff, and increasing organization effectiveness.

Credits: 3.00

EDLP 336 - Curr Mgmt in Ed & Soc Srv Org

Approaches to coordinating and managing curriculum or programs at the classroom, department, or organizational level; examination of factors effecting design and delivery of curriculum; developing curriculum guides and assessment methods. Prerequisite: Eighteen hours of education and related areas or appropriate professional certification.

Credits: 3.00

EDLP 337 - Political Proc in Ed & Soc Srv

Political and operational relationships between schools, agencies, and other organizations at all governmental levels. Policy development, working with policy boards, and coordinating organizational and community activities.

Credits: 3.00

EDLP 352 - Analysis of Educ & Soc Srv Org

Organizations as open or closed systems; examinations of goals, power, conflict, leadership, decision-making roles, communication; diagnosing causes of organizational problems; factors aiding, impeding organizational change.

Credits: 3.00

EDLP 353 - Sem:Organizational Leadership

Roles, functions, relationships and responsibilities in maintaining and changing organizations; leadership styles and behavior; trends and issues impacting on organizations.

Credits: 3.00

EDLP 355 - System Analysis & Planning

An analysis of and experience with planning theories and techniques that derive from General Systems Theory.

Credits: 3.00

EDLP 356 - Sem in Futurism & Planning

Knowledge, values, attitudes relating to concepts about the future; alternative futures, trend analysis, goal setting; planning processes applied to educational and social service organizations.

Credits: 3.00

EDLP 358 - Sem in Community Education

The seminar participants will analyze the Community Education process, relate the process to community development, and develop strategies for the planning and implementation of Communication Education.

Credits: 3.00

EDLP 372 - Leadership&Creative Imaginatn

Leadership in societal organizations as presented in literature, other media. Students will demonstrate abilities to integrate leadership theory, principles, personal beliefs, practices with literary and other media models. Prerequisite: Ed.D. students have priority.

Credits: 3.00

EDLP 380 - Professional Problems in Educ

Designed to cover selected educational problems in depth. The major emphasis will be on intensive and critical analysis of the literature and practice in a given area.

Credits: 3.00

EDLP 386 - Org & Human Resource Dev

The concept and practice of organization development, analysis of and laboratory experience in the utilization of intervention methodologies. Prerequisite: One course relating to human relations; one course relating to organizations or equivalent, or Instructor permission.

Credits: 3.00

EDLP 387 - Collaborative Consultation

Cross-listed with: EDSP 387.

Credits: 3.00

EDLP 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 3.00

EDLP 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with

a staff member. Prerequisites: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 3.00

EDLP 409 - Applied Educational Research

Introduction to philosophical and methodological foundations of interpretive and empirical-analytic research with emphasis on systems change. Preparation of critical readers and synthesizers of research studies. Prerequisite: Doctoral level standing.

Credits: 3.00

EDLP 431 - Adv Sem Organizational Ldrshp

Students inquire into new theories on leadership and the cognitive processes that define the intentions, values, beliefs, and future perspectives of themselves as leaders. Prerequisite: Doctoral level standing.

Credits: 3.00

EDLP 432 - Adv Sem:Org Chng&Hum Res Dev

Students inquire into new theories, themes, and multicultural dimensions of organizations. Strategies for managing human resources, structural issues, and future trends in organizations are analyzed. Prerequisite: Doctoral level standing.

Credits: 3.00

EDLP 437 - Sem on Educational Policy

An examination of the nature and function of education policy, emphasizing the structure and processes in education policy formulation and implementation.

Prerequisite: Doctoral level standing.

Credits: 3.00

EDLP 491 - Doctoral Dissertation Research

Credits: 6.00

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Courses in Library Science (EDLI)

EDLI 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in education and related areas.
Credits: 3.00

EDLI 272 - Manage Schl Library Media Ctrs

Overview of administrative issues, including development of policies and procedures, budget preparation, personnel administration, and public relations. Focus on information technology and literacy. Prerequisites: Twelve hours in education and related areas, or Instructor permission.
Credits: 3.00

EDLI 273 - Organizing Schl Libr Media Ctr

Introduction to cataloging of print and non-print materials, Dewey Decimal Classification, application of microcomputers to catalog and circulation services. Prerequisite: EDLI 272 or equivalent.
Credits: 3.00

EDLI 274 - Design Instr Sch Lbr Media Ctr

Designing library instruction for integration with curricula and collaborating to create effective lessons. Issues surrounding active learning, critical thinking, learning styles, and assessment are examined. Prerequisite: EDLI 272 or equivalent.
Credits: 3.00

EDLI 275 - Dev Sch Libr Media Ctr Collect

Evaluating and selecting books, periodicals, audiovisuals, software, and other materials for full range of student ages and ability levels. Maintaining collection, weeding, using interlibrary loan, and dealing with censorship. Prerequisite: EDLI 272 or equivalent.
Credits: 3.00

EDLI 276 - Information Sources & Services

Helping students and teachers find information using print, online, CD-ROM and other resources. Developing interview skills and selecting materials for elementary

and secondary core collections. Prerequisite: EDLI 272 or equivalent.

Credits: 3.00

EDLI 277 - Info Tech Schl Libr Media Ctrs

Selecting, using, and maintaining full range of media equipment, including audiovisual and computer based systems. Designing and improving presentation facilities for media. Prerequisite: EDLI 272 or equivalent.

Credits: 3.00

EDLI 295 - Lab Experience in Educ

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 3.00

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Courses in Linguistics (LING)

LING 096 - Introductory Special Topics

Credits: 3.00

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Courses in Mathematics (MATH)

MATH 001 - Elementary College Algebra

Review of fundamental operations and a more extensive study of fractions, exponents, radicals, linear and quadratic equations, ratio, proportion, variation, progressions, and the binomial theorem. Topics normally included in intermediate algebra in high school. Students who have satisfactorily completed two years of high school algebra, or the equivalent, receive no credit for this course. Offered only in Evening Division and Summer Session. Prerequisite: One year of high school algebra.

Credits: 3.00

MATH 002 - Plane Trigonometry

Trigonometric functions, their graphs and other properties, solution of triangles, trigonometric equations and identities, and inverse trigonometric functions. May not be taken for credit concurrently with, or following receipt of, credit for any mathematics course numbered MATH 020 or above. Prerequisite: MATH 001 or MATH 009. Offered only in Evening Division and Summer Session.

Credits: 3.00

MATH 009 - College Algebra

Sets, relations, and functions with particular attention to properties of algebraic, exponential, and logarithmic functions, their graphs and applications. May not be taken for credit concurrently with, or following receipt of, credit for any mathematics course numbered 19 or above. Prerequisites: Two years of secondary school algebra, one year of secondary school geometry.

Credits: 3.00

MATH 010 - Pre-Calculus Mathematics

Skills in working with numerical, algebraic, and trigonometric expressions are developed in preparation for MATH 021. May not be taken for credit concurrently with, or following receipt of, credit for any mathematics course numbered MATH 019 or above. Prerequisite: Two years of secondary school algebra; one year of secondary school geometry.

Credits: 3.00

MATH 011 - Technical Calculus I

Introduction to calculus of functions of one variable, emphasizing techniques and applications of differentiation and integration. Prerequisite: MATH 010 or MATH 009 and MATH 002, or strong background in secondary school algebra and trigonometry; an associates degree in engineering. Dual credit not given for MATH 011 and MATH 021.

Credits: 3.00

MATH 012 - Technical Calculus II

Transcendental functions, techniques of integration, polar coordinates, sequences, series and vectors. Prerequisite: MATH 011 or MATH 021; associates degree in engineering. Dual credit not given for MATH 012 and MATH 022.

Credits: 3.00

MATH 013 - Calculus via Modeling I

Introduction to mathematical modeling and differential calculus with a graphical, problem-solving approach. Requires graphing calculator. Prerequisite: Three years high school math, or MATH 009. Credit not given for both MATH 013 and MATH 019.

Credits: 3.00

MATH 014 - Calculus via Modeling II

Further modeling and an introduction to integral and multivariate calculus with a graphical, problem-solving approach. Requires graphing calculator. Credit not given for both MATH 014 and MATH 020. Prerequisite: MATH 013.

Credits: 3.00

MATH 015 - Elementary School Math

Comprehension of operations with real numbers, measurements, and informal geometry provide background for algebra, number theory, statistics, probability, compass and ruler constructions, and problem solving. Prerequisite: 15 for 16. Open only to students in elementary education.

Credits: 3.00

MATH 016 - Fund Concepts Elem School Math

Comprehension of operations with real numbers, measurements, and informal geometry provide background for algebra, number theory, statistics, probability, compass and ruler constructions, and problem solving. Prerequisite: 15 for 16. Open only to students in elementary education.

Credits: 3.00

MATH 017 - Applications of Finite Math

Introduction to mathematics of finite systems with applications, such as probability, statistics, growth and symmetry, graph theory, fair division and apportionment problems, voting systems. Prerequisite: Two years of secondary school algebra or 9 or 10.

Credits: 3.00

MATH 018 - Basic Mathematics

Data, statistics, modeling, algebra, word problems, calculus. Students who do well in the algebra section may continue with MATH 19 or MATH 21. Prerequisites: 3 years high school math. No credit for EM students.

Credits: 3.00

MATH 019 - Fundamentals of Calculus I

Introduction to limits and differential calculus with a wide variety of applications. Students interested in intensive use of mathematics should take 21. Credit not given for more than one of the courses 19, 21 unless followed by 22. Credit not given for both Math. 13 and 19. Prerequisite: 9, 10, or sufficiently strong background in secondary school algebra and geometry.

Credits: 3.00

MATH 020 - Fundamentals of Calculus II

Introduction to integral calculus with a wide variety of applications. A student who completes MATH 020 may be admitted to MATH 022; however MATH 019, MATH 021, MATH 022 is preferable to MATH 019, MATH 020, MATH 022. Credit not given for both MATH 014 and MATH 020. Prerequisite: MATH 019.*

Credits: 3.00

MATH 021 - Calculus I

Introduction to calculus of functions of one variable including: limits, continuity, techniques and applications of differentiation and integration. Credit not given for more than one course in the pair 19, 21. Prerequisite: 10; or 9 and 2; or strong background in secondary school algebra and trigonometry

Credits: 4.00

MATH 022 - Calculus II

Techniques and applications of integration. Polar coordinates, Taylor polynomials, sequences and series, power series. Prerequisite: 21.

Credits: 4.00

MATH 052 - Fundamentals of Mathematics

Fundamental mathematical concepts and techniques, emphasizing proofs and algorithms, are investigated within the context of topics such as number theory and graph theory. Credit not given for both 52 and 54. Corequisite: Math 21.

Credits: 3.00

MATH 054 - Fund of Math of Computation

Introduction to mathematical theory and techniques underlying computer science. Co-requisite: MATH 019 or MATH 021.

Credits: 3.00

MATH 095 - Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: Instructor permission.

Credits: 5.00

MATH 111 - Technical Calculus III

Calculus of functions of several variables, partial derivatives, gradient, divergence, curl, multiple integrals. Prerequisite: MATH 012 or MATH 022; associates degree in engineering. Dual credit not given for MATH 111 and MATH 121.

Credits: 3.00

MATH 121 - Calculus III

Vectors, vector-valued functions. Calculus of functions of several variables: partial derivatives, gradient, divergence, curl, multiple integrals, line integrals, Stokes' and Green's theorems. Prerequisite: MATH 022.

Credits: 4.00

MATH 124 - Linear Algebra

Matrices, linear dependence, vector spaces, linear transformations, characteristic equations and applications. Prerequisite: MATH 022 or Instructor permission. Co-requisite: MATH 121 recommended but not required. .

Credits: 3.00

MATH 141 - Real Analysis in One Variable

Principles of analysis in one variable. Heine-Borel and Bolzano-Weierstrass theorems; rigorous development of differential and integral calculus infinite sequences and series of functions. Prerequisite: 52.

Credits: 3.00

MATH 151 - Groups and Rings

An introduction to the basic concepts of abstract algebra emphasizing examples, including modular arithmetic, symmetric groups, cyclic groups, polynomial rings, homomorphisms, and isomorphisms. Prerequisite: 52.

Credits: 3.00

MATH 161 - Development of Mathematics

Historical development of mathematical sciences emphasizing interrelations among them. Individual assignments correspond to background and interests of students. Prerequisite: Nine hours of college mathematics.

Credits: 3.00

MATH 162 - Geometry EI&Mid School Teacher

An informal, investigative approach to geometry. Extensive use of discovery experiences through inductive procedures as opposed to the traditional emphasis on deductive process found in high school geometry. Credit not given for Math. majors in EM. Prerequisite: MATH 015 or a teaching certificate.

Credits: 3.00

MATH 167 - Physical Chemistry Preparation

Review of relevant mathematical and physical concepts as applied to physical chemistry. Credit cannot be obtained for both MATH 167 and MATH 121. Not available for credit for E&M students. Prerequisite: MATH 022; CHEM 032 or CHEM 036. Cross-listed with: CHEM 167.

Credits: 1.00

MATH 173 - Basic Combinatorial Theory

Introduction to basic combinatorial principles emphasizing problem-solving techniques. Enumeration, Generating Functions, Fibonacci Numbers, Pigeonhole Principle, Inclusion-Exclusion, and Graph Theory. Prerequisite: 52 or 54.

Credits: 3.00

MATH 179 - Teaching Secondary School Math

Contemporary secondary school mathematics curricula, their content from an advanced standpoint, unifying mathematical concepts and their implications at various levels, and introduction of selected mathematical topics. Intended only for students with an interest in teaching secondary school mathematics. Not acceptable as part of any mathematics requirement for a degree. Prerequisite: EDEC 178; acceptance to teacher education, or Instructor permission.
Credits: 3.00

MATH 191 - Special Topics

An approved project under guidance of a staff member and culminating in a written report. Involvement with off-campus groups permitted. Prerequisite: Junior/ Senior standing; approval of Department Chair.
Credits: 3.00

MATH 193 - College Honors

Credits: 3.00

MATH 195 - Special Topics

Credits: 4.00

MATH 207 - Probability Theory

(Same as Statistics 251.)

Credits: 3.00

MATH 221 - Deterministic Models in Operations Research

The linear programming problem. Simplex algorithm, dual problem, sensitivity analysis, goal programming. Dynamic programming and network problems. Prerequisites: 124; 121 desirable.
Credits: 3.00

MATH 222 - Stochastic Models in Operations Research

Development and solution of some typical stochastic models. Markov chains, queueing problems, inventory models, and dynamic programming under uncertainty. Prerequisite: MATH 207, STAT 151, or Instructor permission.
Credits: 3.00

MATH 224 - Analysis of Algorithms

(Same as Computer Science 224.)

Credits: 3.00

MATH 230 - Ordinary Differential Equation

Solutions of linear ordinary differential equations, the Laplace transformation, and series solutions of differential equations. Prerequisite: MATH 121. Corequisite: MATH 124 or Instructor permission. Credit not granted for more than one of the courses MATH 230 or MATH 271.
Credits: 3.00

MATH 236 - Calculus of Variations

Necessary conditions of Euler, Legendre, Weierstrass, and Jacobi for minimizing integrals. Sufficiency proofs. Variation and eigenvalue problems. Hamilton-Jacobi equations. Prerequisite: 230. Alternate years, 1997-98.
Credits: 3.00

MATH 237 - Intro to Numerical Analysis

Error analysis, root-finding, interpolation, least squares, quadrature, linear equations, numerical solution of ordinary differential equations. Prerequisite: MATH 121, MATH 124 or MATH 271; Knowledge of computer programming. Credits: 3.00

MATH 238 - Numerical Diff Equations

Numerical solution of differential equations: initial-value and boundary-value problems; finite difference and finite element methods. Prerequisite: 237, either 230 or 271 recommended. Credits: 3.00

MATH 240 - Fourier Series&Integral Trans

Fourier series, orthogonal functions, integral transforms and boundary value problems. Prerequisite: MATH 230 or MATH 271. Credits: 3.00

MATH 241 - Anyl in Several Real Vars I

Properties of the real numbers, metric spaces, infinite sequences and series, continuity. Prerequisites: 52, 121, 124 or instructor's permission. Credits: 3.00

MATH 242 - Anyl Several Real Variables II

Differentiation in R^n , Riemann-Stieltjes integral, uniform convergence of functions, Inverse and Implicit Function Theorems. Prerequisite: 241. Credits: 3.00

MATH 243 - Theory of Computation

(Same as Computer Science 243.) Credits: 3.00

MATH 251 - Abstract Algebra I

Basic theory of groups, rings, fields, homomorphisms, and isomorphisms. Prerequisite: MATH 052, MATH 124, or Instructor permission. Credits: 3.00

MATH 252 - Abstract Algebra II

Modules, vector spaces, linear transformations, rational and Jordan canonical forms. Finite fields, field extensions, and Galois theory leading to the insolvability of quintic equations. Prerequisite: MATH 251. Credits: 3.00

MATH 255 - Elementary Number Theory

Divisibility, prime numbers, Diophantine equations, congruence of numbers, and methods of solving congruences. Prerequisite: MATH 052 or MATH 054. Credits: 3.00

MATH 257 - Topics in Group Theory

Topics may include abstract group theory, representation theory, classical groups, Lie groups. Prerequisite: 251. Alternate years, 2000-01. Credits: 3.00

MATH 260 - Foundations of Geometry

Geometry as an axiomatic science; various non-Euclidean geometries; relationships existing between Euclidean plane geometry and other geometries; invariant properties. Prerequisite: MATH 052 or MATH 054.

Credits: 3.00

MATH 264 - Vector Analysis

Gradient, curl and divergence, Green, Gauss, and Stokes Theorems, applications to physics, tensor analysis. Prerequisite: MATH 121, MATH 124, or MATH 271.

Credits: 3.00

MATH 266 - Chaos, Fractals & Dynamical Syst

Discrete and continuous dynamical systems, Julia sets, the Mandelbrot set, period doubling, renormalization, Henon map, phase plane analysis and Lorenz equations. Corequisite: 271 or 230 or instructor's permission.

Credits: 3.00

MATH 268 - Mathematical Biology & Ecology

Mathematical modeling in the life sciences. Topics include population modeling, dynamics of infectious diseases, reaction kinetics, wave phenomena in biology, and biological pattern formation. Prerequisites: 124, 230; or instructor's permission.

Credits: 3.00

MATH 271 - Appl Math for Engr & Scientists

Matrix theory, linear ordinary differential equations. Emphasis on methods of solution, including numerical methods. Co-requisite: 121. No credit for mathematics majors. Credit not granted for more than one of the courses Math. 230 and Math. 271.

Credits: 3.00

MATH 272 - Applied Analysis

Partial Differential Equations of Mathematical Physics, Calculus of Variations, Functions of a Complex Variable, Cauchy's Theorem, integral formula. Conformal mapping. Prerequisite: 230 or 271.

Credits: 3.00

MATH 273 - Combinatorial Graph Theory

Paths and trees, connectivity, Eulerian and Hamiltonian cycles, matchings, edge and vertex colorings, planar graphs, Euler's formula and the Four Color Theorem, networks. Prerequisite: MATH 052 or MATH 054, or Instructor permission.

Credits: 3.00

MATH 274 - Numerical Linear Algebra

Direct and iterative methods for solving linear equations, least square factorization methods, eigenvalue computations, ill-conditioning and stability. Prerequisite: MATH 237.

Credits: 3.00

MATH 275 - Advanced Engineer Analysis I

(Same as Mechanical Engineering 304, 305; Civil Engineering 304, 305.)

Prerequisites: 271 or 230; 275 for 276.

Credits: 3.00

MATH 276 - Adv Engineering Analysis II

(Same as Mechanical Engineering 304, 305; Civil Engineering 304, 305.)

Prerequisites: 271 or 230; 275 for 276.

Credits: 3.00

MATH 283 - Junior-Senior Seminar

Students required to give presentations on selected topics. Prerequisite: Instructor permission.

Credits: 1.00

MATH 293 - Undergraduate Honors Thesis

Program of reading and research culminating in written thesis and oral presentation. Honors notation appears on transcript and Commencement Program. Contact department chairperson for procedures. (Not offered for graduate credit.)

Credits: 8.00

MATH 294 - Undergraduate Honors Thesis

Program of reading and research culminating in written thesis and oral presentation. Honors notation appears on transcript and Commencement Program. Contact department chairperson for procedures. (Not offered for graduate credit.)

Credits: 3.00

MATH 295 - Special Topics

For advanced students in the indicated fields. Lectures, reports, and directed readings on advanced topics. Prerequisite: Instructor permission. Credit as arranged. Offered as occasion warrants.

Credits: 4.00

MATH 330 - Adv Ordinary Diff Equations

Linear and nonlinear systems, approximate solutions, existence, uniqueness, dependence on initial conditions, stability, asymptotic behavior, singularities, self-adjoint problems. Prerequisite: MATH 230.

Credits: 3.00

MATH 331 - Theory of Func of Complex Var

Differentiation, integration, Cauchy-Riemann equations, infinite series, properties of analytic continuation, Laurent series, calculus of residues, contour integration, meromorphic functions, conformal mappings, Riemann surfaces. Prerequisite: MATH 242.

Credits: 4.00

MATH 332 - Approximation Theory

Interpolation and approximation by interpolation, uniform approximation in normed linear spaces, spline functions, orthogonal polynomials. Least square, and Chebychev approximations, rational functions. Prerequisite: MATH 124, MATH 237.

Credits: 3.00

MATH 333 - Thry Functions Real Variables

The theory of Lebesgue integration, Lebesgue measure, sequences of functions, absolute continuity, properties of LP-spaces. Prerequisite: MATH 242.

Credits: 4.00

MATH 335 - Advanced Real Analysis

L2-spaces, LP-spaces; Hilbert, Banach spaces; linear functionals, linear operators; completely continuous operators (including symmetric); Fredholm alternative; Hilbert-Schmidt theory; unitary operators; Bochner's Theorem; Fourier-Plancherel, Watson transforms. Prerequisites: MATH 333.

Credits: 3.00

MATH 339 - Partial Differential Equations

Classification of equations, linear equations, first order equations, second order elliptic, parabolic, and hyperbolic equations, uniqueness and existence of solutions. Prerequisite: MATH 230; MATH 242.

Credits: 3.00

MATH 351 - Topics in Algebra

Topics will vary each semester and may include algebraic number theory, algebraic geometry, and the arithmetic of elliptic curves. Repeatable for credit with Instructor permission. Prerequisite: MATH 252.

Credits: 3.00

MATH 353 - Point-Set Topology

Topological spaces, closed and open sets, closure operators, separation axioms, continuity, connectedness, compactness, metrization, uniform spaces.

Prerequisite: MATH 241.

Credits: 3.00

MATH 354 - Algebraic Topology

Homotopy, Seifert-van Kampen Theorem; simplicial, singular, and Cech homology. Prerequisite: MATH 353.

Credits: 3.00

MATH 373 - Topics in Combinatorics

Topics will vary each semester and may include combinatorial designs, coding theory, topological graph theory, cryptography. Prerequisite: MATH 251 or MATH 273; or Instructor permission.

Credits: 3.00

MATH 382 - Seminar

Topical discussions with assigned reading. Required of M.S. degree candidates.

Credits: 1.00

MATH 391 - Master's Thesis Research

Credits: 5.00

MATH 395 - Special Topics

Subject will vary from year to year. May be repeated for credit.

Credits: 6.00

MATH 491 - Doctoral Dissertation Research

Credits: 12.00

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Courses in Mechanical Engineering (ME)

ME 012 - Dynamics

Kinematics and kinetics of particles and rigid bodies in two and three dimensions. Computer-aided analysis. Prerequisite: CE 001, MATH 121.
Credits: 3.00

ME 014 - Mechanics of Solids

Stress, strain, temperature relationships, torsion, bending stresses and deflections. Columns, joints, thin-walled cylinders. Combined stresses and Mohr's circle. Prerequisite: CE 001, MATH 121, ME 012, or concurrent enrollment. Cross-listed with: CE 100.
Credits: 3.00

ME 040 - Thermodynamics

Principles of engineering thermodynamics; applications of these principles to thermodynamic cycles. Credit not allowed for both 40 and 41. Prerequisite: Math 22, Physics 31 with 21.
Credits: 3.00

ME 042 - Engineering Thermodynamics

Properties and processes of fluids; perfect gases, and approximate relationships for real gases; applications of thermodynamics, principles of combustion, mixtures, power cycles, gas compression, and refrigeration. Prerequisite: 40.
Credits: 3.00

ME 044 - Heat Transfer

Introductory treatment of heat transfer by conduction, convection, and radiation. Co-requisite: ME 040.
Credits: 1.00

ME 082 - Mech Engineering Lab I

Computer methods in mechanical engineering. Introduction to scientific programming; solids modeling and stress analysis. Pre/co-requisite: CE 001.
Credits: 3.00

ME 095 - Special Topics

One to three hours with instructor's approval.

Credits: 3.00

ME 101 - Engineering Materials I

Atomic structure, crystalline structure, mechanical properties of metals; testing of materials, multicomponent systems, phase equilibria, processing metals, polymers, composite materials, ceramics and glass corrosion. Prerequisite: 14.

Credits: 3.00

ME 111 - System Dynamics

Modeling of systems with mechanical, electrical, fluid, and thermal elements. Linear systems analysis. Response of vibratory and feedback systems. Computer simulation. Prerequisite: 12.

Credits: 3.00

ME 114 - Intro Engineering Mechanics

Introduction to statics, dynamics, fluid mechanics, strength of materials, thermodynamics. Prerequisite: Junior standing in engineering or physical sciences.

Credits: 3.00

ME 123 - Mechanical Engineering Lab II

Engineering measurements, data analysis and theory of experimentation. Experiments with fluids and material testing machines and instrumentation for dynamic measurements. Corequisite: 143.

Credits: 2.00

ME 124 - Mechanical Engineering Lab III

Engineering measurements, data analysis and theory of experimentation. Experiments with fluids and material testing machines and instrumentation for dynamic measurements. Corequisite: 143.

Credits: 2.00

ME 143 - Fluid Mechanics

Fluid pressure distributions; integral control volume systems; differential relations for a fluid particle; dimensional similarity; viscous flow in ducts; boundary layer flows; inviscid incompressible flows. Prerequisites: 12, 42.

Credits: 3.00

ME 144 - Heat Transfer

One- and two-dimensional steady and unsteady thermal conduction; natural and forced internal and external convection; thermal radiation; heat exchangers; boiling and condensation heat transfer. Prerequisite: ME 143.

Credits: 3.00

ME 150 - The Engineering Profession

Professional practice of engineering. Laws, ethics, engineering economy, liability, insurance, and contracts. Prerequisite: Senior standing or Instructor permission.

Credits: 3.00

ME 161 - Manufacturing Engineering I

Mechanical and thermal processing of metallic and nonmetallic materials; casting, forming, cutting, grinding, joining, high energy forming, EDM, ECM, Laser, and

ultrasonic. Prerequisite: Senior ME standing.

Credits: 3.00

ME 162 - Manufacturing Engineering II

Machine tools engineering, flexible manufacturing systems, robotics in manufacturing, automatic factory, computer-aided manufacturing.

Credits: 3.00

ME 171 - Design of Elements

Mechanical fatigue criteria, fatigue analysis and design of springs, bolted/welded joints, gearing, shafts, bearings, power transmission. Computer-aided design and analysis. Prerequisite: Junior standing; ME 014.

Credits: 4.00

ME 172 - Design of Systems

Design synthesis and optimization; probabilistic aspects in design; expert systems in design. Prerequisite: ME 171.

Credits: 3.00

ME 174 - Industrial Design Project

Design projects from industry. Prerequisite: ME 171.

Credits: 1.00

ME 183 - Mechanical Engineering Lab IV

Advanced engineering experimentation, data collection and reduction techniques applied to areas of mechanical engineering; projects involving "design for manufacturing" of a specified product. Prerequisite: Senior standing in Mechanical Engineering.

Credits: 3.00

ME 185 - Senior Project

An individual engineering study designed to particular interest of the student, utilizing and synthesizing the student's total mechanical engineering educational experience. Prerequisite: Senior standing.

Credits: 3.00

ME 186 - Senior Project

An individual engineering study designed to particular interest of the student, utilizing and synthesizing the student's total mechanical engineering educational experience. Prerequisite: Senior standing.

Credits: 3.00

ME 191 - Senior Thesis

Investigation of a research or design project under supervision of assigned staff member culminating in acceptable thesis. Prerequisite: Senior standing; department permission.

Credits: 3.00

ME 193 - College Honors

Credits: 3.00

ME 194 - College Honors

Credits: 3.00

ME 195 - Special Topics

Prerequisite: Senior standing in Civil or Mechanical Engineering.

Credits: 4.00

ME 203 - Machinery Analysis & Synthesis

Kinematic and kinetic analysis of two- and three-dimensional machines; kinematic synthesis, electromechanical and servo mechanisms; application to robotic mechanisms. Prerequisite: Senior standing in ME.

Credits: 3.00

ME 207 - Biomechanics I

Introduction to the structure and mechanics of the musculoskeletal system. Application of mechanics to bone, tendon, ligaments, and other biological materials. Prerequisite: Senior or graduate standing in ME, or instructor permission.

Credits: 3.00

ME 208 - Biomechanics II

Introduction to biomaterials and the mechanical behavior of bioviscoelastic fluids or solids. Prerequisite: 207 or instructor permission.

Credits: 3.00

ME 209 - Biofluid Dynamics

Fluid dynamics of human physiology. Circulatory and respiratory mechanics, steady and unsteady laminar flow, pulse wave reflections, curved and collapsible tube flow, turbulence. Prerequisite: 143 or equivalent.

Credits: 3.00

ME 234 - Mechanical Vibrations

Analysis, measurement, and control of mechanical vibrations; SDOF, MDOF, and rotating systems, forced, free, and random vibrations. Prerequisite: ME 111 or Senior/ Graduate standing in engineering or physical sciences.

Credits: 3.00

ME 241 - Combustion Processes

Combustion thermodynamics; chemical kinetics; laminar flames, premixed and diffusion; turbulent flames; ignition, explosion, and detonation; droplet combustion; flame spread; large scale fires; rocket combustion. Prerequisite: Senior/Graduate standing.

Credits: 3.00

ME 242 - Adv Engr Thermodynamics I

Foundations of statistical mechanics. Gases and crystals. Chemical equilibrium. Irreversible processes. Prerequisite: Senior/Graduate standing or permission.

Credits: 3.00

ME 243 - Inviscid Flow

Eulerian and Lagrangian descriptions of motion. Potential flow. Thin-airfoil theory and numerical methods. Linear wave theory. Flow stability. Linearized subsonic and supersonic flow. Prerequisite: 143.

Credits: 3.00

ME 244 - Intro to Turbomachinery Anyl

Fundamental turbomachinery principles of fluid mechanics, thermodynamics, and structural analysis; basic equations and computational techniques for analysis and design to model and evaluate turbomachinery. Prerequisite: ME 243, MATH 271.

Credits: 2.00

ME 245 - Advanced Heat Transfer I

Transient heat conduction; integral methods; convection; formulation and solution; boiling, condensation; radiant heat exchange in enclosures and with emitting-absorbing gases, advanced view factors. Prerequisite: Senior standing in ME or instructor's permission.

Credits: 3.00

ME 246 - Centrifugal Compressors

Fluid dynamic and thermodynamic principles of centrifugal compressor design and design practice; limits of stable operation and instability prediction and control.

Prerequisite: ME 244.

Credits: 2.00

ME 247 - Centrifugal Pumps

Centrifugal pump design principles and practice; performance limits; cavitation; design tools and pump design optimization. Prerequisite: ME 244.

Credits: 2.00

ME 248 - Turbomachinery Special Topics

Content in axial fans/compressors; axial, radial, or steam turbines; CFD, dynamics/rotordynamics, or materials for turbo-machinery; power plant or refrigeration cycle developments; turbocharged and compound IC-engines.

Prerequisite: ME 244.

Credits: 2.00

ME 249 - Computational Fluids Engr

Computational methods for solving the Navier-Stokes equations and combined thermo-fluid flows; finite-differences and finite-volume techniques; use of standard commercial CFD software. Prerequisites: 143 or equivalent.

Undergraduate/graduate credit.

Credits: 3.00

ME 252 - Mechanical Behavior Materials

Elastic and plastic behavior of single crystals; dislocations; approximate plastic analysis; anisotropic materials; hardness; fractures; fatigue; damping; creep and surface phenomena. Prerequisite: 101, permission. Credit given for 252 or 272, not both.

Credits: 3.00

ME 255 - Adv Engineering Materials

Phase diagrams. Thermodynamics of crystals, alloys. Defects. Phase transformations. Heat treatment of steels. Prerequisites: Senior or graduate standing, or instructor's permission.

Credits: 3.00

ME 257 - Composite Materials

Fibers, matrices. Unidirectional and short fiber composites. Experimental characterization. Prerequisite: 101. Credit given for 257 or 277, not both.
Credits: 3.00

ME 265 - Integrated Product Developmnt

(See Business Administration 293.) Prerequisite: Senior standing.
Credits: 3.00

ME 270 - Structural Dynamics

Vibrations, matrices, earthquake engineering, stability and wave propagation. Prerequisites: Senior or graduate standing in engineering or physical sciences, or instructor permission. Cross-listed with CE 272.
Credits: 3.00

ME 281 - Seminar

Presentation and discussion of advanced mechanical engineering problems and current developments. Prerequisite: Senior/Graduate engineering enrollment.
Credits: 1.00

ME 282 - Seminar

Presentation and discussion of advanced mechanical engineering problems and current developments. Prerequisite: Senior/Graduate engineering enrollment.
Credits: 1.00

ME 283 - Lab Techniques Turbomach Dev

Instruments and transducers for performance, flow, and structural measurements in turbo-machinery; the role of test data in design and development; experimental data acquisition and processing. Prerequisite: ME 244.
Credits: 2.00

ME 285 - Biomedical Engineering Seminar

Presentation and discussion of advanced biomedical engineering problems and current research developments. Prerequisite: Senior/Graduate engineering enrollment.
Credits: 1.00

ME 295 - Special Topics

Content is dictated by expanding professional interest in newly developing, or recently developed, technical areas in which there is particular need or opportunity. Prerequisite: Senior/Graduate standing.
Credits: 6.00

ME 301 - Intro Biomedical Engineering

Introduction to basic biomedical engineering science; biomedical computing and pattern recognition, biomedical instrumentation and signal analysis, biomechanics, biomaterials, rehabilitation engineering, physiological transport phenomena, intelligent systems.
Credits: 3.00

ME 304 - Adv Engineering Analysis I

Problems in analysis in engineering, including ordinary and partial differential

equations, special functions, matrices, tensor analysis, variational calculus, complex variables, perturbation methods. Prerequisites: Math. 271 or Math. 230; ME 304 for ME 305. Cross-listings: CE 304, 305; Math 275, 276.
Credits: 3.00

ME 305 - Adv Engineering Analysis II

Problems in analysis in engineering, including ordinary and partial differential equations, special functions, matrices, tensor analysis, variational calculus, complex variables, perturbation methods. Prerequisites: Math. 271 or Math. 230; ME 304 for ME 305. Cross-listings: CE 304, 305; Math 275, 276.
Credits: 3.00

ME 321 - Special Problems in Fluid Mech

Advanced topics in fluid mechanics in which there is a particular student and staff interest.
Credits: 3.00

ME 323 - Special Prob in Thermodynamics

Advanced topics in thermodynamics in which there is a particular student and staff interest.
Credits: 3.00

ME 325 - Special Problems in Materials

Advanced topics in behavior of materials in which there is a particular student and staff interest.
Credits: 3.00

ME 330 - Matrix Meth in Struct Dynamics

Matrices, eigenvalue problems, forced vibration, wave propagation.
Credits: 3.00

ME 333 - Stress Analysis

Theory and experimental method of measuring static and dynamic stress and strain.
Credits: 3.00

ME 336 - Continuum Mechanics

Tensors, conservation laws, field equations for solids and fluids.
Credits: 3.00

ME 338 - Advanced Dynamics

Application of Lagrange's equation, Hamilton's principle to mechanical systems. Systems with constraints. Matrix formulation of problems in kinematics, dynamics. Stability of linear, nonlinear systems.
Credits: 3.00

ME 343 - Advanced Fluid Dynamics

Stress in continuum; kinematics, dynamics; potential fields; Wing theory; Navier-Stokes equation; hydrodynamic stability; turbulence; laminar, turbulent boundary layer theory; transient flows; free laminar, turbulent flows; mixing.
Credits: 3.00

ME 344 - Adv Eng Thermodynamics II

Microscopic thermodynamics; Maxwell-Boltzmann, Bose-Einstein, Fermi-Dirac statistics; kinetic theory of gases; transport properties, compressed gases, liquids, solid states; chemical systems; irreversible processes; fluctuations.

Credits: 3.00

ME 345 - Advanced Heat Transfer II

Generalized equation of heat conduction; classical integral transforms, approximate solutions; thermal boundary layers; forced and free convection; condensation, boiling, ablative cooling; radiation, statistical theory; mass transfer.

Credits: 3.00

ME 346 - Advanced Gas Dynamics

Compressible flow in ducts; friction, heat transfer; shock waves; small perturbation theory; high speed flows; transonic, supersonic, hypersonic flows; methods of characteristics. Aerodynamic heating; rarified gas flows.

Credits: 3.00

ME 371 - Adv Engr Des Anyl&Synthesis I

Application of fundamental concepts, principles of advanced mathematics, physics, mechanics, electricity, thermodynamics, fluid dynamics, heat transfer, and decision-making processes to design, analysis, synthesis of complex engineering systems.

Credits: 4.00

ME 372 - Systems Engineering

Advanced course in systems engineering, reliability, maintainability, safety, and human factors engineering. Case studies. Prerequisites: ME 371 or Instructor permission.

Credits: 3.00

ME 373 - Integr Mechanism Design Anyl

Application of system analysis, rigid body dynamics, finite elements, fatigue analysis and structural dynamics to an integrated approach to mechanisms design. Prerequisites: ME 371 or Instructor permission.

Credits: 3.00

ME 391 - Master's Thesis Research

Credits: 3.00

ME 395 - Advanced Special Topics

Advanced topics in recently developed technical areas. Prerequisites: three hours with Instructor permission.

Credits: 3.00

ME 491 - Doctoral Dissertation Research

Credits: 0.00 to 18.00

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Courses in Medical Laboratory Science (MLS)

MLS 201 - Body Fluid Analysis

Lectures and laboratory experiences focusing on the complete analysis of urine, cerebral spinal fluids, serous fluids, synovial fluid, and other human body fluids. Majors only. Spring, Fall.
Credits: 1.00

MLS 220 - Clinical Practicum: Chemistry

Experiences with chromatography, immunoassays, random access analyses, and a variety of manual and automated test systems. MLS majors only. Fall, spring.
Credits: 4.00

MLS 222 - Advanced Clinical Chemistry

Two-part course detailing testing techniques including chromatography, electrophoresis, nephelometry, biochemistry. Spring. electrochemistry, and automation; clinical case studies on the pathophysiology of diseases when abnormal chemistry test results are present. Lab focuses on troubleshooting and problem solving. Prerequisite: One semester of
Credits: 4.00

MLS 230 - Clinical Practicum: Hematology

Experiences in clinical analysis of blood cells in the FAHC laboratories. MLS majors only. Fall, spring.
Credits: 3.00

MLS 231 - Pathophysiology of Blood Cells

Advanced theory and analysis of blood cell physiology and related pathology. Concepts of hemostasis and clinical assessment methods. Prerequisite: One semester of biochemistry. Fall.
Credits: 4.00

MLS 250 - Clin Practicum: Microbiology

Practical experiences at Fletcher Allen Health Care. MLS majors only. Fall, spring.
Credits: 3.00

MLS 255 - Adv Clinical Microbiology

Advanced instruction in the study of clinically significant microorganisms, infectious

disease process, and laboratory methods used for the isolation and identification of microorganisms from clinical specimens. Fall. Prerequisite: One semester of biochemistry.

Credits: 4.00

MLS 256 - Parasitology

Lectures and laboratory experiences in the identification of parasitic organisms and their relationship to disease. MLS majors only. Fall, Spring.

Credits: 1.00

MLS 260 - Clin Pract:Immunohematology

Clinical experiences in operation of a hospital transfusion service and regional reference laboratory. MLS majors only. Fall, spring.

Credits: 3.00

MLS 262 - Advanced Immunohematology

Advanced theory and experience related to human blood groups and transfusion practice. Prerequisites: One semester of biochemistry. Spring.

Credits: 4.00

MLS 295 - Special Topics

Credits: 12.00

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Courses in Micr & Molecular Genetics (MMG)

MMG 065 - Microbiology & Pathogenesis

Overview of microbiology, emphasizing the relationships between the structure, metabolism, and genetics of microorganisms and their roles in nature and in pathogenesis. Prerequisite: One semester chemistry. Not intended for students who have completed BIOL 001 and BIOL 002 or equivalent. Fall.

Credits: 4.00

MMG 095 - Special Topics

Credits: 3.00

MMG 096 - Special Topics

Credits: 3.00

MMG 101 - Biology of Microorganisms

An introduction to the biology of microorganisms, encompassing their diversity, metabolism, pathogenesis, and ecology. Prerequisites: One semester of chemistry and biology, or equivalent, or instructor's permission. Fall.

Credits: 4.00

MMG 102 - Molecular Genetics

Modern molecular genetics. Topics include: mechanisms of gene expression in prokaryotes and eukaryotes; retroviruses; cancer biology; human genetic diseases. Emphasis on experimental and conceptual aspects. Prerequisite: MMG 101, BOT 132, or Instructor permission. Spring.

Credits: 4.00

MMG 195 - Special Topics

Prerequisite: Instructor's permission. Credits negotiable.

Credits: 3.00

MMG 196 - Special Topics

Prerequisite: Instructor's permission. Credits negotiable.

Credits: 4.00

MMG 197 - Undergrad Research

Undergraduate honors students accommodated in individual research projects sponsored by department member. Arrangement with individual department

member and department chairperson approval. Credits negotiable.

Credits: 2.00

MMG 198 - Undergrad Research

Undergraduate honors students accommodated in individual research projects sponsored by department member. Arrangement with individual department member and department chairperson approval. Credits negotiable.

Credits: 1.00

MMG 201 - Molecular Cloning Lab

Intensive advanced laboratory course in the fundamentals of recombinant DNA technology through the isolation and characterization of a unique gene.

Prerequisite: 102 or equivalent. Fall.

Credits: 4.00

MMG 203 - Mamm Cell Cult:Molecular Biol

The basic principles and techniques of mammalian cell culture, as well as cell and mammalian molecular genetics. Prerequisite: Permission of coordinator. Alternate years, Spring.

Credits: 4.00

MMG 205 - Biochemistry I

Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems, including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisites: CHEM 142 or 144. Crosslisted with BIOC 205 and CHEM 205. UG only. Fall.

Credits: 3.00

MMG 206 - Biochemistry II

Continuation of Biochemistry I. Biochemistry of nucleic acids; nucleic acid based processes, such as replication and transcription; cellular information transfer, genomics, and proteomics. Prerequisite: 205. Crosslisted with BIOC 206 and CHEM 206. UG only. Spring.

Credits: 3.00

MMG 207 - Biochemistry Lab

Introduction to biochemical tools, including spectrometry, chromatography, and electrophoresis; natural and recombinant enzyme isolation; assays of DNA-modifying enzymes; computer-based structure/function exercises. Corequisites: 205 or 206. Crosslisted with BIOC 207 and CHEM 207. UG only.

Credits: 3.00

MMG 211 - Prokaryotic Molecular Genetics

The organization, replication, and expression of genes in prokaryotes, focusing on the genetics of Escherichia coli and its viruses. Prerequisite: Introductory microbiology, biochemistry, genetics, and/or cell biology courses. Fall.

Credits: 3.00

MMG 220 - Environmental Microbiology

The activities of microorganisms, primarily bacteria, in air, soil, and water.

Prerequisite: A previous course in microbiology. Alternate years.

Credits: 3.00

MMG 222 - Clinical Microbiology

Comprehensive study of human pathogenic microorganisms and their disease states in humans, which includes pathogenic bacteriology, medical mycology, and virology. Laboratory sessions provide practical experience in handling and identifying these pathogens. Prerequisite: 65 or 101 or equivalent. Spring.

Credits: 4.00

MMG 223 - Immunology

Analysis of the immune response with respect to structure and function of immunoglobulins and the T-cell receptor, tolerance, innate and adaptive immunity, the Major Histocompatibility Complex, hypersensitivity states, transplantation, cancer, and AIDS. Prerequisite: Instructor's permission. Alternate years. Fall.

Credits: 3.00

MMG 225 - Eukaryotic Virology

An in-depth analysis of eukaryotic virus-mammalian cell interactions emphasizing mechanisms by which viruses modulate gene expression in infected cells.

Prerequisite: 101 or 102 or equivalent. Alternate years. Fall.

Credits: 3.00

MMG 231 - Bioinformatics

Introduction to current topics in bioinformatics. Applications may include sequence alignment, dynamic programming, hidden Markov models, phylogenetics trees, microarray data analysis, genomics, and proteomics. Prerequisites: Instructor's permission; STAT 151, CS 26, and MMG 102 desirable. (Cross-listed with CS 231). Fall.

Credits: 3.00

MMG 240 - Macromol Struct Prot&Nucl Acid

Introduction to structural biology and macromolecular structure with an emphasis on protein-protein and protein-nucleic acids interactions. Prerequisites: Biology 1, 2; Organic Chemistry; Junior standing recommended; concentration in Physics. (Cross-listed with BIOC 240) Alternate years, not approved for graduate credit. Spring.

Credits: 3.00

MMG 295 - Special Topics

Supervised investigations in microbiology or molecular genetics. Prerequisite: Instructor permission. Credit as arranged.

Credits: 3.00

MMG 296 - Special Topics

Supervised investigations in microbiology or molecular genetics. Prerequisite: Instructor permission. Credit as arranged.

Credits: 3.00

MMG 302 - Medical Microbiology

Fundamentals of pathogenic microbiology emphasizing mechanisms of disease production and mechanisms of resistance to infection. The ecologic rather than

taxonomic approach is stressed. Primarily for Medical students. Prerequisite: Department permission. Spring.
Credits: 8.00

MMG 310 - Current Topics in MMG

Seminar to focus on specific issues at the forefront of current research in molecular genetics. Meetings will involve student presentation and discussion of research articles. Prerequisite: Permission of Coordinator.
Credits: 2.00

MMG 312 - Eukaryotic Molecular Genetics

The use of lower eukaryotes, such as the yeasts *Saccharomyces cerevisiae* and *Schizosaccharomyces pombe*, as model genetic systems to answer questions of basic biological importance. Prerequisites: Instructor permission; MMG 233 and CLBI 301, or equivalent.
Credits: 3.00

MMG 320 - Cellular Microbiology

Utilizes primary literature to explore the cellular and molecular basis of microbial pathogenesis caused by viruses, pathogenic bacteria and protozoan parasites. Alternate years. Spring.
Credits: 4.00

MMG 332 - Critical Reading

Students will participate in group discussions to critically evaluate and interpret the experimental data from one assigned paper from the scientific literature per week. Prerequisite: Permission of Coordinator. Fall.
Credits: 1.00

MMG 352 - Protein:Nucleic Acid Interact

Structure of DNA and RNA, and the structure and assembly of nucleoprotein complexes will be described using examples from prokaryotes, yeast, viruses, and mammalian cells in culture. Prerequisite: MMG 211 or equivalent; AGBI 201 or BIOC 301; BIOC 302 or equivalent. Cross-listed with: BIOC 352. Alternate years. Spring.
Credits: 3.00

MMG 391 - Master's Thesis Research

Credits: 1.00 to 18.00

MMG 491 - Doctoral Dissertation Research

Credits: 1.00 to 18.00

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Courses in Middle Level Teacher Education (EDML)

EDML 010 - Introduction to Teaching

Orientation to teaching at middle level. Examination of young adolescent students, teachers' roles, middle schooling and the middle school concept. Prerequisites: Admission to Pre-professional teaching education.
Credits: 3.00

EDML 024 - Learners, Development&Learning

Students learn about the interrelated processes of development and learning throughout childhood but with special emphasis on the approximate ages of ten to fourteen. Prerequisite: EDML 010.
Credits: 3.00

EDML 055 - Special Topics I

Credits: 3.00

EDML 056 - Teachers & Teaching Process

Students examine professional responsibilities of middle level teachers as defined by Vermont and national standards via classroom observations. Prerequisite: EDML 010, EDML 024.
Credits: 3.00

EDML 171 - Teaching Practicum II

Second teaching practicum on a middle level team to learn policy, curriculum, exemplary pedagogy, assessment in second of two academic concentrations defined by student's IDIMC plan. Prerequisite: Admission to Middle Level Professional Program.
Credits: 3.00

EDML 197 - Readings & Research

Credits: 3.00

EDML 200 - Contemporary Issues

Credits: 3.00

EDML 207 - Adoles Lrng&Beh&Cog Perspect

Indepth examination of cognitive learning theory and its background in behavioral and other learning theories, with application to teaching in a middle or secondary

setting. Pre/co-requisites: Acceptance to licensing program. (Crosslisted with EDSC 207).

Credits: 3.00

EDML 260 - Teaching Young Adolescents

Focus on understanding and reflecting on an integrative developmental approach to the design of middle level curriculum, with an emphasis on literacy and numeracy.

Credits: 6.00

EDML 261 - Middle Level Teaching Pract

Teaching practicum on middle level team in two areas of academic concentration, acquiring knowledge of and skills in curriculum, pedagogy, and assessment.

Pre/co-requisite: Admission to Middle Level Professional Program.

Credits: 3.00

EDML 270 - Middle School Org & Pedagogy

Focuses on exploring theory and practice in responsive school organization for young adolescents, including interdisciplinary/partner teaming, block scheduling, and teacher advisories, as well as teaching lessons in one area of specialization.

Pre/co-requisite: EDML 260, EDML 261.

Credits: 6.00

EDML 285 - Middle Level Student Teaching

Full-time supervised student teaching internship as a member of a middle school team. Development of a professional portfolio as stipulated in the Middle Level Program Handbook. Pre/co-requisite: EDML 260, EDML 261, EDML 270, and Instructor permission.

Credits: 12.00

EDML 286 - Internship Support Seminar

Seminar addresses and responds to internship experiences including planning, classroom management, team work, and assessment of learning. Guidance in development of Professional Teaching Portfolio. Pre/co-requisites: EDML 260, 261, 270.

Credits: 3.00

EDML 287 - Literacy & Mathematics

All middle level teachers are expected to teach reading, writing, literature and mathematics. This course is the capstone for work previously done in these pedagogies. Pre/co-requisite: Successful completion of EDML 260, EDML 261, and EDML 270.

Credits: 3.00

EDML 295 - Laboratory Experience

Credits: 6.00

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Courses in Military Studies (MS)

MS 011 - Intro to ROTC & US Army

Discussion of the customs, traditions, branches, organization, as well as the many changes in the roles and missions of the Army of the 21st century. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions.

Credits: 1.00

MS 012 - Intro Mil Skills&Followership

Development of basic skills of an Army officer, including navigation and communications. Students are exposed to leadership development exercises during leadership laboratories.

Credits: 1.00

MS 014 - Orienteering

Basic practical skills such as maps, compass, and environmental awareness. Classroom participation, written exams, and completion of an orienteering course determine student grades. Open to all First-Year and Sophomore students. Cross-listed with: PEAC 014. Fall/Spring.

Credits: 1.00

MS 017 - Military Fitness

Vigorous workout three days a week designed to build both upper body strength and aerobic ability. Classroom participation and a final Army Physical Fitness Test determine student grades. Open to all First-Year/ Sophomore students. Cross-listed with: PEAC 017. Fall/Spring.

Credits: 1.00

MS 019 - Backpacking

Techniques of planning and organizing a backpacking trip. Basic instruction includes clothing, equipment, and environmental awareness. Includes one overnight backcountry trek. Student grades determined by class participation and participation in the practical exercise. Open to all First-Year and Sophomore students. Cross-listed as PEAC 019. Fall/Spring.

Credits: 1.00

MS 021 - Leadership&Team Development

Learning and application of ethics-based leadership skills that develop individual abilities and contribute to effective team building. Development of oral presentations, writing, and coordination of group efforts. Includes a non-credit laboratory to develop, practice, and refine leadership skills in a variety of positions. Credits: 2.00

MS 022 - Individual&Team Leading

Techniques for training/counseling others as an aspect of continued leadership development. Includes safety and risk management assessments, and planning for individual and team safety. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. Credits: 2.00

MS 131 - Lead&Train Small Organizations

Series of opportunities to lead small groups, receive personal assessments, and lead in complex situations. Plan and conduct training to develop leadership skills. Prerequisite: Completion of basic course program or basic camp. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. Fall. Credits: 3.00

MS 132 - Lead&Manage Small Organization

Plan for and adapt to the unexpected in organizations under stress. Examine importance of ethical decisions in a positive climate that enhances team performance. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. Prerequisite: MS 131. Spring. Credits: 3.00

MS 241 - Ldrshp Challenges&Goal Setting

Plan, conduct, and evaluate activities. Assess organizational cohesion and develop strategies for improvement. Develop confidence in skills to lead people and manage resources. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. Prerequisite: MS 132. Fall. Credits: 3.00

MS 242 - Lead Org Ethically&Competently

Identify and resolve ethical dilemmas. Refine counseling and motivating techniques. Examine aspects of tradition and law related to leading as an officer in the Army. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. Prerequisite: MS 241. Spring. Credits: 3.00

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Courses in Molecular Physiology & Biophys (MPBP)

MPBP 191 - Undergraduate Research

Individual laboratory research under guidance of faculty member. Prerequisite: Department permission.
Credits: 3.00 or 6.00

MPBP 201 - Human Physiology & Exercise

A comprehensive, in-depth presentation of the scientific basis of human function. Primarily for Physical Therapy students; a limited number of others may be admitted with permission. Prerequisites: Chemistry 23 and 42 or equivalent, two semesters general physics, one semester mathematics, permission. UG only.
Credits: 3.00

MPBP 202 - Human Physiology & Exercise

A comprehensive, in-depth presentation of the scientific basis of human function. Primarily for Physical Therapy students; a limited number of others may be admitted with permission. Prerequisites: Chemistry 23 and 42 or equivalent, two semesters general physics, one semester mathematics, permission. UG only.
Credits: 3.00

MPBP 301 - Medical Physiology

Function in the whole human organism, and at the cellular, tissue, and organ levels, considered biologically and physically. Prerequisite: Permission of department chair.
Credits: 8.00

MPBP 302 - Neuroscience

A correlated presentation of the neuroanatomy and neurophysiology of mammalian CNS. Same course as Anatomy 302. Prerequisite: Permission. Anatomy and Physiology staff.
Credits: 4.00

MPBP 303 - Special Topics

Topics of current interest to the individual faculty will be covered in depth during individual, 6-week long minicourses of one credit hour each, offered in succession throughout the calendar year. Each topic will be repeated approximately every two years. Format will include lectures, reports, and directed readings. Prerequisites:

301; permission of individual faculty.

Credits: 1.00

MPBP 308 - Biometrics & Applied Statistic

Introduction to the rational use and evaluation of statistical methods in planning experiments and interpreting biological data. Biometrics laboratory included.

Course limited to 12 students. Prerequisites: Math. 110 or equivalent, and permission. Fall.

Credits: 5.00

MPBP 310 - Molecular Basis Biol Motility

Molecular basis of muscle contraction, and cellular motility. Topics include: muscle energetics and mechanics, biochemistry of motility, and regulation of contractile proteins. Lectures and conferences. Prerequisites: MPBP 301; BIOC 301, BIOC 302; Instructor permission. Alternate years.

Credits: 3.00

MPBP 323 - Prin&Elem Biomed Instrumntatn

Laboratory skills for modern molecular physiology. Topics: basic electrophysics; transducers; molecular concepts and manipulation; the computer as a laboratory instrument. Lectures and laboratory. Prerequisite: Permission. Alternate years.

Credits: 4.00

MPBP 381 - Seminar

Presentation and discussion by advanced students, staff, and invited speakers, of current topics in physiology. No credit will be given, but students are expected to participate.

Credits: 1.00

MPBP 391 - Master's Thesis Research

Credits: 1.00 to 18.00

MPBP 491 - Doctoral Dissertation Research

Credits: 1.00 to 18.00

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Courses in Movement Science & Rehab (MVSR)

MVSR 300 - Research Tutorial

Through seminars, actual research participation, informal discussions, and individual advisement, the student will develop a proposal for thesis research. Explore instrumentation, experimental design, and logistics of research.
Credits: 1.00 to 3.00

MVSR 304 - Prof Practice Practicum

Practicum experience in a clinical specialty, teaching, management or consultation. Companion seminar to analyze and assess practicum experience.
Prerequisite: PA 312, PA 315 or PA 395.
Credits: 2.00

MVSR 311 - Motor Funct&Dysfunction Muscle

Structure, function, biomechanics, plasticity, measurement of muscle characteristics, muscle performance in relation to development, aging, nutrition, activity, pathology, elasticity, viscosity and responses to therapeutic interventions.
Credits: 3.00

MVSR 381 - Special Topics Seminar

Topics of interest to graduate physical therapists based on theory, research or advanced practice. Content will go beyond the scope of existing courses or thesis research. May be repeated for credit. Prerequisite: Advisor and Instructor permission.
Credits: 3.00

MVSR 391 - Master's Thesis Research

Credits: 1.00 to 12.00

MVSR 397 - Special Readings & Research

Directed individual study of areas not appropriately covered by existing courses.
Prerequisite: Advisor and sponsoring faculty permission.
Credits: 1.00 to 3.00

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Courses in Music (MUS)

MUS 001 - Intro Music Listening

A concise view of Western music from plainsong to the present. Involves both classroom and outside listening. Non-majors only.

Credits: 3.00

MUS 002 - Intro to Performance Study

Group lessons at elementary level in various instruments and voice. Lab fee. May be repeated for credit.

Credits: 1.00

MUS 003 - Intro Music Theory

Rudiments of notation, rhythm, melody, harmony, scales, form, and terminology. Non-majors only.

Credits: 3.00

MUS 004 - The Experience of Music

Explores the phenomenon "music" through aural examination of its composite elements: melody, rhythm, harmony, texture, form. Musical examples drawn from Western and non-Western folk, art, and popular musical repertoires. Prerequisite: Nonmajors only.

Credits: 3.00

MUS 005 - Performance Study

Group lessons in piano. Prerequisites: Ability to read music or proficiency on another instrument or voice.

Credits: 1.00

MUS 006 - Performance Study

Group lessons in piano. Prerequisites: Ability to read music or proficiency on another instrument or voice.

Credits: 1.00

MUS 007 - Performance Study

Group lessons in piano. Prerequisites: Ability to read music or proficiency on another instrument or voice.

Credits: 1.00

MUS 008 - Performance Study

Group lessons in piano. Prerequisites: Ability to read music or proficiency on another instrument or voice.

Credits: 1.00

MUS 011 - Survey of Western Music

Historical study of development of Western music. First semester: Earliest times through the baroque. Second semester: Classical period to the present. Involves both classroom and outside listening.

Credits: 3.00

MUS 012 - Survey of Western Music

Historical study of development of Western music. First semester: Earliest times through the baroque. Second semester: Classical period to the present. Involves both

Credits: 3.00

MUS 015 - World Music Cultures

Survey of non-Western and non-European music primarily of the geographic areas of Australia, Indonesia, China, Japan, India, Black Africa, and Native American Indians.

Credits: 3.00

MUS 031 - Basic Musicianship

Study of melody and elementary harmony, melodic and rhythmic dictation, sight singing. Prerequisites: Basic piano facility or concurrent enrollment in Music 5-6, Group Piano; 31 for 32 or instructor's permission.

Credits: 3.00

MUS 032 - Basic Musicianship

Study of melody and elementary harmony, melodic and rhythmic dictation, sight singing. Prerequisites: Basic piano facility or concurrent enrollment in Music 5-6, Group Piano; 31 for 32 or instructor's permission.

Credits: 3.00

MUS 041 - Basic Electronic Music

Emphasis on understanding and working with digital electronic sounds through MIDI, using synthesizers, computers, sequencing software and tape recorders, including a history of electronic music. Prerequisite: Basic music literacy.

Credits: 3.00

MUS 042 - History of Jazz

Survey of New Orleans, Chicago, Swing, bebop, cool, funky, and free jazz styles through the work of important soloists and bands, 1915-1965.

Credits: 3.00

MUS 044 - The Blues & Related Traditions

Survey of performers, musical procedures, technical means, and traditional lyrics of songsters, jug bands, gospel, barrel house piano, and important blues styles to about 1955.

Credits: 3.00

MUS 051 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1.00 to 2.00

MUS 052 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1.00

MUS 053 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1.00

MUS 054 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1.00

MUS 055 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1.00

MUS 056 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1.00

MUS 057 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1.00

MUS 058 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1.00

MUS 081 - Brass Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.00

MUS 082 - Brass Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.00

MUS 083 - String Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.00

MUS 084 - String Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.00

MUS 085 - Voice Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.00

MUS 088 - Woodwind Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.00

MUS 089 - Percussion Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.00

MUS 095 - Special Topics

Credits: 3.00

MUS 096 - Special Topics

Credits: 3.00

MUS 112 - Contemporary Music

Development and style characteristics of 20th century music from the late romanticists to the experimentalists. Both European and American composers presented. Prerequisites: 1, 3, 11, 12, or permission, ability to read music. Offered in alternate years.

Credits: 3.00

MUS 113 - Medieval, Renaissance

Chronological, analytical study of music literature from approximately 600-1600: Gregorian chant, Notre Dame, Burgundian, English, and Netherlands schools. Prerequisites: 1, 3, 11, 12, or permission, ability to read music. Offered in alternate years.

Credits: 3.00

MUS 114 - Baroque Music

Chronological, analytical study of music literature from approximately 1600-1750: Roman and Venetian schools, beginnings of opera, culminating in works of Handel and J.S. Bach. Prerequisites: 1, 3, 11, 12, or permission, ability to read music. Offered in alternate years.
Credits: 3.00

MUS 115 - Genre or Specific Area Courses

American music; ethnomusicology. Prerequisites: Three hours from 1, 3, 4, 11, 12, or permission.
Credits: 3.00

MUS 123 - Theory&Practice Jazz Improv I

Repertoire, idiomatic usage, aural skills, theoretical constructs, and strategies for the jazz improviser. Prerequisites: Intermediate instrumental skill, ability to read music, previous study of traditional music theory.
Credits: 3.00

MUS 131 - Int Theory:Music of Tonal Era

Era Contrapuntal and harmonic dictation; counterpoint, harmony, and form analysis. Prerequisites: 31, 32; 131 for 132, or instructor's permission. Concurrent enrollment in 133, 134.
Credits: 3.00

MUS 132 - Int Theory:Music of Tonal Era

Era Contrapuntal and harmonic dictation; counterpoint, harmony, and form analysis. Prerequisites: 31, 32; 131 for 132, or instructor's permission. Concurrent enrollment in 133, 134.
Credits: 3.00

MUS 133 - Intermediate Theory Lab

Sight singing, keyboard, score reading. Concurrent enrollment in 131, 132.
Credits: 1.00

MUS 134 - Intermediate Theory Lab

Sight singing, keyboard, score reading. Concurrent enrollment in 131, 132.
Credits: 1.00

MUS 151 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.
Credits: 1.00

MUS 152 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.
Credits: 1.00 to 4.00

MUS 153 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.
Credits: 1.00 to 4.00

MUS 154 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1.00 to 4.00

MUS 155 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1.00 to 4.00

MUS 156 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1.00 to 4.00

MUS 157 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1.00 to 4.00

MUS 158 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1.00 to 4.00

MUS 161 - Band

Large Ensembles Attendance at all rehearsals and public performances is required. Prerequisite: Audition. May be repeated for credit.

Credits: 1.00

MUS 162 - Choir

Large Ensembles Attendance at all rehearsals and public performances is required. Prerequisite: Audition. May be repeated for credit.

Credits: 1.00

MUS 163 - Choral Union

Large Ensembles Attendance at all rehearsals and public performances is required. Prerequisite: Audition. May be repeated for credit.

Credits: 1.00

MUS 164 - Orchestra

Large Ensembles Attendance at all rehearsals and public performances is required. Prerequisite: Audition. May be repeated for credit.

Credits: 1.00

MUS 165 - Vermont Wind Ensemble

Prerequisite: Concurrent enrollment in 161.

Credits: 1.00

MUS 171 - Accompanying

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.

Credits: 1.00

MUS 174 - Catamount Singers

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.
Credits: 1.00

MUS 175 - Opera Workshop

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.
Credits: 1.00

MUS 176 - Percussion Ensemble

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.
Credits: 1.00

MUS 177 - Small Ensemble

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.
Credits: 1.00

MUS 178 - Jazz Ensemble

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.
Credits: 1.00

MUS 179 - Trombone Choir

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.
Credits: 1.00

MUS 181 - Music for Elementary Teachers

Development of musical skills, understandings, and attitudes pertinent to teaching of music in elementary classroom. Prerequisite: Junior standing.
Credits: 3.00

MUS 195 - Special Topics

Prerequisites: Junior or senior standing; Music 11, 12, 131, 132, 133, 134.
Credits: 3.00

MUS 196 - Special Topics

Prerequisites: Junior or senior standing; Music 11, 12, 131, 132, 133, 134.
Credits: 3.00

MUS 214 - Seminar in Music Literature

Seminars will treat in detail topics surveyed in intermediate level music literature sequence. Subject matter determined by instructor. Prerequisites: 11, 12; 111 for

211, 112 for 212, 113 for 213, 114 for 214; 115 for 215. Offered on irregular basis as required by major enrollment.

Credits: 3.00

MUS 215 - Seminar in Music Literature

Seminars will treat in detail topics surveyed in intermediate level music literature sequence. Subject matter determined by instructor. Prerequisites: 11, 12; 111 for 211, 112 for 212, 113 for 213, 114 for 214; 115 for 215. Offered on irregular basis as required by major enrollment.

Credits: 3.00

MUS 231 - Adv Theory:20th Century Music

Techniques and form analysis of post-tonal contemporary music. Prerequisites: 132, 134, or instructor's permission.

Credits: 3.00

MUS 232 - Adv Theory: Counterpoint

Analysis of contrapuntal forms and techniques. Music principally of 16th-18th centuries. Prerequisites: 132, 134, or instructor's permission.

Credits: 3.00

MUS 233 - Arranging

Characteristics of instruments; arranging for ensembles. Prerequisite: 132 or instructor's permission.

Credits: 3.00

MUS 234 - Orchestration

Studies in orchestral scoring. Prerequisite: 233 or instructor's permission.

Credits: 3.00

MUS 235 - Fugal Composition

Study of representative baroque, classical, and contemporary fugal procedures through analysis and composition. Prerequisites: 231 or instructor's permission.

Credits: 3.00

MUS 237 - Composition

Creative work in free composition with instruction according to needs and capabilities of individual student. Prerequisite: 231, 235, or instructor's permission.

May be repeated for credit.

Credits: 3.00

MUS 238 - Composition

Creative work in free composition with instruction according to needs and capabilities of individual student. Prerequisite: 231, 235, or instructor's permission.

May be repeated for credit.

Credits: 3.00

MUS 240 - Seminar:Musical Analysis

Advanced study of musical forms. Comparison of standard approaches to harmonic, motivic, and rhythmic analysis. Prerequisites: 235, instructor's permission.

Credits: 3.00

MUS 241 - Senior Project in Music Theory

Advanced study focusing on a theoretical topic under direction of assigned staff member. Prerequisite: Senior standing as Theory major.

Credits: 3.00

MUS 251 - Private Lessons

Private instruction in an instrument or voice for majors at junior and senior levels. Lab fee required.

Credits: 1.00 to 4.00

MUS 252 - Private Lessons

Private instruction in an instrument or voice for majors at junior and senior levels. Lab fee required.

Credits: 1.00 to 4.00

MUS 253 - Private Lessons

Private instruction in an instrument or voice for majors at junior and senior levels. Lab fee required.

Credits: 1.00 to 4.00

MUS 256 - Perform Study:Senior Recital

Private instruction in voice or an instrument in the semester of senior recital. Lab fee required.

Credits: 1.00 to 5.00

MUS 257 - Performance Pedagogy

Methods of teaching voice, strings, woodwinds, brass, percussion, or keyboard instruments including repertoire suitable for use at various levels of ability.

Significant literature of all historical periods in major field. Prerequisites: Senior standing in performance, consent of instructor. (Not offered for graduate credit.)

Credits: 3.00

MUS 259 - Conducting

Technique of the baton, score reading, laboratory practice. Preparation and performance of selected scores, including rehearsal procedures. Selected students may conduct University major ensembles. Prerequisites: 132, 134.

Credits: 3.00

MUS 265 - Vermont Wind Ensemble

Study and performance of masterworks for wind ensemble and concert band.

Attendance at all rehearsals and concerts required. Prerequisite: Audition. May be repeated for credit.

Credits: 1.00

MUS 281 - Elem Music Ed Methods

(Same as Education EDMU 281). Prerequisite: Junior standing in Music Education.

Credits: 3.00

MUS 282 - Sec Music Ed Methods

Methods and materials in the teaching of vocal and instrumental music in secondary schools. Five hours classroom observation per week required.

Prerequisite: Junior standing in Music Education.

Credits: 3.00

MUS 295 - Special Topics

UG only.

Credits: 3.00

MUS 297 - Advanced Readings & Research

Studies in comparison or related special topic under direction of assigned staff member.

Credits: 3.00

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Courses in Music Education (EDMU)

EDMU 055 - Special Topics I

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Open to first-year students.

Credits: 2.00 to 6.00

EDMU 197 - Readings and Research

Individual research problem or directed reading in an area of special interest to the student. Prerequisite: Instructor permission.

Credits: 1.00 to 4.00

EDMU 295 - Special Topics

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences. Undergraduate only.

Credits: 3.00

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Courses in Natural Resources (NR)

NR 001 - Natural Hist & Field Ecology

Introduction to the dynamics of the natural world. Basic concepts of biological, chemical, physical, and ecological sciences and the application and interpretation of quantitative measurements are presented within a natural history context.

Credits: 4.00

NR 002 - Nature & Culture

Introduction to natural resources and the environment from a social/cultural perspective. Emphasis on environmental history, values, and ethics with application to natural resource and environmental policy.

Credits: 3.00

NR 006 - Race & Culture in NR

Introduces the first-year student to issues of race and culture from a variety of disciplinary perspectives.

Credits: 2.00

NR 025 - Measurements & Mapping

Introduction to surveying, mapping, aerial photo measurements, and interpretation for natural resource planning and management. Prerequisite: A course in high school or college trigonometry; permission required of nonmajors.

Credits: 4.00

NR 099 - Aiken Scholars Seminar

Seminar discussions on current environment issues. Guest speakers and field trips. Prerequisite: Open only to First-Year Aiken Scholars.

Credits: 1.00

NR 102 - Water as a Natural Resource

Characteristics of water-sheds, lakes, rivers, and wetlands; discussion of the management of these ecosystems; effects of society on the water resource. Prerequisites: Biology 1; Zoology 9 or Botany 4 or equivalent; Chemistry 31, 23, 26, or 42 or equivalent.

Credits: 3.00

NR 103 - Ecology, Ecosystems & Environ

Major ecological concepts and their application. Analysis of form, structure, and function of organisms, populations, communities, ecosystems, and landscapes.

Prerequisites: 1; concurrent enrollment in 104 and 105 required.

Credits: 3.00

NR 104 - Social Proc & the Environment

Social science theories and their application to environmental issues. Analysis of issues using theories of government, economics, and social movements.

Emphasis on integrating frameworks to analyze environmental issues.

Prerequisite: 2 and concurrent enrollment in 103 and 105 required.

Credits: 3.00

NR 105 - Environmental Problem Analysis

Examination of interdisciplinary dimensions of natural resource and environmental problems. Emphasis on social and ecological aspects of environmental issues and interdisciplinary teamwork. Prerequisite: NR 001, NR 002; concurrent enrollment in NR 103 and NR 104.

Credits: 1.00

NR 107 - The Environment&Human Health

Interdisciplinary understanding of the effects of anthropogenic factors including pollution, reduced biodiversity, climate change, overpopulation, and resource depletion on the health of natural systems and human populations. Pre/co-requisites: a college level science course and sophomore standing. (Crosslisted with NH 107).

Credits: 3.00

NR 140 - Natrl Resources Biostatistics

Introduction to applied statistical methods for typical natural resources biological problems. Descriptive statistics, hypothesis testing, regression, and sampling design. Emphasis on problem formulation and solution. Prerequisites: Sophomore standing, two years of high school algebra.

Credits: 4.00

NR 143 - Intro to Geog Info Systems

Understanding and application of computer-based, geographically-referenced information systems. Prerequisites: Junior standing; CS 003 or CS 011.

Credits: 3.00

NR 146 - Remote Sensing of Natural Res

Cross-listed with: FOR 146, GEOG 185.

Credits: 3.00

NR 170 - Intro Dynamic Simulation Mdlg

Elementary principles of dynamic simulation modeling and use of the STELLA II dynamic simulation software. Example simulations of natural environmental systems. Prerequisite: Sophomore standing.

Credits: 1.00

NR 185 - Special Topics

Special topics in natural resources beyond the scope of existing formal courses.

Variable credit.

Credits: 6.00

NR 189 - Student-Designed Course Work

Student-taught course work beyond the scope of formal courses in natural resources. Developed according to SNR guidelines with sponsorship by interested faculty. Variable credit.

Credits: 1.00 to 3.00

NR 199 - Honors Seminar

A discussion and readings seminar that features guest speakers, and is part of the SNR Spring Seminar Series. Focus of the seminars change annually. Can be repeated. Prerequisite: Sophomore standing; open only to SNR Honors Students.

Credits: 1.00

NR 205 - Ecosys Mgt:Integ Sci,Soc & Pol

Integration of natural and social science into ecosystem management and policy. Consideration of ecosystem integrity, ecosystem degradation, human needs and values, and the application of management principles within a holistic context.

Prerequisites: 1, 2, 103, 104. (Not offered for graduate credit.)

Credits: 3.00

NR 206 - Env Prob Sol & Impact Assessmt

Group dynamics, impact assessment, risk assessment, and decision making.

Emphasis on the process of solving complex environmental problems, interdisciplinary team work, and the National Environmental Policy Act.

Prerequisites: 1, 2, 103, 104, 205, and statistics. (Not offered for graduate credit.)

Credits: 4.00

NR 220 - Landscape Ecology

Study of pattern, process, and dynamics in the landscape. Considers the role of landscape pattern in determining habitat quality and ecosystem function.

Prerequisites: One biology, one ecology course; senior standing. Alternate years, 2002-03.

Credits: 3.00

NR 224 - Conservation Biology

Conservation of biological diversity at genetic, species, ecosystem, and landscape levels. Emphasis on genetic diversity, population viability, endangered species, critical habitats, international implications. Prerequisites: Biology 1, 2; a 100-level ecology course. (Not offered for graduate credit.)

Credits: 3.00

NR 228 - Ecosystem Ecology

(Cross-listed with Forestry 228.) UG only.

Credits: 3.00

NR 235 - Legal Aspects of Plng & Zoning

Comparison of Vermont planning and zoning law with that of other states. Case studies in planning, zoning, and land use controls. Prerequisite: Senior standing. Not offered 2002-03.

Credits: 3.00

NR 250 - Limnology

Ecology of lakes and reservoirs, including their origin, physics, chemistry and biology, and the effects of anthropogenic perturbations. Field and laboratory experience. Prerequisites: One year Biology; one year Chemistry; ecology course.

Credits: 4.00

NR 254 - Adv Natural Resource Policy

Advanced seminar in natural resource policy, emphasizing current issues in forest policy. Prerequisite: Graduate or advanced undergraduate standing; Instructor permission.

Credits: 3.00

NR 255 - Field Mthds in Water Resources

Techniques used in field assessment of water quality in rivers and lakes. Case studies on the LaPlatte River and Lake Champlain. Sampling strategies, field measurements, and data evaluation. Extensive field work. Prerequisite: NR 102 or equivalent basic course in water.

Credits: 3.00

NR 256 - Ecology of a Large Lake

A field exploration of the littoral zone and deep lake environments and human impacts on large lakes using Lake Champlain as the class laboratory.

Prerequisite: 100-level ecology course.

Credits: 4.00

NR 260 - Wetlands Ecology & Mgmt

Structure, dynamics and values of natural and artificial wetlands; wetlands management and issues. Prerequisite: BIOL 001 and BIOL 002; an upper-level ecology course.

Credits: 3.00

NR 262 - Int'l Problems in NR Mgmt

Discussion of problems associated with the management of natural resources which have international implications. Topics may include deforestation, desertification, fisheries, wildlife, refuges, fuelwood, pollution. Prerequisite: Senior standing; permission.

Credits: 3.00

NR 270 - Toxic&Hrds Subst in Srf Water

The fate of toxic and hazardous pollutants, including trace elements and organics, in surface waters; effects on human health and aquatic biota. Prerequisite: BIOL 001, CHEM 023, CHEM 042; CHEM 102 or equivalent; Senior standing.

Credits: 3.00

NR 275 - NR Planning: Theory & Methods

Investigates theoretical development of natural resource planning. Studies planning methods appropriate to protection and use of scenic, recreational, forest, agriculture, and historic resources and ecologically sensitive areas. Prerequisite: Senior standing.

Credits: 3.00

NR 278 - Principles of Aquatic Systems

Study of physical, chemical and biological principles as related to natural aquatic systems. Modeling dynamic behavior of aquatic systems using system simulation techniques. Prerequisite: MATH 019, PHYS 011, CHEM 023, CHEM 026 or equivalent; NR 170 or equivalent or as a co-requisite; Senior standing. Lecture and three hours laboratory per week.

Credits: 3.00

NR 279 - Watershed Management Hydrology

Fundamental elements of hydrology and contaminant transport in watersheds. Application of dynamic simulation techniques. Discussion of new technologies for watershed management. Prerequisite: NR 170 or equivalent or as a co-requisite; NR 020, PHYS 011, CHEM 023, CHEM 026 or equivalent; Senior standing.

Credits: 3.00

NR 280 - Stream Ecology

Ecology of streams including hydrodynamics, morphology, sediment transport, chemistry, biology and human impacts. Field and laboratory experience. ecology course. Prerequisites: One year Biology; one year Chemistry;

Credits: 4.00

NR 285 - Advanced Special Topics

Advanced special topics in natural resource planning beyond the scope of existing formal courses. Prerequisite: Graduate/Senior standing; Instructor permission.

Credits: 6.00

NR 298 - Honors 'Project' Planning

Discussions leading to the development of an individual or group Senior Honors Project Proposal. Prerequisites: Junior standing; open only to SNR Honors Students. UG only.

Credits: 2.00

NR 299 - Honors

Honors project dealing with aquatic resources, terrestrial ecology, or integrated natural resources. Prerequisite: By application only; see program chair. UG only.

Credits: 3.00

NR 360 - Environmental Sociology

An in-depth exploration of how sociologists understand the relationship between a) the physical environment's effects on society, and b) society's effects on the natural environment. Prerequisite: Graduate standing; or Instructor permission. Fall. Alternate years.

Credits: 3.00

NR 361 - Politic:Landscape,Place,Nature

Seminar exploring the social and political construction of nature, emphasizing how natural resources and environment are defined through social relationships in particular landscapes and places.

Credits: 2.00

NR 370 - Sp Tpcs in Aquatic Toxicology

Discussions of the current literature in aquatic toxicology. Concurrent enrollment in NR 270. Prerequisite: Graduate student standing.

Credits: 1.00

NR 375 - NR Planning: Laboratory

Experiential laboratory applying natural resource planning theory and methods to local or regional issues. Students conduct a planning exercise for a town or region.

Co-requisite: Concurrent enrollment in NR 275.

Credits: 1.00

NR 378 - Integrating Analyses NR Issues

Resource Issues. Seminar contrasting epistemologies and ontologies of natural resource disciplines. Applications from fields such as ecology, policy, sociology, engineering, and ethics. Prerequisite: Graduate standing.

Credits: 3.00

NR 380 - Seminar in Natural Resources

Presentation and discussion of advanced problems, research, and current topics in natural resources by faculty, graduate students, and outside guest speakers.

Credits: 2.00

NR 382 - Seminar in Research Planning

Discussions of the planning and activities associated with Graduate student projects and research. Prerequisite: Instructor permission. Cross-listed with: FOR 382.

Credits: 1.00

NR 384 - Independent Study in NR

Readings, with conferences, to provide graduate students with backgrounds and specialized knowledge relating to an area in which an appropriate course is not offered.

Credits: 3.00

NR 385 - Special Topics in NR

Graduate topics and material that may eventually develop into a regular course offering; in addition, it may include topics and material presented only once.

Credits: 3.00

NR 391 - Master's Thesis Research

Credits: 1.00 to 18.00

NR 392 - Master's Project Research

Credits: 1.00 to 12.00

NR 491 - Doctoral Dissertation Research

Credits: 1.00 to 18.00

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Courses in Nuclear Medicine Technology (NMT)

NMT 051 - Principles Nuclear Med Tech

Lecture and laboratory experiences to introduce the theories and practice of nuclear medicine technology. Fall.

Credits: 3.00

NMT 052 - Nuclear Medicine Radiopharmacy

The radiopharmacological aspects of nuclear medicine technology, including radiation physics, safety, tracer principles, and dosimetry. Prerequisite: BMT 004. Spring.

Credits: 3.00

NMT 153 - Nuclear Med Clin Procedures I

Procedures I Principles of diagnostic imaging procedures emphasizing the nuclear medicine technologist's role in patient care and preparation, radiopharmaceutical selection, image acquisition, and data processing and analysis. Prerequisite: 52. Fall.

Credits: 3.00

NMT 154 - Nuclear Med Clin Procedures II

Procedures II Principles and technical considerations of in vivo and in vitro nuclear medicine diagnostic and therapeutic procedures. Prerequisite: 153. Spring.

Credits: 3.00

NMT 155 - Instrumentation I

Nuclear medicine instrumentation, with emphasis on planar imaging devices, computer, and quality control; introduction to SPECT camera systems. Prerequisite: 52. Fall.

Credits: 3.00

NMT 156 - Instrumentation II

Advanced nuclear medicine instrumentation with emphasis on state-of-the-art imaging devices. Prerequisite: 155. Spring.

Credits: 3.00

NMT 163 - Nuclear Med Clin Practicum I

Students observe and participate in Fletcher Allen Health Care's Nuclear Medicine

Department. NMT majors only. Fall.

Credits: 1.00

NMT 164 - Nuclear Med Clin Practicum II

Students participate in routine imaging procedures emphasizing patient care, positioning, and instrumentation. NMT majors only. Prerequisite: 163. Spring.

Credits: 3.00

NMT 175 - Medical Imaging Techniques

Introduction to radiographic anatomy and the various imaging techniques presently available to include magnetic resonance imaging (MRI), positron emission tomography (PET), ultrasound, etc. Fall. Crosslisted w/RADT.

Credits: 2.00

NMT 263 - Adv Nuclear Med Clin Pract III

Experience in advanced clinical and pharmacological procedures. NMT majors only. Prerequisite: 164. Fall.

Credits: 3.00

NMT 264 - Nuclear Medicine Internship

Full-time clinical experience at an affiliated institution. NMT majors only.

Prerequisite: 263. Spring.

Credits: 17.00

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Courses in Nursing (NURS)

NURS 015 - Personal Power in Health

Explores consumer power in health care. Addresses how an individual can influence personal health as well as health of community.

Credits: 3.00

NURS 020 - Aging:Change & Adaptation

(Same as Early Childhood and Human Development 20 and Sociology 20).

Individual and social meanings of aging and old age; physical, physiological, psychological, and sociological changes accompanying aging; individual family, community, and societal adaptations to aging.

Credits: 3.00

NURS 100 - Biology of Aging

Human aging examined emphasizing biological and nonpathological physiological changes and their effects on the functioning of elders. Prerequisites: Biology 4 or Anatomy and Physiology 9, 10 or 19-20 or Instructor permission. Cross-listed with: HDFS 152.

Credits: 3.00

NURS 115 - Women's Health & Advocacy

Aims to demystify women's health care issues through understanding options/choices concerning sexuality, contraception, reproductive health, sexually transmitted diseases, relationships, addictive disorders, anxiety/depression and more. Fall semester.

Credits: 3.00

NURS 120 - Pathophysiology

This course is designed to provide the student with a comprehensive foundation in pathophysiology. The phenomena that result in dysfunction in human physiologic response will be examined. Prerequisites: ANPS 19,20. Recommended: MMG 65 or BMT 54.

Credits: 3.00

NURS 140 - Issues in Women's Health

A holistic exploration of the health care needs of women. This course will consider the stereotypical, theoretical, and clinical approaches of care used in treating

women. Prerequisite: PSYC 001, HDFS 005; Sociology course below SOC 100.
Credits: 3.00

NURS 141 - Healing Touch Level I

Healing Touch is an energy based therapeutic approach to healing which uses touch to influence the energy system thus affecting physical, emotional and spiritual health and healing.

Credits: 1.00

NURS 195 - Special Topics

Credits: 4.00

NURS 196 - Special Topics

Credits: 6.00

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Courses in Nursing & Health Sciences (NH)

NH 107 - The Environment&Human Health

Interdisciplinary understanding of the effects of anthropogenic factors including pollution, reduced biodiversity, climate change, overpopulation, and resource depletion on the health of natural systems and human populations. Pre/co-requisite: a college level science course; Sophomore standing. Cross-listed with: NR 107.

Credits: 3.00

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Courses in Nutrition and Food Sciences (NFS)

NFS 043 - Fundamentals of Nutrition

Comprehensive study of specific nutrients in terms of their availability, function, and utilization in mammalian species. Prerequisites: High school chemistry and biology. Fall /Spring.
Credits: 3.00

NFS 044 - Survey of the Field

Nutrition and Food Sciences Introduction to the professional field and career opportunities in dietetics, nutrition and food science. Required of all First-Year and transfer students. Fall.
Credits: 1.00

NFS 053 - Basic Concepts of Foods

Study of the scientific aspects of food with emphasis on reasons for procedures used and phenomena occurring in food preparation. Spring.
Credits: 3.00

NFS 054 - Basic Concepts of Foods Lab

Developing comprehension of scientific principles of food preparation through modification of standard recipes, manipulation of ingredients and techniques, and evaluation using sensory and objective methods. Prerequisite: NFS 053 or concurrent registration in NFS 053 or permission. Spring; Department majors only.
Credits: 1.00

NFS 063 - Obesity,Weight Control&Fitness

Introduction to the causes, consequences, and reputed cures of obesity which includes: evaluation of body composition and modification of eating and exercise behaviors in weight control. Fall / Spring.
Credits: 3.00

NFS 124 - Professional Presentations

Credits: 3.00

NFS 143 - Nutrition in the Life Cycle

Nutritional needs of people throughout the life cycle. Physiological and environmental factors which affect nutritional status. Designed for Nutrition majors.

Prerequisite: NFS 043. Fall.

Credits: 3.00

NFS 150 - Quantity Food Production&Serv

Principles and techniques of food accounting, recipe and menu planning/costing, preparation and service including equipment, sanitation, and time motion studies.

Prerequisite: NFS 053. Fall.

Credits: 4.00

NFS 153 - Principles of Food Technology

Food processing technologies and underlining principles of changes in microbiological quality and safety, chemical composition and nutritional value, and interaction of functional additives and ingredients. Prerequisite: NFS 043, NFS 053; organic chemistry. Spring.

Credits: 3.00

NFS 154 - Principles Food Technology Lab

Experiential learning of principles of major modern food processing and preservation technologies, essential skills of food quality and safety assurance, and new product development. Prerequisite: NFS 054, NFS 153, or concurrent enrollment in NFS 153, organic chemistry; Department majors only.

Credits: 1.00

NFS 163 - Sports Nutrition

Timing and composition of meals for training and pre- and post-competition.

Prerequisite: Instructor permission. Fall/Spring.

Credits: 3.00

NFS 165 - Mgmt of Eating Disorders

Examination of the causes, diagnosis, and treatment of body image disorder, anorexia nervosa, bulimia nervosa, binge eating, and obesity. Information is provided through readings, lecture, discussion, and speakers. Spring.

Credits: 3.00

NFS 195 - Special Topics

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Credits negotiable. Enrollment may be more than once, maximum of 12 hours in NFS 195 and NFS 295 combined. Prerequisite: Department permission

Credits: 3.00

NFS 196 - Field Experience

Professionally-oriented field experience under joint supervision by faculty and business or community representative. Credits negotiable, maximum of 15 hours in NFS 196 and NFS 296 combined. Prerequisite: Department permission.

Credits: 3.00

NFS 197 - Undergraduate Research

Individual laboratory or community research in food or nutritional sciences under the guidance of a faculty member. Arrangement with faculty member and permission of Department Chair.

Credits: 3.00

NFS 198 - Undergraduate Research

Individual laboratory or community research in food or nutritional sciences under the guidance of a faculty member. Arrangement with faculty member and Department Chair permission.

Credits: 1.00

NFS 201 - Fermented Dairy Foods

Fundamental processes involved in the manufacture of domestic and imported cheese varieties and other cultured dairy foods. Acquired knowledge of manufacturing procedures applied at pilot plant level. Prerequisite: A course in organic chemistry; AGBI 201, or permission. Alternate years.

Credits: 4.00

NFS 203 - Food Microbiology

Desirable and undesirable activities of bacteria in foods. Mechanisms of food-borne infection and intoxication. Laboratory methods to enumerate and identify microorganisms associated with food. Prerequisite: A course in Biochemistry. Fall.

Credits: 4.00

NFS 208 - Sensory Evaluation of Foods

Nature of sensory responses to aroma, taste, and texture of foods; relation of sensory data to instrumental measurements; statistical analysis and interpretation of sensory data. Prerequisite: a course in Statistics. Alternate years.

Credits: 4.00

NFS 223 - Meth Education Human Sciences

Credits: 3.00

NFS 243 - Advanced Nutrition

Study of nutrients and their specific functions in metabolic process integrating cellular physiology, biochemistry, and nutrition. Prerequisites: 43, AGBI 201 or equivalent, ANPS 19 or equivalent; Junior standing. Spring.

Credits: 3.00

NFS 249 - Nutrition Seminar

Undergraduate only.

Credits: 1.00

NFS 250 - Food Service Systems Mgmt

Organization and administration of food service systems including principles of production, accounting management decisions, communications, and legal responsibilities specific to quantity food production. Emphasis on problem solving. Prerequisites: 150, BSAD 120, or permission. Spring. (Not offered for graduate credit.)

Credits: 4.00

NFS 253 - Food Safety & Regulation

Comprehensive study of the relationships between food processing and preservation, food toxicology, and the scope, applicability, and limitations of U.S. food laws. Prerequisite: AGBI 201 or equivalent. Spring.

Credits: 3.00

NFS 260 - Diet and Disease

Examination of the physiologic, biochemical, and psychosocial basis of several disease states with application of the normal and therapeutic food and nutrition principles associated with treatment. Prerequisites: 53, 143, 243. Fall.

Credits: 3.00

NFS 261 - Clinical Nutrition

Applications of clinical nutrition including practice experiences in interviewing, nutritional assessment and counseling, case studies, and in-depth discussions of current controversies in the dietary management of specific diseases.

Prerequisite: NFS 260 or concurrently enrolled. Fall.

Credits: 3.00

NFS 262 - Community Nutrition

Study of U.S. public health nutrition policies, programs and practices. Emphasis on community nutrition program planning including needs assessment, intervention development and evaluation. Prerequisite: NFS 260; Senior standing. Spring.

Credits: 3.00

NFS 263 - Nutritional Biochemistry

Comprehensive study of metabolism of carbohydrates, lipids, and protein emphasizing diet induced, hormone mediated alterations in metabolism (e.g. starvation and obesity). Prerequisite: NFS 243 or Instructor permission. Spring.

Credits: 3.00

NFS 273 - Nutrition Counseling

Professional field experience providing preventive and therapeutic nutritional information and education to individuals or groups under the direct supervision of a Registered Dietitian. Credit negotiable but not to exceed three per semester.

Enrollment may be more than once. Prerequisite: Instructor's permission Fall/Spring. (Not offered for graduate credit.)

Credits: 2.00

NFS 274 - Community Practicum

Professional field experience in a community nutrition organization. Credit negotiable but not to exceed three per semester. Enrollment may be more than once, maximum of 6 credits. Prerequisite: Instructor's permission. (Not offered for graduate credit.)

Credits: 1.00 to 6.00

NFS 290 - Rsrch Meth Nutritional Science

Advanced research methods, including grant preparation, Institutional Review Board requirements, data analysis and presentation, and selected techniques in advanced nutritional biochemistry. Prerequisite: AGBI 201, AGBI 202, or equivalent. Fall. Undergraduate only.

Credits: 4.00

NFS 295 - Special Topics

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Credits negotiable. Enrollment may be more than once, maximum of 12

hours in 195 and 295 combined. Prerequisite: Departmental permission.

Credits: 5.00

NFS 296 - Field Experience

Professionally-oriented field experience under joint supervision of faculty and business or community representative. Credit negotiable. Maximum of 15 hours in 196 and 296 combined. Prerequisite: Departmental permission.

Credits: 4.00

NFS 350 - Nutrition&Food Science Seminar

Credits: 1.00

NFS 360 - Rsch Meth Nutr & Food Sciences

Advanced research methods, including grant preparation, IRB requirements, data analysis and presentation, and selected topics in advanced nutritional and food sciences. Pre/Co-requisites: Permission of the Instructor.

Credits: 3.00

NFS 391 - Master's Thesis Research

Credits: 1.00 to 18.00

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Courses in Obstetrics & Gynecology (OBGY)

OBGY 295 - Special Topics

Lectures, readings and discussion for advanced students within areas of expertise of faculty and staff. Prerequisite: Permission of the Instructor.

Credits: 3.00

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Courses in Orthopedic Surgery (ORTH)

ORTH 291 - Rsch in Orth & Rehab

Work on research problem under the direction of a faculty member. Review of literature, preparation of manuscript. Prerequisite: Instructor Permission. In collaboration with clinical faculty of the Department.
Credits: 3.00

ORTH 292 - Special Topics:Orthopaedics

Work on research problem under the direction of a faculty member. Review of literature, preparation of manuscript. Prerequisite: Instructor Permission. In collaboration with clinical faculty of the Department.
Credits: 3.00

ORTH 382 - Rdgs & Rsch:Musc Biomechanics

Intended for Graduate Students doing thesis or dissertation work in biomechanics. Class will meet to discuss current journal articles and literature reviews prepared by students. Prerequisite: Instructor Permission.
Credits: 1.00

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Courses in Overseas Study Program (OSSP)

OSSP 000 - Overseas Study Program

Credits: 12.00

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Courses in Pathology (PATH)

PATH 101 - Intro to Human Disease

Elementary course in human pathology designed for Allied Health students. First portion deals with general mechanisms of disease, followed by disorders of specific organs. Prerequisite: College biology, anatomy, and physiology.
Credits: 3.00

PATH 295 - Special Topics

Credits: 3.00

PATH 301 - General Pathology

An introductory study of the basic mechanisms and principles of cell injury, inflammation and repair, neoplasia, aging, immunological, nutritional, genetic and environmental diseases, and coagulation disorders as they affect cells, tissues, and the human patient. Lecture and Lab (gross and microscopic). For Medical students. Prerequisite: Instructor Permission. Histology recommended.
Credits: 3.00

PATH 302 - Systematic Pathology

Introduction to diseases, and their effects on virtually all organ systems. Emphasis is on correlation of gross and microscopic pathology with clinical laboratory medicine, and the patient's signs and symptoms. Prerequisites: PATH 301, Instructor permission.
Credits: 8.00

PATH 305 - Molecular Mech Environ Disease

Introductory course on molecular and cellular pathways of disease induction and development. Emphasis on environmental diseases. For graduate students and postdoctoral fellows and undergraduates with permission of course director. Alternate years.
Credits: 3.00

PATH 306 - Pathobiology of Disease

Computer-assisted basic pathology series with emphasis on skin, lung, brain, and digestive tract. Alternate years with PATH 305.
Credits: 1.00

PATH 375 - ST:Molecular Pathobiology

Five independent, rotating one-semester modules concerning: Atherosclerosis, DNA Replication, Human Genetics, Cell Imaging Techniques, Cell Signalling in Differentiation and Apoptosis, and Cancer Genetics. Each course based on critical review of the primary literature. Alternate years. Prerequisites: Biochemistry 301, 302 or instructor's permission. Open to undergraduates with instructor's permission.

Credits: 3.00

PATH 391 - Master's Thesis Research

Credits: 1.00 to 18.00

PATH 395 - Spec Top:Immunopathology

In-depth analysis of the role of the immune system in disease processes. Discussions center on current and controversial areas of immunopathology. Prerequisites: Immunology (Microbiology 223) desirable. Alternate year course with 305.

Credits: 5.00

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Courses in Pharmacology (PHRM)

PHRM 272 - Toxicology

The biology of environmental intoxicants and of drug abuse. Ecologic and physiologic consequences of the dissemination of agricultural, industrial, and medicinal chemicals. Prerequisites: Organic chemistry, background in biology. Credits: 3.00

PHRM 290 - Topics Molecular&Cell Pharm

Focuses on basic principles, drug interactions with receptors, membranes, synapses, neurotransmitters, macromoles, cytoskeleton, ion channels and pumps, and mechanisms of drug resistance. Prerequisite: Introductory course in organic chemistry, background in physiology or health sciences. Credits: 3.00

PHRM 301 - Medical Pharmacology

The chemical and biological properties of drugs. Prerequisite: Permission. Credits: 6.00

PHRM 302 - Pharmacological Techniques

Experiments conducted under supervision in the areas of drug metabolism, modes of drug action, physicochemical properties of drugs, bioassay, and toxicology. Open to undergraduates with instructor's permission. Credits: 3.00

PHRM 303 - Pharmacological Techniques

Experiments conducted under supervision in the areas of drug metabolism, modes of drug action, physicochemical properties of drugs, bioassay, and toxicology. Open to undergraduates with instructor's permission. Credits: 2.00

PHRM 328 - Intro to Medicinal Chemistry

Important classes of drugs are surveyed. Emphasis on relationships between physicochemical properties and pharmacologic activity; synthetic aspects considered. Prerequisites: Chemistry 131-132. Open to undergraduates with instructor's permission. Credits: 3.00

PHRM 372 - Special Topics

Topics of current interest and importance in pharmacology are considered in depth through presentations by staff, students, and visiting scientists. Prerequisite: Instructor Permission. Credit variable.
Credits: 3.00

PHRM 373 - Readings in Pharmacology

Intensive directed reading in one area of pharmacology. Pharmacology students must choose a topic outside thesis research area. Term paper and seminar on selected topic required. Prerequisite: Instructor Permission.
Credits: 2.00

PHRM 381 - Seminar

Current developments in pharmacology are presented for discussion by students. Prerequisite: Instructor Permission.
Credits: 1.00

PHRM 391 - Master's Thesis Research

Credits: 1.00 to 12.00

PHRM 491 - Doctoral Dissertation Research

Credits: 1.00 to 12.00

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Courses in Philosophy (PHIL)

PHIL 001 - Intro Phil: Selected Problems

Introduction to philosophy through such fundamental problems as the existence of God, the basis of morality, and the possibility of knowledge. Contemporary and historical readings. Credit not given for more than one of 1, 3, and 4.

Credits: 3.00

PHIL 003 - Intro Philosophy: East & West

Introduction to the historical dialectic of philosophy by comparisons and contrasts between Chinese and Western traditions of philosophy. Credit not given for more than one of 1, 3, and 4. Offered every semester.

Credits: 3.00

PHIL 004 - Intro to Philosophy: Ethics

Introduction to philosophy through an analysis of the principal problems and theories of ethics. Credit not given for more than one of 1, 3, and 4. Offered every semester.

Credits: 3.00

PHIL 013 - Introduction to Logic

Study of the basic principles of deductive inference.

Credits: 3.00

PHIL 095 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

PHIL 096 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

PHIL 101 - History of Ancient Philosophy

Study of the works of the Pre-Socratics, Plato, Aristotle, and their successors.

Prerequisite: 1, 3, 4, 95, 96. Fall.

Credits: 3.00

PHIL 102 - History of Modern Philosophy

Study of works of the major philosophers of the 17th and 18th centuries:

Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, Kant, and others.

Prerequisite: 1, 3, 4, 95, 96.Spring.

Credits: 3.00

PHIL 108 - Plato

(See Classics 161.) Prerequisites: 1 course in Philosophy or in Classics (Greek Culture or Greek).

Credits: 3.00

PHIL 110 - Nature of Mind

Examination of philosophical issues raised by influential psychological views of the nature of the human mind. Prerequisite: PHIL 001, PHIL 003, PHIL 004, PHIL 095, PHIL 096, or one course in Psychology. Fall.

Credits: 3.00

PHIL 112 - Philosophy of Science

Introduction to major philosophical problems raised by science. Typical topics: the nature of scientific inference, the structure of theories, causation, explanation, and scientific change. Prerequisite: One course in philosophy or one course in history of science or six hours in any natural science. Fall.

Credits: 3.00

PHIL 121 - Chinese Philosophy I

Study of the Classical Schools of Chinese thought, including Confucianism, Taoism, Mohism, and Legalism. Prerequisite: One course in philosophy, religion, or Asian studies. Offered two out of every three semesters.

Credits: 3.00

PHIL 130 - Phil Foundations of Education

Critical examination of the aims of education and the most appropriate means of achieving those aims. Readings from historical and contemporary sources.

Prerequisite: 1, 3, 4, 95, 96. Alternate years.

Credits: 3.00

PHIL 133 - Marxism

Survey of the philosophy of Karl Marx and the Marxist tradition on such topics as historical materialism, human nature, alienation, freedom, social change, and revolution. Prerequisite: PHIL 001, PHIL 003, PHIL 004, PHIL 095, PHIL 096.

Alternate years.

Credits: 3.00

PHIL 135 - Philosophy of Religion

Typical topics: the nature of religion, the concept of God, the grounds for belief in God, mortality, truth, and revelation. Historical and contemporary sources.

Prerequisite: 1, 3, 4, 95, 96. Offered once a year.

Credits: 3.00

PHIL 140 - Social & Political Philosophy

Analysis of such fundamental theories and problems in social and political thought as political obligation, rights, and justice. Prerequisite: 1, 3, 4, 95, 96. Offered once a year.

Credits: 3.00

PHIL 142 - Philosophy of Law I

(Same as Political Science 143.) Analysis of the nature of law, the relation between law and morality, obligation to obey the law, the judicial decision, responsibility in law, legal ethics. Prerequisite: 1, 3, 4, 95, 96 or Political Science 41. Offered once a year. (Political Science).

Credits: 3.00

PHIL 143 - Philosophy of Law II

(Same as Political Science 144.) Problems of liberty, e.g. freedom of expression, privacy, paternalism; scope and limits of the criminal law; philosophy of punishment; selected problems in criminal justice, e.g. plea bargaining; preventive detention. Prerequisite: 1, 3, 4, 95, 96 or Political Science 41. Offered once a year. (Political Science).

Credits: 3.00

PHIL 144 - Philosophical Prob Medicine

Critical and intensive examination of such problems as abortion, euthanasia, dying and death, the ethics of organ transplantation, and the ethics of genetic engineering. Prerequisite: 1, 3, 4, 95, 96. . Offered once a year.

Credits: 3.00

PHIL 151 - Phil Ideas in Literature

Philosophical themes as exemplified in literature. Prerequisite: 1, 3, 4, 95, 96. Alternate years.

Credits: 3.00

PHIL 152 - Philosophy of Art

A consideration of some leading theories of art, and their application to problems of art as they appear in music, literature, painting, and in the general criticism of the arts. Prerequisite: 1, 3, 4, 95, 96. Offered once a year.

Credits: 3.00

PHIL 153 - Philosophy and Film

An examination of style in film from the perspective of philosophical aesthetics, and of the ways film style can be used to express philosophical themes.

Prerequisite: 1, 3, 4, 95, 96.

Credits: 3.00

PHIL 160 - Recent Continental Philosophy

Survey of 20th century continental philosophy, including phenomenology, hermeneutics, critical theory, structuralism, and poststructuralism. Readings from Husserl, Heidegger, Sartre, Saussure, Wittgenstein, Habermas, and Foucault.

Prerequisites: 1, 3, 4, 95, 96 or instructor's permission.

Credits: 3.00

PHIL 170 - Feminism:Theories and Issues

Theories of libertarianism, liberalism, and egalitarianism; application to the analysis and evaluation of social issues of contemporary interest, such as abortion and affirmative action. Prerequisite: One course in philosophy.

Credits: 3.00

PHIL 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

PHIL 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

PHIL 197 - Readings & Research

Credits: 3.00

PHIL 198 - Readings & Research

Credits: 3.00

PHIL 201 - Theory of Knowledge

Critical examination of nature and sources of knowledge; belief, truth, evidence, perception, memory, and induction. Prerequisite: PHIL 102 or PHIL 112. Offered every Fall semester.

Credits: 3.00

PHIL 202 - Metaphysics

Critical examination of such topics as the nature of space and time, the concept of change, the identity of the self, the nature of the world and man's place in it.

Prerequisite: PHIL 101, PHIL 102 or PHIL 110. Offered every Spring semester.

Credits: 3.00

PHIL 210 - Philosophy of Mind

Major philosophical theories of the mind and its relation to the physical world, the nature of sensation, desire, and belief, and the relation between thought and action. Prerequisite: PHIL 102 or PHIL 110. Alternate years. Kornblith, Pereboom.

Credits: 3.00

PHIL 217 - Philosophy of Language

Philosophical study of the nature of language. Prerequisite: Linguistics 101, 102.

Alternate years.

Credits: 3.00

PHIL 221 - Topics in Chinese Philosophy

Detailed examination of a classical Chinese philosophical text or school.

Prerequisite: 121 or 122. Alternate years.

Credits: 3.00

PHIL 235 - Topics in Philosophy of Religion

Advanced study of such issues as the metaphysics of religion, the epistemology of religious belief, philosophy and faith, religion and science, and religion and ethics.

(May be repeated for credit when topic is significantly different and with departmental approval.) Prerequisites: 101, 102 or 135.

Credits: 3.00

PHIL 240 - Contemporary Ethical Theory

Analysis of the ideas of contemporary moral philosophers in normative ethics and

metaethics. Prerequisite: 140, 142, 143 or 144. Alternate years.

Credits: 3.00

PHIL 241 - Cont Social & Political Phil

An analysis of the ideas of contemporary philosophers in social and political philosophy. Prerequisite: 140, 142, 143, or 144. Alternate years.

Credits: 3.00

PHIL 242 - Justice & Equality

(Same as Political Science 241.) An examination of contemporary normative theories of distributive justice and equality. Prerequisite: 140, 142, 143, or 144.

Offered once a year. (Political Science).

Credits: 3.00

PHIL 260 - Topics in Continental Phil

Study of a central issue in current continental philosophy, e.g. social theory, psychoanalysis, or aesthetics. Readings from Nietzsche, Heidegger, Gadamer, Ricoeur, Habermas, Derrida, and Foucault. Prerequisites: Any course in philosophy at the 100 level or above, or instructor's permission. (May be repeated for credit when topic is significantly different.) Alternate years.

Credits: 3.00

PHIL 271 - Seminar

Major Philosophical Author or School Study of major philosophical texts by a single author or school of thought. May be repeated for credit when different authors are studied. Prerequisite: An appropriate 100-level course in Philosophy.

Credits: 3.00

PHIL 295 - Adv Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

PHIL 296 - Adv Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

PHIL 297 - Adv Readings & Research

Independent study with an instructor on a specific philosopher or philosophical problem. Prerequisite: An appropriate 200-level course in philosophy.

Credits: 3.00

PHIL 298 - Adv Readings & Research

Independent study with an instructor on a specific philosopher or philosophical problem. Prerequisite: An appropriate 200-level course in philosophy.

Credits: 3.00

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Courses in Physical Education (PEAC)

PEAC 000 - Varsity Sports

Credits: 1.00

PEAC 001 - Remedial Physical Education

Credits: 1.00

PEAC 002 - Conditioning 1-4

Credits: 1.00

PEAC 004 - Weight Training 1-4

Credits: 1.00

PEAC 005 - Club Sports

Credits: 1.00

PEAC 008 - Fitness & Weight Control 1-4

Credits: 1.00

PEAC 010 - Fitness & Aging

Credits: 1.00

PEAC 014 - Orienteering 1-2

Basic practical skills such as maps, compass, and environmental awareness. Classroom participation, written exams, and completion of an orienteering course determine student grades. Open to all First-Year and Sophomore students. Cross-listed with: MS 014. Fall/Spring.

Credits: 1.00

PEAC 015 - Rappelling

Credits: 1.00

PEAC 016 - Gymnastics 1-4

Credits: 1.00

PEAC 017 - Military Fitness

Vigorous workout three days a week designed to build both upper body strength and aerobic ability. Classroom participation and a final Army Physical Fitness Test determine student grades. Open to all First-Year/ Sophomore students. Cross-listed with: MS 017. Fall/Spring.

Credits: 1.00

PEAC 019 - Backpacking

Techniques of planning and organizing a backpacking trip. Basic instruction includes clothing, equipment, and environmental awareness. Includes one overnight backcountry trek. Student grades determined by class participation and participation in the practical exercise. Open to all First-Year and Sophomore students. Cross-listed as MS 019. Fall/Spring.

Credits: 1.00

PEAC 020 - Triathlon Training

Credits: 1.00

PEAC 021 - Walking for Fitness 1-4

Credits: 1.00

PEAC 024 - Stress Reduction 1-4

Credits: 1.00

PEAC 028 - Conditioning Act

Credits: 1.00

PEAC 031 - Aerobic Exercise 1-4

Credits: 1.00

PEAC 035 - Low Impact Aerobics 1-4

Credits: 1.00

PEAC 036 - Swimming 1-3

Credits: 1.00

PEAC 038 - Swimming 3-4

Credits: 1.00

PEAC 039 - Swim for Fitness

Credits: 1.00

PEAC 041 - Lifeguard Training

Credits: 1.00

PEAC 045 - Intermediate Sailing

Credits: 1.00

PEAC 047 - Scuba

Credits: 1.00

PEAC 049 - Learn to Sail

Credits: 1.00

PEAC 050 - Individual Sports

Credits: 1.00

PEAC 052 - Hatha Yoga

Credits: 1.00

PEAC 053 - Archery 1-4

Credits: 1.00

PEAC 056 - Badminton 1-2

Credits: 1.00

PEAC 057 - Badminton 2

Credits: 0.50

PEAC 058 - Badminton 3-4

Credits: 1.00

PEAC 059 - Fencing

Credits: 1.00

PEAC 060 - Badminton 4

Credits: 0.50

PEAC 061 - Bowling 1-4

Credits: 1.00

PEAC 062 - Bowling 3-4

Credits: 1.00

PEAC 063 - Horseback Riding 1-4

Credits: 0.50

PEAC 064 - Skating 1

Credits: 0.50

PEAC 065 - Figure Skating 1-4

Credits: 1.00

PEAC 066 - Inter Skating

Credits: 0.50

PEAC 070 - Racquet Sports

Credits: 1.00

PEAC 071 - Handball 1-2

Credits: 1.00

PEAC 075 - Judo 1-4

Credits: 1.00

PEAC 079 - Racquetball 1-4

Credits: 1.00

PEAC 081 - Racquetball 3-4

Credits: 1.00

PEAC 085 - Telemarking 1-4

Credits: 1.00

PEAC 086 - Snowboarding 1-4

Credits: 1.00

PEAC 087 - Downhill Skiing 1-4

Credits: 1.00

PEAC 088 - Ski Instructors

Credits: 1.00

PEAC 089 - X-Country Skiing 1-4

Credits: 0.50

PEAC 092 - Squash 1-2

Credits: 1.00

PEAC 096 - Tennis 1-2

Credits: 1.00

PEAC 098 - Tennis 3-4

Credits: 1.00

PEAC 100 - Tennis 5-6

Credits: 1.00

PEAC 105 - Outdoor Recreation

Credits: 1.00

PEAC 108 - Moo Gong Do 1-2

Credits: 1.00

PEAC 111 - Golf 1

Credits: 1.00

PEAC 112 - Golf 2

Credits: 0.50

PEAC 113 - Golf 1-4

Credits: 1.00

PEAC 114 - Mountain Biking

Credits: 1.00

PEAC 117 - Racquetball 5-6

Credits: 1.00

PEAC 125 - Team Sports 1

Credits: 1.00

PEAC 126 - Team Sports 2

Credits: 1.00

PEAC 143 - Volleyball 1

Credits: 1.00

PEAC 144 - Volleyball 2

Credits: 0.50

PEAC 145 - Volleyball 3-4

Credits: 1.00

PEAC 146 - Volleyball 4

Credits: 0.50

PEAC 147 - Volleyball 5-6

Credits: 1.00

PEAC 150 - Introduction to Dance

Credits: 1.00

PEAC 161 - Modern Jazz 1-2

Credits: 1.00

PEAC 163 - Modern Jazz 3-4

Credits: 1.00

PEAC 165 - Jazz Aerobics 1-2

Credits: 1.00

PEAC 166 - Ballet 1-2

Credits: 1.00

PEAC 168 - Ballet 3-4

Credits: 1.00

PEAC 171 - Modern Dance 1-2

Credits: 1.00

PEAC 179 - Folk & Square Dancing 1-2

Credits: 1.00

PEAC 185 - Ballet 5-6

Credits: 1.00

PEAC 187 - Ballroom Dance 1-2

Credits: 1.00

PEAC 188 - Orchesis Dancers

Credits: 1.00

PEAC 189 - Social Dance:International

Credits: 0.50

PEAC 190 - Dance for Majors

Credits: 1.00

PEAC 199 - Physical Education Activities

Credits: 1.00

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Courses in Physical Education-Prof (EDPE)

EDPE 021 - Foundations of Phys Educ

Examination of the development of physical education as an academic discipline and profession, its foundations, current trends, issues and career opportunities. Prerequisite: Physical Education majors; others by Instructor permission. Credits: 3.00

EDPE 023 - Amer Red Cross Emergency Resp

To meet the needs of individuals who are in a position to provide first aid and emergency care frequently. Red Cross certification for successful performance in Advanced First Aid Emergency Care. Prerequisite: PE, HDS, and Health majors; others by Instructor permission. Credits: 3.00

EDPE 024 - Life Skills: Student Athletes

This course provides students with skills training for academic and athletic success, alcohol education and prevention, and moral reasoning and decision-making. Credits: 1.00

EDPE 032 - Recreational Sport Officiating

Basic techniques and skills of rule interpretation for officiating recreational sport competition. Credits: 2.00

EDPE 055 - Special Topics I

Credits: 3.00

EDPE 100 - Integ Movement/Elem School Cur

Planning and implementing movement-based lessons and integrating movement across the curriculum for children aged 5-12. Credits: 3.00

EDPE 104 - Phys Educ Teaching Experience

Experience-based course sequence emphasizing relationship of motor development to learning. Includes age level needs and appropriate physical education activity sequences. First semester: grades K-3; second semester (EDPE

105); grades 4-6. Prerequisites: EDPE 023 or EDPE 157; Junior standing.
Credits: 5.00

EDPE 105 - Phys Educ Teaching Experience

Experience-based course sequence emphasizing relationship of motor development to learning. Includes age level needs and appropriate physical education activity sequences. First semester: grades K-3; second semester (EDPE 105); grades 4-6. Prerequisites: EDPE 023 or EDPE 157; Junior standing.
Credits: 5.00

EDPE 121 - Coaching Baseball

Theory and technique of coaching interscholastic baseball. Includes practice, game, and schedule organizations. Prerequisite: Skill competency in baseball; Sophomore standing, or Instructor permission.
Credits: 2.00

EDPE 145 - Seminar in Athletics

Contemporary issues, strategy, analysis, and problems areas related to selected comparative sports.
Credits: 3.00

EDPE 155 - Phys Educ in Secondary Schl

Theories of teaching which include unit plan development, classification and grouping of students for instruction, and a variety of teaching methods. Laboratory experience in teaching activity skills to youth aged 12-18. Prerequisites: Junior standing; PE majors only.
Credits: 4.00

EDPE 157 - Care & Prevent Athletic Injury

Prevention, recognition, and care of injuries related to school physical education and athletic programs.
Credits: 2.00

EDPE 158 - Dir Observ Exp Athletic Trng I

A laboratory sequence offered for those students seeking admission into the Athletic Training Education Program. Includes training room procedures and basic injury assessment skills. 158, emergency protocols; 159, basic injury assessment. Must be taken with EDPE 157.
Credits: 1.00

EDPE 159 - Dir Obser Exp Athl Training II

A laboratory sequence offered for those students seeking admission into the Athletic Training Education Program. Includes training room procedures and basic injury assessment skills. 158, emergency protocols; 159, basic injury assessment. Must be taken with EDPE 157.
Credits: 1.00

EDPE 166 - Kinesiology

Designed for the teacher/coach to analyze factors of peak physical performance. Muscle actions, mechanical principles, related factors enhancing movement are emphasized. Prerequisite: One year of biological science; PE majors, coaching

minors, students enrolled in Athletic Training Concentration, Sports Nutrition; others by instructor's permission.

Credits: 3.00

EDPE 167 - Exercise Physiology

Investigates physiological responses during exercise. Laboratory, classroom experiences enable understanding of bodily responses during exercise. Content includes energy metabolism, muscular, cardiovascular, pulmonary responses, and temperature regulation. permission. nutrition, Athletic Training; others by instructor's Prerequisites: PE majors, coaching minors, sports

Credits: 4.00

EDPE 168 - Measurement&Data Analysis

Introductory statistics and research design class. Covers basic statistics--t-tests, measurement scales, discussed. Prerequisites: EXSS majors only; others by instructor's permission. education and exercise science are specifically Anova, correlations, etc. Application in physical

Credits: 3.00

EDPE 173 - Practicum in Field Experience

Individually prescribed teaching experience involving work with youth groups in activities related to physical education, health, or recreation. Responsibilities approximate those commonly associated with student teaching. Prerequisites: EDPE 104, EDPE 105, or EDPE 155; Instructor permission.

Credits: 3.00

EDPE 181 - Student Teaching

Teaching in elementary or secondary schools under guidance of cooperating teachers, principals and college supervisors. A full-time, full semester, 12-credit experience. Prerequisites: Acceptance into the teacher education program; must meet criteria for student teaching. Variable credit, three to twelve hours.

Credits: 12.00

EDPE 182 - Student Teaching Seminar

Provides students opportunities to discuss, process, give and receive input and to receive materials to support and enhance their experience, and develop licensure portfolio. Prerequisite: Concurrent with EDPE 181.

Credits: 2.00

EDPE 185 - Injury Eval&Rec:Athl Training

Course is integrative and clinical in nature, consisting of injury evaluation and recognition skills. Injury mechanisms, etiology, pathology, clinical signs and symptoms. Prerequisites: EDPE 157, EDPE 158.

Credits: 4.00

EDPE 186 - Therapeutic Modal Athletic Trn

Prac-tical use of therapeutic modalities in treatment and rehabilitation of musculoskeletal injuries. Physiological effects, indications, and contraindications of treatment are addressed. Prerequisites: EDPE 157, EDPE 158, EDPE 185.

Credits: 3.00

EDPE 187 - Rehab Techniques Athletic Trng

Post-injury and post-operative rehabilitation and conditioning techniques involved in returning an active individual to normal and athletic activity. Prerequisites: EDPE 157, EDPE 158, EDPE 185, EDPE 187.

Credits: 3.00

EDPE 188 - Admin in Athletic Training

An examination of topics related to administration, budget management, health insurance issues, and policies/procedures in the profession of athletic training. Prerequisites: EDPE 157, EDPE 158.

Credits: 2.00

EDPE 195 - Hlth/Fitness Ldrshp&Programmng

Practical approach to significance, theories, and characteristics of leadership content, and methods of program planning. Field work practice in planning and leadership techniques. Prerequisite: EDPE 021.

Credits: 3.00

EDPE 197 - Readings & Research

Credits: 4.00

EDPE 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in education and related areas.

Credits: 3.00

EDPE 220 - Sport in Society

Examines sport as a social institution, emphasizing interrelationships between sport and the social context in which it exists; analyzes functions and dysfunctions of sport in contemporary society. Prerequisite: SOC 001, SOC 019, or equivalent.

Credits: 3.00

EDPE 240 - Motor Skill Learning & Control

Nature of motor learning; factors affecting motor learning (motivation, emotion, stress); concepts of transfer, retention; alternatives in teaching, coaching methodologies based upon applied principles in motor learning. Prerequisites: 166, ECHD 62 or 63, or equivalent.

Credits: 3.00

EDPE 241 - Sem in Phys Educ & Athletics

Examination and analysis of contemporary issues and trends in physical education and athletics not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in physical education and related areas.

Credits: 3.00

EDPE 260 - Adapted Physical Activity

Recognition, prevention, correction of functional, structural deviations from normal body mechanics. Organization of programs adapted to needs of handicapped individuals in both special class and mainstreamed settings. Prerequisite: 155, 104, 105 or equivalent teaching experience.

Credits: 3.00

EDPE 265 - Exercise & Sport Science

Discussion and integration of topics related to exercise physiology, kinesiology, motor learning, and sociocultural aspects of sport. Prerequisites: 166, 167, 220, 240; senior standing, or permission. UG only.

Credits: 3.00

EDPE 295 - Lab Experience in Education

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 12.00

EDPE 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1.00 to 12.00

EDPE 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 1.00 to 6.00

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Courses in Physical Therapy (PT)

PT 201 - Clinical Science&Practice Sem

A comprehensive in-depth presentation of the scientific basis of human function. Primarily for physical therapy students; a limited number of others may be admitted with permission. Prerequisite: CHEM 023 and CHEM 042 or equivalent; two semesters general Physics; one semester Mathematics; Instructor permission. Co-requisite: PT 211, PT 221.
Credits: 2.00

PT 202 - Clinic Science&Practice Sem II

Forum to learn, analyze and discuss scientific, clinical and professional issues related to individuals with non-complex conditions involving the cardiopulmonary system and spinal musculoskeletal problems. Prerequisite: PT 201. Co-requisite: PT 212, PT 222, PT 232.
Credits: 2.00

PT 211 - Clinical Skills Laboratory I

Laboratory experiences in which students will learn foundational biomechanical principles, kinesiology of joints and practice observational, verbal, written, manual and intellectual skills involved in PT examination, evaluation, and management of patients with non-complex conditions of the peripheral joints of the musculoskeletal system. Co-requisite: PT 201, PT 221.
Credits: 3.00

PT 212 - Clinical Skills Labs II

Laboratory to practice skills in PT examination, evaluation, and management of patients with non-complex conditions involving the cardiopulmonary system and spinal musculoskeletal problems. Prerequisite 211. Co-requisites: 202, 222, 232.
Credits: 3.00

PT 221 - Tutorial I-Clin Care Issues I

Tutorials to investigate, apply and integrate relevant basic and social sciences applied to persons with non-complex conditions involving primarily peripheral joint problems of the neuromusculo-skeletal system. Co-requisite: PT 201; PT 211.
Credits: 2.00

PT 222 - Tutorials II

Tutorials where students investigate, apply and integrate foundational sciences as applied to patients with non-complex conditions involving the cardiopulmonary system and spinal musculoskeletal problems. Prerequisite: PT 221. Co-requisite: PT 202, PT 212, PT 232.

Credits: 2.00

PT 232 - Clinical Education I

Two week clinical experience to understand the role of the physical therapist. Exposure to comprehensive patient care; examinations, intervention, discharge planning, and outcome assessment. Prerequisites: 201, 211, 221. Co-requisites: 202, 212, 222.

Credits: 2.00

PT 255 - Prof Abilities Assessment

Assessment of students' professional behaviors by faculty, based upon generic abilities and the expected stage of development, examined within all courses during the semester.

Credits: 0.00

PT 302 - Prof Practice I

Credits: 3.00

PT 315 - Clinical Skills Lab III

Students practice observational, verbal, written, manual, and intellectual skills in PT examination, evaluation, and management of peripheral neuro-musculo-skeletal, metabolic and multiple systems impairments and disabilities.

Prerequisites:211,212. Co-requisites:323, 341, 333, 355.

Credits: 4.00

PT 316 - Clinical Skills Lab IV

Students practice observational, verbal, written, manual, and intellectual skills in PT examination, evaluation, and management of individuals with various neurological conditions. Prerequisite: PT 211, PT 212, PT 315. Co-requisite: PT 324, PT 342, PT 355.

Credits: 4.00

PT 317 - Clinical Skills Laboratory V

Therapeutic approaches to pain, restoration of function and movement, assistive technology, training and education, patient advocacy, and coordination of care throughout the life span. Prerequisite: PT 211, PT 212, PT 315, PT 316. Co-requisite: PT 325, PT 334, PT 343.

Credits: 3.00

PT 323 - Tutorial III

Small group tutorials to investigate, apply and integrate the relevant foundational sciences pertaining to persons with peripheral neuro-musculo-skeletal, metabolic and multiple systems impairments and disabilities. Prerequisite: PT 221, PT 222.

Credits: 4.00

PT 324 - Tutorial IV

Small group tutorials to investigate, apply and integrate the relevant foundational

sciences pertaining to persons with various neurological conditions. Prerequisite: PT 221, PT 222, PT 323. Co-requisite: PT 316, PT 342, PT 355.

Credits: 4.00

PT 325 - Tutorials V

Explore inter-relationships between clinical conditions, health, politics, culture, ethics and professionalism, focusing on role of physical therapists as consultant, patient advocate and health team member. Prerequisite: PT 221, PT 222, PT 323, PT 326. Co-requisite: PT 316, PT 334, PT 343.

Credits: 3.00

PT 333 - Clinical Education II

4-week clinical experience providing opportunities for integration of didactic information and clinical skills and involvement and responsibility for safe, effective, comprehensive patient care. Prerequisites: 232. Co-requisites: 315, 323, 341, 355.

Credits: 3.00

PT 334 - Clinical Education III

A 8-week full-time experience integrating didactic information with clinical skills in one of three treatment settings. Focus: critical thinking, problem solving, and application of skills. Prerequisite: PT 232, PT 333.

Credits: 6.00

PT 335 - Clinical Education IV

Two 8-week, full-time clinical experiences integrating didactic information and clinical skills. Practice and refine skills, attitudes and behaviors. A variety of clinical settings is required. Prerequisite: PT 232, PT 333, PT 334.

Credits: 6.00

PT 336 - Clinical Education V

Two 8-week, full-time clinical experiences integrating didactic information and clinical skills. Practice and refine skills, attitudes and behaviors. A variety of clinical settings is required. Prerequisites: 232, 333, 334, 335.

Credits: 6.00

PT 341 - Clin Science&Practice Sem III

Large group forum to learn, analyze, and discuss scientific, clinical, and professional practice issues related to peripheral neurologic, metabolic, and multiple systems impairment and disabilities. Prerequisite: PT 201, PT 202. Co-requisite: PT 315, PT 323, PT 333, PT 355.

Credits: 4.00

PT 342 - Clin Science&Practice Sem IV

Learn analyze and discuss scientific, clinical and professional practice issues regarding individuals with systems problems, using patient/family centered approach. Prerequisite: PT 201, PT 202, PT 341. Co-requisite: PT 316, PT 324, PT 355.

Credits: 4.00

PT 343 - Clin Science & Practice Sem V

Explore global/societal aspects of health care delivery, focusing on role of physical

therapist as consultant, interdisciplinary health team member, and advocate in health care. Prerequisite: PT 201, PT 202, PT 341, PT 342. Co-requisite: PT 316, PT 325, PT 334.

Credits: 4.00

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Courses in Physics (PHYS)

PHYS 011 - Elementary Physics

Survey of principles of classical and modern physics without calculus, appropriate for students concentrating in life or health sciences. Accompanying labs: Physics 21, 22. Prerequisites: secondary school algebra and trigonometry.
Credits: 4.00

PHYS 012 - Elementary Physics

Survey of principles of classical and modern physics without calculus, appropriate for students concentrating in life or health sciences. Accompanying labs: Physics 21, 22. Prerequisites: 11 or 31 for 12; secondary school algebra and trigonometry.
Credits: 4.00

PHYS 021 - Introductory Lab I

Prerequisite: Concurrent enrollment or credit in 11 or 31.
Credits: 1.00

PHYS 022 - Introductory Lab II

Prerequisite: Concurrent enrollment or credit in 12 or 42.
Credits: 1.00

PHYS 031 - Introductory Physics

Mechanics including oscillations, waves, heat, and kinetic theory. Recommended for students in engineering, natural sciences, premedical programs. Accompanying lab: 21. Prerequisites: Math. 21, secondary school trigonometry.
Credits: 4.00

PHYS 042 - Electromagnetism & Modern Phys

Electricity, magnetism, optics, modern physics. Recommended for students in engineering, natural sciences, premedical programs. Accompanying lab: 22. Prerequisite: 31, Math. 22.
Credits: 4.00

PHYS 095 - Special Topics

Credits: 4.00

PHYS 096 - Special Topics

Credits: 3.00

PHYS 128 - Waves and Quanta

Classical and electromagnetic waves, physical optics, wave-particle phenomenology, wave mechanics, and applications of the Schrodinger equation.

Prerequisites: 42, Math. 121.

Credits: 4.00

PHYS 130 - Introductory Laboratory III

Prerequisite: Concurrent enrollment or credit in PHYS 128.

Credits: 1.00

PHYS 195 - Intermediate Special Topics

See Schedule of Courses for specific titles. Prerequisite: PHYS 128; department permission.

Credits: 3.00

PHYS 196 - Intermediate Special Topics

See Schedule of Courses for specific titles. Prerequisite: PHYS 128; department permission.

Credits: 3.00

PHYS 197 - Readings & Research

Prerequisite: PHYS 128; department permission.

Credits: 1.00 to 6.00

PHYS 198 - Readings & Research

Prerequisite: PHYS 128; department permission.

Credits: 1.00

PHYS 201 - Experimental Physics

Experiments in classical and modern physics. May be entered at beginning of either semester and repeated for credit up to a maximum of four semesters.

Prerequisites: 42 or 128, Math. 121, junior standing.

Credits: 3.00

PHYS 202 - Experimental Physics

Experiments in classical and modern physics. May be entered at beginning of either semester and repeated for credit up to a maximum of four semesters.

Prerequisites: 42 or 128, Math. 121, junior standing.

Credits: 3.00

PHYS 211 - Mechanics

Newtonian dynamics of particles and systems of particles, with applications to problems of special importance, such as driven and coupled harmonic oscillators and central field trajectories. Prerequisites: 42, Math. 121.

Credits: 3.00

PHYS 213 - Electricity & Magnetism

Fundamental principles of electricity and magnetism; electrostatic fields, and magnetic fields of steady currents. Electric and magnetic properties of matter and electromagnetic energy. Prerequisites: 42, Math. 121. Credit not given for more than one of 213 or Electrical Engineering 141.

Credits: 3.00

PHYS 214 - Electromagnetism

Introduction to time dependent electromagnetic fields. Maxwell's equations in vacuum and in matter. Electromagnetic waves and radiation. Prerequisite: 213. Credit not given for more than one of 214 or Electrical Engineering 142. Credits: 3.00

PHYS 222 - Biological Physics

Physical laws, processes, and interactions pertaining to biological systems. Prerequisites: 12 or 42, Math. 121. Credits: 3.00

PHYS 242 - Intro to Solid State Physics

Introduction to crystal structures, reciprocal lattices, lattice vibrations. Thermal properties of solids and free electron theory of metals and semiconductors. Elementary band theory and introduction to electronic transport theory. Prerequisite: PHYS 128. Credits: 3.00

PHYS 257 - Modern Astrophysics

Stellar structure and evolution, compact objects, the interstellar medium, galactic structure, gravitational theory, and cosmology, the formation of our solar system and terrestrial life. Prerequisite: One 100-level course in physical science or engineering. Cross-listed with: ASTR 257. Credits: 3.00

PHYS 258 - Relativity

Development of Einstein's theory of special relativity. Lorentz transformation, time dilation, length contraction, mass variation, relative velocities. Introduction to four-dimensional space. Concepts of general relativity. Applications selected from astrophysics, elementary particles, etc. Prerequisite: PHYS 128. Credits: 3.00

PHYS 264 - Nuclear & Elem Particle Physic

Introduction to theoretical and experimental aspects of nuclear and elementary particle physics. Prerequisite: PHYS 128; Junior standing. Credits: 3.00

PHYS 265 - Thermal Physics

Thermodynamics, kinetic theory, statistical mechanics. Prerequisites: 42; Math. 121. Credits: 3.00

PHYS 273 - Quantum Mechanics I

Introduction to nonrelativistic quantum mechanics. Schrodinger equation and applications to simple systems. Prerequisite: PHYS 128, PHYS 211. Credits: 3.00

PHYS 295 - Advanced Special Topics

See Schedule of Courses for specific titles. Credits: 3.00

PHYS 296 - Advanced Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

PHYS 301 - Mathematical Physics

Introduction to basic mathematical methods of theoretical physics; vector and tensor analysis, partial differential equations, orthogonal functions, complex variables and variational techniques. Prerequisites: PHYS 211, PHYS 214.

Alternate years.

Credits: 3.00

PHYS 305 - Teaching of College Physics

Instructional strategies and techniques with application to the teaching of laboratories and recitations. Prerequisites: Undergraduate degree in Physics; Instructor permission.

Credits: 1.00

PHYS 311 - Advanced Dynamics

Classical mechanics presented as the basis of the concepts and methods of modern physics. Variational, Lagrangian, and Hamiltonian formulations, canonical transformations, continuous systems. Prerequisite: PHYS 211. Alternate years.

Credits: 3.00

PHYS 313 - Electromagnetic Theory

Development of Maxwell's theory of electromagnetism emphasizing its physical basis and the modes of mathematical description. Prerequisite: PHYS 214.

Alternate years.

Credits: 3.00

PHYS 321 - Theoretical Physics

For research students interested in pursuing topics of general and departmental research interest in theoretical physics. Prerequisite: Instructor Permission.

Offered as occasion warrants.

Credits: 3.00

PHYS 323 - Contemporary Physics

Topics of current interest in physics to be offered as student and faculty interest warrants. May be repeated for credit with department approval. Prerequisite:

Instructor Permission.

Credits: 3.00

PHYS 341 - Solid State Physics

Introduction to crystal symmetry and the reciprocal lattice. Crystal binding and lattice vibrations. Thermal, electrical, and magnetic properties of solids, free electron theory of metals, and band theory. Prerequisites: PHYS 214, PHYS 265, PHYS 273 or their equivalents; Instructor permission.

Credits: 3.00

PHYS 351 - Seminar: Physics of Materials

For research students in the field of the physics of materials. Lectures, reports, and directed readings related to the research for the department and the field generally. May be repeated for credit with departmental approval. Prerequisite:

Instructor Permission. Offered as occasion warrants.

Credits: 3.00

PHYS 362 - Quantum Mechanics II

Mathematical and physical foundations of nonrelativistic quantum mechanics from the unifying point of view of Dirac. Symmetry operations and the algebraic structure of quantum mechanics are emphasized. Prerequisite: PHYS 273.

Alternate years.

Credits: 3.00

PHYS 391 - Master's Thesis Research

Credits: 1.00 to 12.00

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Courses in Plant & Soil Science (PSS)

PSS 010 - Home & Garden Horticulture

Planning, selecting, and maintaining shrubs, trees, flowers, lawns, fruits, and vegetables around the home. Designed primarily for non-agricultural students.
Credits: 3.00

PSS 011 - Principles of Plant Science

Principles and practices involved in the culture, management, and utilization of economically important horticulture and agronomic crops.
Credits: 3.00

PSS 106 - Entomology & Pest Mgmt

Survey of the major insect orders, and methods for controlling injurious species.
Prerequisite: 11.
Credits: 4.00

PSS 107 - Forest Entomology

Ecology and population dynamics of insects affecting forests and forest products. Insect control by silvicultural, biotic, and chemical means. Prerequisite: Junior standing in Forestry or Urban Forestry and Landscape Horticulture.
Credits: 3.00

PSS 117 - Plant Pathology

Introduction to the causes of plant disease including the relationship of the plant, pathogen, and environment in disease development and disease management. Prerequisites: BOT 4 or BIOL 1,2 or PSS 11. Alternate years.
Credits: 4.00

PSS 121 - Indoor Plants

Indoor flowers, culture, related topics such as design. Prerequisite: PSS 10 or 11 or Botany 4 or permission. Alternate years.
Credits: 1.00

PSS 122 - Small Fruit Crops

Principles of small fruit production, including propagation, culture, management, and harvesting. Prerequisite: PSS 011 or permission. Alternate years.
Credits: 3.00

PSS 123 - Garden Flowers

Outdoor flowers, culture, related topics. Prerequisite: PSS 10 or 11 or Botany 4 or permission. Alternate years.

Credits: 3.00

PSS 124 - Vegetable Fruit Crops

Principles and practices of commercial vegetable fruit production, including seed production, tillage, cultural practices, and nutrition value. Prerequisite: PSS 11.

Alternate years.

Credits: 4.00

PSS 125 - Woody Landscape Plants

Identification, climatic requirements, cultural management, and use of ornamental plant materials in landscape planting. Prerequisite: 11 or Botany 4 or permission.

Credits: 4.00

PSS 126 - Vegetable Root Crops

Principles and practices of commercial vegetable root crop production, including propagation, tillage, cultural practices, and nutrition value. Prerequisite: PSS 011.

Alternate years.

Credits: 2.00

PSS 127 - Greenhouse Operations & Mgmt

Principles and practices of commercial greenhouse management including construction, heating, cooling, container media, watering, fertilization, light and temperature, growth regulators, integrated pest management and disease control. Prerequisite: PSS 11. Alternate years.

Credits: 4.00

PSS 131 - Landscape Design 1

A studio course emphasizing theory of landscape design and its application to actual landscape design problems. Graphic communication techniques included. Prerequisite: PSS 11 or permission.

Credits: 3.00

PSS 132 - Landscape Design 2

Advanced techniques in landscape design. Grading, construction details, graphic techniques, site analysis as well as various design problems. Prerequisite: PSS 125 or PSS 131, or RM 138, or permission.

Credits: 3.00

PSS 138 - Commercial Plant Propagation

Principles and practices involved in propagating herbaceous and woody plants by seeds, division, layering, cuttings, budding, grafting, and aseptic culture.

Prerequisite: PSS 11 or permission.

Credits: 4.00

PSS 143 - Forage Crop Management

Identification, establishment, and management of crops grown for hay, pasture, and silage. Prerequisite: PSS 11 or permission. (Cross-Listed with ASCI 143.)

Alternate years.

Credits: 4.00

PSS 145 - Turfgrass Management

Establishment, maintenance, and utilization of turf for lawns, parks, athletic fields, airports, cemeteries, roadsides, golf courses, and ski slopes. Prerequisite: PSS 11 or Botany 4 or permission. Alternate years.

Credits: 3.00

PSS 152 - Agroecology

An ecosystem approach to agriculture. Ecological thinking in agriculture, plant/soil ecosystems, ecological design principles and specific sustainable systems (permaculture, biodynamics, agroforestry, organic). Prerequisite: Three credits in a basic biological or ecological science or permission. Alternate years.

Credits: 3.00

PSS 154 - Composting Ecology & Mgmt

Examines ecological, physical and chemical principles, the practical management of the composting process, and benefits of using compost in plant and soil ecosystems. Prerequisite: 3 credits in basic biological or ecological science or permission. Alternate years.

Credits: 3.00

PSS 156 - Permaculture

Design of agriculturally productive environments that have the diversity, stability, and resilience of the natural biosphere to harmoniously integrate landscape and people. Prerequisite: Three credits in a basic biological or ecological science, or permission. Cross-listed with: ENVS 156.

Credits: 3.00

PSS 161 - Fundamentals of Soil Science

Biological, chemical, and physical properties of the dynamic soil system as related to plant growth and environmental problems. Prerequisite: Inorganic chemistry or permission.

Credits: 4.00

PSS 162 - Soil Fertility & Management

An agroecological analysis of soil fertility management including nutrient supply and uptake, rhizosphere-microbial interactions, fertility evaluations, and management techniques. Prerequisite: PSS 161 or permission.

Credits: 3.00

PSS 195 - Undergrad Special Topics

Courses or seminars on topics beyond the scope of existing department offerings. Prerequisite: Instructor permission.

Credits: 6.00

PSS 196 - Undergrad Special Topics

Courses or seminars on topics beyond the scope of existing department offerings. Prerequisite: Instructor permission.

Credits: 4.00

PSS 197 - Undergrad Independent Study

Individual projects under direction of a faculty member. Project may involve original research, readings, internship, or assisting in teaching. Prerequisite: Permission. More than a total of six credits per semester requires the permission of the Department Chair.

Credits: 6.00

PSS 198 - Undergrad Independent Study

Individual projects under direction of a faculty member. Project may involve original research, readings, internship, or assisting in teaching. Prerequisite: Permission. More than a total of six credits per semester requires the permission of the Department Chair.

Credits: 4.00

PSS 210 - Ecological Soil Management

Applying basic ecological concepts and principles to practical soil management. Will cover integrated strategies for building healthy soils, including management of biological, physical, and chemical properties. Alternate years. Prerequisite: PSS 161 or permission.

Credits: 3.00

PSS 215 - Weed/Crop Ecology

Weed identification, reproduction, ecological relationships with crops, and integrated management. Prerequisites: PSS 11, 161 or permission. Alternate years.

Credits: 3.00

PSS 217 - Pasture Production & Mgmt

Physiological and ecological relationships of pasture plants, effects of grazing livestock on them; grazing management effects on livestock and pastures; emphasis on French Voisin system. Prerequisites: PSS 11 or 161 or permission. Alternate years.

Credits: 2.00

PSS 221 - Tree Fruit Culture

Theory and practice of modern commercial fruit science. Nutrition and cultural responses to various management practices. Prerequisite: PSS 011, PSS 161, or permission. Alternate years, 2002-03.

Credits: 3.00

PSS 261 - Soil Morph Class & Land Use

Field techniques that describe soil properties, formation, and classification. The principles and processes of soil genesis, land use classification systems, and land use challenges. Prerequisite: PSS 161 or permission. Alternate years.

Credits: 3.00

PSS 264 - Chemistry of Soil & Water

An environmentally oriented study of the colloidal chemistry of soil and its interfaces with roots, water, and air. Prerequisites: PSS 161, two semesters chemistry or permission. Ross. Alternate years.

Credits: 4.00

PSS 266 - Soil Water Movement

Mathematical modeling and physical principles of the soil-water-plant interaction and its relationship to environmental and agricultural issues. Prerequisites: PSS 161, one semester of physics or permission. Alternate years.

Credits: 3.00

PSS 269 - Soil/Water Pollution/Bioremed

Examines key issues in pollution of soil and water. Topics include type of pollutants, their reactions in soil and water, pollution prevention and bioremediation. Alternate years.

Credits: 3.00

PSS 281 - Senior Seminar

Presentation and discussion of papers on selected topics of current interest by students and staff. Spring semester. Prerequisite: Senior standing.

Credits: 3.00

PSS 297 - Special Topics

Lectures, laboratories, readings, field projects, surveys, or research designed to provide specialized experience in horticulture, agronomy, soils, entomology, and integrated pest management. Prerequisite: Senior standing and/or permission.

Credits: 4.00

PSS 301 - Plant Science Colloquium

Graduate student and faculty discussion of current research topics in plant science.

Credits: 1.00

PSS 302 - Soil Science Colloquium

Graduate student and faculty discussion of current research topics in soil science.

Credits: 1.00

PSS 381 - Graduate Special Topics

Advanced readings and discussion of horticulture, crops, or soils research literature.

Credits: 3.00

PSS 391 - Master's Thesis Research

Credits: 3.00

PSS 491 - Doctoral Dissertation Research

Credits: 1.00 to 18.00

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Courses in Political Science (POLS)

POLS 021 - American Political System

Institutions, processes, and problems of American government.

Credits: 3.00

POLS 029 - American Civil Rights Movemnts

Examination of American racial discrimination; emphasis on strategies and actions of NAACP, SCLC, SNCC, Black Panthers, Nation of Islam, to end racial discrimination.

Credits: 3.00

POLS 041 - Intro Prob Political Thought

Examination of basic problems in political philosophy, e.g. morality and law; punishment; freedom; equality; obligation and disobedience.

Credits: 3.00

POLS 051 - Intro International Relations

Examination of the basic theoretical concepts in international relations. Introduces the student to systemic, domestic, and individual levels of analysis for assessing foreign policy decisions.

Credits: 3.00

POLS 071 - Comparative Political Systems

Examination of political behavior, political structures, and political processes from a cross-national perspective.

Credits: 3.00

POLS 095 - Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

POLS 096 - Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

POLS 121 - Law & Politics

Examination of the U.S. courts focusing on the legal and political factors that influence court action, and judicial action that affects public policy. Prerequisite: POLS 021.
Credits: 3.00

POLS 122 - Constitutional Law:Gov Powers

Emphasis on developing skills of legal analysis. Historical origins and general principles of constitutionalism. Prerequisite: POLS 021.
Credits: 3.00

POLS 123 - The Vermont Political System

Analysis of the political processes and institutions of governance in Vermont in the context of the federal system and other American states. Prerequisite: POLS 021.
Credits: 3.00

POLS 124 - The Presidency

The functions and activities of the president and staff. Prerequisite: POLS 021.
Credits: 3.00

POLS 125 - Political Parties

Analysis of political parties with special emphasis upon party realignment and reform, campaign techniques for nomination and election, and comparative party systems. Prerequisite: POLS 021.
Credits: 3.00

POLS 127 - The Congressional Process

Organization, procedure, and behavior of the chambers of the U.S. Congress. Prerequisite: POLS 021.
Credits: 3.00

POLS 129 - Const Law:Civil Rights America

Critical examination of role of judiciary in enforcing 14th Amendment's "Equal Protection Clause." Prerequisite: POLS 021.
Credits: 3.00

POLS 131 - Political Leadership

Methods of identifying leaders, their relationships with nonleaders and with one another, their impact on public policy, and their personalities and social backgrounds. Prerequisite: POLS 021.
Credits: 3.00

POLS 132 - US Supreme Court:Proc&Policy

The U.S. Supreme Court as one of the three major political institutions, including the selection process, intracourt politics, and dynamics of court decision making. Prerequisite: POLS 021.
Credits: 3.00

POLS 133 - Public Opinion/Political Part

Theories and the empirical study of public opinion and political participation. Topics include: public opinion polling methodology, the origins of political outlooks, ideology, authoritarianism, generational politics, public opinion on race, voting behavior. Prerequisite: POLS 021.

Credits: 3.00

POLS 137 - Politics and The Media

The role of the media in politics, including how media presentation and interpretation of events affect public opinion, political institutions, and public policy.

Prerequisite: POLS 021.

Credits: 3.00

POLS 138 - Const Law: Civil Liberties

Investigation of the Supreme Court's interpretation of the First Amendment, rights of the accused, and the right to privacy. Prerequisite: POLS 021.

Credits: 3.00

POLS 141 - History of Political Thought

First semester: Development of Western political thought from Plato to Aquinas.

Second semester: Modern political thought from Machiavelli to Nietzsche.

Prerequisite: 41.

Credits: 3.00

POLS 142 - History of Political Thought

First semester: Development of Western political thought from Plato to Aquinas.

Second semester: Modern political thought from Machiavelli to Nietzsche.

Prerequisite: 41.

Credits: 3.00

POLS 143 - Philosophy of Law I

(Same as Philosophy 142.) Analysis of the nature of law, the relation between law and morality, obligation to obey the law, the judicial decision, responsibility in law, legal ethics. Prerequisite: 41 or Philosophy 1 or 3 or 4.

Credits: 3.00

POLS 144 - Philosophy of Law II

(Same as Philosophy 143.) Problems of liberty, e.g. freedom of expression, privacy, paternalism; scope and limits of the criminal law; philosophy of punishment; selected problems in criminal justice. Prerequisite: 41 or Philosophy 1 or 3 or 4.

Credits: 3.00

POLS 149 - Intermediate Political Theory

Intermediate courses on topics in political theory beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: POLS 041 or Instructor permission.

Credits: 3.00

POLS 151 - American Foreign Policy

Overview of the United States' involvement with the world. Focuses on the domestic political, institutional, and ideological influences on the formation of policy. Prerequisite: POLS 051.

Credits: 3.00

POLS 157 - Internatl Politics Middle East

Formation and operation of the state system in the 20th century Middle East.

Emphasis on Great Power involvement, Arab-Israeli issues, regional conflict, transitional ideologies. Prerequisite: POLS 051.

Credits: 3.00

POLS 161 - Political Geography

(See Geography 177.) Prerequisite: 51 or 71 or Geography 1 or 73.)

Credits: 3.00

POLS 168 - Middle East Politics

State formation in the Middle East and problems it has occasioned. Review of modern history and examination of contemporary politics of several countries.

Prerequisite: POLS 071.

Credits: 3.00

POLS 171 - Western European Political Sys

A comparative examination of the British, German, and French political systems.

Prerequisite: POLS 071.

Credits: 3.00

POLS 172 - Politic&Society in Russian Fed

Examines the nature of politics and the development of post-Soviet social and economic institutions in Russia. Prerequisite: POLS 071.

Credits: 3.00

POLS 173 - Canadian Political System

Institutions, process, and problems of the Canadian polity. Prerequisite: POLS 071.

Credits: 3.00

POLS 174 - Latin American Politics

Comparative examination of selected Latin American political systems.

Prerequisite: POLS 071.

Credits: 3.00

POLS 175 - Govt & Politics of China

Institutions, processes, and problems of government of China. Prerequisite: POLS 071.

Credits: 3.00

POLS 177 - Pol Sys'ts of Tropical Africa

Development of differing political systems in African countries located south of the Sahara and north of South Africa. Prerequisite: POLS 071, or one course in African Prerequisite: POLS 071, or one course in African Studies.

Credits: 3.00

POLS 181 - Fund of Social Research

(Same as Sociology 100.) Introduction to research methods in social science.

Includes examination of research design, measurement, data collection, data analysis, and the presentation and theoretical interpretation of research findings.

Prerequisite: One core course.

Credits: 4.00

POLS 191 - Internships

Credits: 1.00 to 6.00

POLS 192 - Internships

Credits: 6.00

POLS 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

POLS 196 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

POLS 197 - Readings & Research

Credits: 1.00 to 6.00

POLS 198 - Readings & Research

Credits: 3.00

POLS 222 - Constitutional Law II

Selected topics in constitutional law. Prerequisite: POLS 122.

Credits: 3.00

POLS 225 - Intergovernmental Relations

Problems of the federal system. National-state-local cooperative administration of selected public functions. Prerequisite: POLS 021, three hours at the 100-level.

Credits: 3.00

POLS 226 - Topics on the Presidency

Further study of the executive branch and its operations. Selected topics, e.g. presidential decision making. White House staffing and operations, congressional-executive relations. Prerequisite: POLS 124.

Credits: 3.00

POLS 228 - Congress & Foreign Policy

Congress's role in foreign policy making, emphasizing congressional action in the post-Vietnam period. Prerequisite: POLS 021, three hours at the 100-level.

Credits: 3.00

POLS 229 - Seminar in American Politics

Credits: 3.00

POLS 232 - Comparative State Politics

Politics, policy, and institutions of state governments of the U.S.; techniques for comparative analysis of these aspects of politics. Prerequisite: POLS 021, three hours at the 100-level.

Credits: 3.00

POLS 241 - Justice & Equality

(Same as Philosophy 242.) Examination of contemporary normative theories of distributive justice and equality. Prerequisites: 41, or Philosophy 1 or 3 or 4, three hours at 100 level.

Credits: 3.00

POLS 242 - American Political Thought

American political thought from the colonial period to recent times. Prerequisites: POLS 041, three hours at the 100-level. Background in American history recommended.
Credits: 3.00

POLS 243 - Democratic Theory

The nature of democracy. Both contemporary debates within democratic theory and the classical sources of democratic theory are examined. Prerequisite: POLS 041; three hours at 100 level.
Credits: 3.00

POLS 249 - Seminar in Political Theory

Credits: 3.00

POLS 251 - Foreign Pol Newly Indep States

Examines the development of foreign relations of post- Soviet states, with a special focus on Russia and the post-Communist era. Prerequisite: POLS 051 or three hours at 100 level.
Credits: 3.00

POLS 257 - Pol of European Integration

Survey of the European Union including historical development, public opinion, governmental institutions, internal policies, external relations, and future prospects. Prerequisite: POLS 051 or POLS 071 plus three hours at the 100 level or appropriate International Studies background.
Credits: 3.00

POLS 258 - Causes of War

Examination of various theories explaining the outbreak of war, with applications to historical cases. Prerequisite: POLS 051; three hours at the 150 level.
Credits: 3.00

POLS 259 - Sem in International Relations

Credits: 3.00

POLS 263 - Third World Foreign Policy

The particular security and political economic challenges facing states in the process of nation-building in Latin America, Africa, Middle East, South Asia, Southeast Asia. Prerequisite: POLS 051; three hours at the 150 level.
Credits: 3.00

POLS 264 - US-China Relations

Examination of the historical context and various causes of the recurring tensions and unresolved issues in U.S.-China relations since 1945. Prerequisite: POLS 051; one 100-level course.
Credits: 3.00

POLS 265 - East Asian Political Economy

Examination of the historical, political, economic, and international factors for the rise of East Asia since the Second World War. Prerequisite: POLS 051 or POLS 071, one 100-level course.
Credits: 3.00

POLS 276 - British Politics

Topics include the role of the citizenry; the character of political and governmental institutions; and policy making in particular fields. Northern Ireland is also covered. Prerequisite: POLS 071 plus three hours at the 100 level or appropriate International Studies background.
Credits: 3.00

POLS 277 - Comparative Ethno-Nationalism

Ethnicity and nationalism in Europe, Asia, and Africa. Political, historical, social, and economic factors are examined comparatively. Prerequisite: POLS 071; three Prerequisites: POLS 071, three hours at the 100-level.
Credits: 3.00

POLS 279 - Sem in Comparative Politics

Credits: 3.00

POLS 293 - Senior Honors Seminar I

Examination of major contemporary research topics in political science. Prerequisite: Admission by invitation only. (Not offered for graduate credit.)
Credits: 3.00

POLS 294 - Senior Honors Seminar II

Tutorial format centered on individual student research projects and a comprehensive examination. Prerequisite: POLS 293. Not offered for graduate credit.
Credits: 3.00

POLS 295 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.
Credits: 3.00

POLS 296 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.
Credits: 4.00

POLS 297 - Advanced Readings & Research

For advanced undergraduate and graduate students.
Credits: 3.00

POLS 298 - Advanced Readings & Research

For advanced undergraduate and graduate students.
Credits: 3.00

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Courses in Professional Nursing (PRNU)

PRNU 050 - Intro to Profession of Nursing

This course begins the socialization process of undergraduate nursing students as members of a profession and will introduce the historical foundations, evolution, and contemporary characteristics of nursing.

Credits: 1.00

PRNU 110 - Art & Science of Nursing

Exploration of ways of knowing in nursing that lead to understanding of the human experience of health. Content includes: theory, professional role development, ethics, and legal aspects of nursing practice. Prerequisites: Sociology; Psychology 1; English 1. Recommended: ENVS 1, 2 or 7 or ENSC 1 or NR 185.

Credits: 3.00

PRNU 111 - Research in Nursing

Provides an introduction to nursing research and its relationship to nursing theory and practice. Knowledge and skills essential for the critique and utilization of nursing research are presented. Prerequisites: PRNU 110, STAT 111 or 141.

Credits: 3.00

PRNU 113 - Assess of Hlth:Indiv&Fam/Comm

Through classroom and practicum, students learn to holistically assess and differentiate healthy from at-risk findings of clients in a variety of settings.

Prerequisites: ANPS 19, NFS 43, HDFS 5; Pre/Corequisites: PRNU 110, 111, ANPS 20, MMG 65 or BMT 54.

Credits: 5.00

PRNU 127 - Hlth Promotion Across Lifespan

This course focuses on health promotion and disease prevention across the lifespan. Varied practicum experiences provide students the opportunity to assess, plan, implement and evaluate care. Prerequisites: PRNU 110, 111, 113 and all related pre or corequisites and ENVS 1, 2, 7, ENSC 1 or NR 185; Pre/corequisite: PRNU 128.

Credits: 4.50

PRNU 128 - Nurs Implications Drug Therapy

Examination and application of knowledge of pharmacotherapeutic principles to

nursing practice. Prerequisites:PRNU 110,111,113, CHEM 26, ANPS 20;

Pre/corequisite: NURS 120.

Credits: 4.00

PRNU 129 - Fam Care/Chldbrg Women&Newborn

This course focuses on the human experiences of child- bearing. Students will have opportunities to care for childbearing women, neonates and their families in a variety of settings. Prerequisites: PRNU 110,111,113; Pre/corequisites: PRNU 127,128,NURS 120.

Credits: 4.00

PRNU 130 - Prof Nursing&HealthCare System

This course focuses on the historic and contemporary role of the professional nurse within the health care system. The organization and financing of health care is examined from multiple perspectives. Prerequisites: 110, 111,113 and all related pre or corequisites.

Credits: 2.00

PRNU 131 - Exp of Alterations in Health I

Focus on the human experience of alterations in health for individuals and their families. Content addresses individual and family responses to disease processes from a holistic perspective. Prerequisites: 127, 128,129; NURS 120.

Credits: 3.00

PRNU 132 - Caring for Child W/Alter Hlth

Focus on children experiencing alterations in health. Through classroom and practicum students learn to holistically care for children experiencing alterations within the context of family, in a variety of settings. Prerequisites: PRNU 127, 128, 129, NURS 120; Pre/corequisite: PRNU 131.

Credits: 5.00

PRNU 134 - Care Adult/Elders W/Alt Hlth

Focus on adults and elders experiencing alterations in health. Through classroom and practicum students learn to holistically care for adults and elders experiencing alterations within the context of family, in a variety of settings. Prerequisites:PRNU 127,128,129,NURS 120; Pre/corequisite: PRNU 131.

Credits: 6.00

PRNU 151 - Eval Hlth:Indiv/Fam/Community

(3-2) This course will focus on health assessment of individuals, families, and communities, as client. Students will demonstrate the ability to assess clients using a holistic approach. Prerequisite: PRNU 111, PRNU 012; successful completion of NLN ACE II or equivalent.

Credits: 4.00

PRNU 152 - Protect/Prom Hlth:Ind/Fam/Comm

This course will focus on health protection and health promotion of individuals, families, and communities. Student placement for the practicum will be in a variety of settings. Pre/co-requisite: PRNU 151.

Credits: 4.00

PRNU 196 - Special Topics

Refer to course schedule for specific title. Prerequisite: Majors only; Senior standing.

Credits: 3.00

PRNU 197 - Independent Study

An independent study is an educational experience taken for credit that occurs separate from a group class. The student develops a plan specific to their learning needs and interests and works under the guidance of a faculty member to achieve the predetermined objectives. Prerequisite: Agreement from a faculty sponsor and approval by the Baccalaureate Education Committee.

Credits: 3.00

PRNU 231 - Experience:Alteration:Hlth II

This course focuses on individual and family responses to alterations in health. A holistic and lifespan approach will be used in examining the nursing care of these clients. Prerequisites: PRNU 132,134 and all related pre and corequisites.

Credits: 3.00

PRNU 234 - Care Adlts/Elders w/Alt HlthII

The second course of a two-course sequence focusing on adults and elders experiencing alterations in health. Through classroom and practicum students learn to holistically care for adults and elders experiencing alterations within the context of family, in a variety of settings. Prerequisites: 231 and all related pre and Corequisites.

Credits: 6.00

PRNU 235 - Care Indv w/Alt in Mental Hlth

Focus on individuals experiencing alterations in mental health. Through classroom and practicum students learn to holistically care for individuals experiencing alterations in mental health in a variety of settings. Prerequisites: PSYC 152, PRNU 231 and all related pre and Corequisites.

Credits: 5.00

PRNU 238 - Caring For Select Populations

This course provides students with the opportunity to focus on a clinical specialty area of their interest. Prerequisite: PRNU 129, PRNU 132 for OB/ped specialty; PRNU 234, PRNU 235 for Adult Health/psych/ICU/ED/OR/PACU specialty.

Credits: 1.00 to 3.00

PRNU 240 - Contemp Iss&Ldrshp Prof Nursng

Current issues and leadership in the nursing profession. Prominent issues in nursing are explored from a historical, political, and futuristic perspective. Strategies dealing with issues are formulated using theories of change and leadership. Pre- or corequisites: 234, 235.

Credits: 6.00

PRNU 241 - Hlth Care Iss Pop at Risk

Focus on populations at risk and pertinent health care issues. The role of the nurse as leader and provider of care to groups and communities is addressed. Prerequisites: 240,242.

Credits: 6.00

PRNU 242 - Care for Client&Pop at Risk

Through seminar and practicum the student will understand the continuum of care required by populations at risk. The role of the nurse as leader and provider of direct care is emphasized. Students with assistance of faculty select the primary practicum site. Pre/co-requisite: PRNU 241.

Credits: 5.00

PRNU 244 - Senior Practicum

Provides students with the opportunity to focus on a clinical area of interest. Settings include health clinics, homes, hospitals, and long term care facilities.

Prerequisites: PRNU 231, 234, 235; Corequisites: PRNU 240, 241, 242.

Credits: 3.00

PRNU 261 - Clients & Populations At Risk

Focus on roles of the nurse in community and public health within a multidisciplinary context. Students will explore factors that place populations at risk. Prerequisite: PRNU 152.

Credits: 4.00

PRNU 262 - Care Clients/Pop At Risk:Cmty

Focus on the roles of nursing that emphasize community care. Students will engage in a practice situation involving aggregate care of populations at risk.

Pre/co-requisite: PRNU 261.

Credits: 4.00

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Courses in Psychology (PSYC)

PSYC 001 - General Psychology

Introduction to the entire field, emphasizing the behavior of the normal adult human being.
Credits: 3.00

PSYC 015 - Improv Memory, Motiv & Cog Skills

Theory and research on learning and memory, motivation, and cognitive skills. Emphasis on the application of principles to everyday life. Prerequisite: PSYC 001 or Instructor permission.
Credits: 3.00

PSYC 095 - Special Topics

Credits: 3.00

PSYC 096 - Special Topics

Credits: 3.00

PSYC 109 - Psychology Research Methods I

Basic course in principles of research methodology, including design, statistical procedures, and reporting. Prepares students to understand and evaluate psychological research in a variety of areas of psychology. Laboratory/discussion experiences. Prerequisite: 1.
Credits: 4.00

PSYC 110 - Psychology Research Methods II

More advanced methodology course for majors in psychology. Prepares students to conduct and report research in psychology, with special attention to experimental procedures in learning and cognition. Laboratory experiences. Prerequisite: PSYC 109.
Credits: 4.00

PSYC 111 - Psychology of Decision Making

Introduction to the study of individual and group decisions. Focus on "how," "how best," and "how reasonably" to decide. Attention to tricks and traps in the process. Prerequisite: PSYC 001. Summer only.
Credits: 3.00

PSYC 119 - History of Psychology

Review of major theoretical and empirical developments in psychology, including schools of psychology that have influenced contemporary models of psychology.

Prerequisite: PSYC 001; Junior or Senior standing.

Credits: 3.00

PSYC 121 - Biopsychology

Biological bases of behavior: classical and contemporary issues, including introduction to nervous system, behavioral effects of drugs, chemical bases of behavioral disorders. Prerequisite: PSYC 001 or BIOL 001.

Credits: 3.00

PSYC 130 - Social Psychology

An introduction to concepts and methods used to study the behavior of individuals in various social situations. Prerequisite: PSYC 001.

Credits: 3.00

PSYC 152 - Abnormal Psychology

Describing and defining abnormal behavior; models of etiology; research evidence for biological and social models; methods of intervention and prevention.

Prerequisite: PSYC 001.

Credits: 3.00

PSYC 161 - Developmental Psyc:Childhood

Survey of research and theories on child development from conception to adolescence emphasizing experimental analyses of early social and cognitive development. Prerequisite: PSYC 001.

Credits: 3.00

PSYC 163 - Psychology Mass Communication

Survey of theory and research concerning mass media effects in children's socialization, information diffusion, and in shaping values, behaviors regarding health, politics, consumer choices, and environment. Prerequisite: PSYC 001 or Instructor permission.

Credits: 3.00

PSYC 195 - Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

PSYC 196 - Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 5.00

PSYC 197 - Independent Study

Individual research under staff direction. Prerequisite: Department permission.

Credits: 3.00

PSYC 198 - Independent Study

Individual research under staff direction. Prerequisite: Department permission.

Credits: 3.00

PSYC 205 - Learning

Analysis of theory and research on the basic learning process and behavior.

Prerequisite: PSYC 109.

Credits: 3.00

PSYC 206 - Motivation

Theory and research on motives, including hunger, fear, sex drive, and addiction, their influence on behavior, relationship to other psychological processes, and biological correlates. Prerequisite: PSYC 109.

Credits: 3.00

PSYC 207 - Thinking

Survey of cognitive psychology, examining theory and research on perception, memory, language, cognition, and their interactions. Prerequisites: 109.

Credits: 3.00

PSYC 208 - Cognition & Language

(See Communication Sciences 208.)

Credits: 3.00

PSYC 215 - Cognition & Aging

(See Communication Sciences 215.)

Credits: 3.00

PSYC 220 - Animal Behavior

Behavior of animals under controlled experimental conditions and in their natural environments. Consideration of evolution, development, function, and control of behavior. Prerequisite: 109 or Biology 102.

Credits: 3.00

PSYC 221 - Physiological Psychology I

Structure and function of mammalian nervous system, emphasizing neurological correlates of sensory experience and perception. Individual laboratory experience.

Prerequisite: 109.

Credits: 4.00

PSYC 222 - Sel Topics Behavioral Neurosci

Selected topics examining the role of the central nervous system in determining behavior, including innate behaviors, arousal, motivation, learning, and memory.

Prerequisite: PSYC 121 or PSYC 221.

Credits: 3.00

PSYC 223 - Psychopharmacology

Effects of drugs (both medical and recreation) on behavior. Topics such as drug effects on learning, memory, motivation, perception, emotions, and aggression.

Prerequisites: 109, 121 or 222.

Credits: 3.00

PSYC 230 - Advanced Social Psychology

Advanced survey of current research on the behavior of individuals in social situations. Prerequisite: PSYC 109 or PSYC 130.

Credits: 3.00

PSYC 231 - Psychology of Women

Psychological theories about women and research on women's roles. Biological, personality, cognitive, and developmental factors considered. Prerequisite: One Psychology course at the 100 level.

Credits: 3.00

PSYC 233 - Experience & Creativity

Explores psychological processes for developing creative thinking and for enhancing the quality of conscious experience. Emphasizes personal growth as well as theoretical understanding. Prerequisite: Advanced background in at least one relevant field, such as Psychology, Environmental Studies, Studio Art, or education.

Credits: 3.00

PSYC 235 - Psychology of Art

Exploration of key psychological processes involved in creating and experiencing all forms of art; participants also conduct a research project in an area of interest. Prerequisite: Strong background in Psychology and/or Art. UG only.

Credits: 3.00

PSYC 236 - Theories of Human Comm

Study of the role of perception, human information processing, language, nonverbal codes, meaning, cognition, and interpersonal and sociocultural context in human communication process. Prerequisite: PSYC 109 or PSYC 130.

Credits: 3.00

PSYC 237 - Cross-Cultural Communication

Study of cultural factors, cognitive processes, communication patterns, and problems in cross-cultural communication; role of communication in development and social change in third world countries. Prerequisite: PSYC 109 or PSYC 130 or PSYC 230; other advanced background in education or a social science.

Credits: 3.00

PSYC 239 - Adv Soc Psyc Appl&Facilitation

Explores psychological foundations of approach used in 130 for applying academic content. Involves research and readings beyond work for 139. Prerequisite: 139, or 12 hours of psychology and department permission. Intended for 130 group facilitators with advanced psychology background. (Not offered for graduate credit.)

Credits: 3.00

PSYC 240 - Organizational Psychology

Study of the psychological impact of macro and micro features of organizations upon leadership, decision making, workforce diversity, group process, conflict, and organizational performances. Prerequisite: PSYC 109, or Instructor permission.

Credits: 3.00

PSYC 241 - Org Psyc:Glob/Cultrl/Loc Force

Study of global, cultural, and local dynamics upon organizational culture,

leadership, workforce diversity, ethics and justice at work, and conflict resolution. Conduct applied organizational cultural analysis. Prerequisite: PSYC 109 or Instructor permission.
Credits: 3.00

PSYC 250 - Intro to Clinical Psychology

Study of basic principles of interviewing, testing, assessment from life situations, and report writing. Examination of the most common approaches to psychotherapy. Prerequisite: PSYC 109, PSYC 152.
Credits: 3.00

PSYC 251 - Behav Disorders of Childhood

An overview of theory, research, and practice in developmental psychopathology from infancy through adolescence. The major disorders of social and emotional development reviewed. Prerequisite: PSYC 109 or PSYC 161. PSYC 109 may be taken concurrently.
Credits: 3.00

PSYC 253 - Advanced Behavior Modification

Application of techniques for the modification of human behavior in a variety of educational and social situations involving the collection and analysis of behavioral data. Prerequisite: PSYC 109, PSYC 152.
Credits: 3.00

PSYC 254 - Prim Prevent&Mental Hlth Promo

An examination of empirical approaches to prevention of mental and emotional disorders; history of public health methods; sources of support and opposition to prevention efforts. Prerequisites: 109, 152. UG only.
Credits: 3.00

PSYC 255 - Intro to Health Psychology

Psychology of the cause, treatment, and prevention of physical illness and disability. Topics include: stress, health behavior, medical compliance, patient-provider relationships, coping with illness. Prerequisite: 109 or advanced standing in Allied Health Sciences. UG only.
Credits: 3.00

PSYC 261 - Cognitive Development

Examination of research and theory concerning developmental changes in the human processing of information from infancy to adulthood centered around the work of Piaget. Prerequisite: PSYC 109 or PSYC 161. PSYC 109 may be taken concurrently.
Credits: 3.00

PSYC 262 - Social Development

Examination of theory and research concerning interpersonal development in humans from infancy through adulthood. Relationships between language, cognition, and social development emphasized. Prerequisite: PSYC 109 or PSYC 161. 109 may be taken concurrently.
Credits: 3.00

PSYC 263 - Disabilities of Learning & Dev

Seminar in etiology, treatments, prevention of developmental and learning disabilities within framework of current service and educational practices. Effectiveness, ethical, legal, psychological issues examined. Prerequisite: One 100-level Psychology course or advanced standing in Psychology, Education, or Physical Therapy.
Credits: 3.00

PSYC 265 - Infant Development

Biological, cognitive, and social aspects of infant development in context; opportunities to evaluate and design research and apply knowledge to parenting, prevention, and social policy. Prerequisite: PSYC 109, PSYC 161 which may be taken concurrently or comparable.
Credits: 3.00

PSYC 266 - Communication & Children

Study of the role of communication, especially television, in cognitive and social development from preschool to adolescence. Relationship between television violence and abnormal behavior examined. Prerequisite: PSYC 109 or PSYC 161 or PSYC 163.
Credits: 3.00

PSYC 268 - Psychology Adult Dev & Aging

Psychological development in the final third of the life span emphasizing theory and research concerning social, cognitive, perceptual, and mental health transitions and support interventions. Prerequisites: 1, and Sociology/Nursing/Early Childhood and Human Dev. 20 or Early Childhood and Human Dev. 195/295 or permission.
Credits: 3.00

PSYC 269 - Cross-Cultural Psyc:Clin Persp

Introduction to issues posed for psychologists in their work with ALANA (African, Latino/a, Native and Asian American) and international populations. Critical appraisal of readings, research and case studies. Prerequisites: PSYC 1,109. (Same as ALANA 269).
Credits: 3.00

PSYC 295 - Advanced Special Topics

See Schedule of Courses for specific titles.
Credits: 3.00

PSYC 296 - Advanced Special Topics

See Schedule of Courses for specific titles.
Credits: 3.00

PSYC 301 - Faculty Seminar

Introduction to specialized areas of psychology.
Credits: 0.00

PSYC 302 - Faculty Seminar

Introduction to specialized areas of psychology.

Credits: 0.00

PSYC 305 - Seminar in Learning Theory

Credits: 3.00

PSYC 340 - Adv Statistical Methods I

Statistical methods for evaluating psychological data. Emphasizes exploring data with respect to research hypotheses. Critical study of hypothesis tests on means, chi-square, and correlational techniques.

Credits: 3.00

PSYC 341 - Adv Statistical Methods II

Continuation of PSYC 340. In-depth study of the analysis of variance and multiple regression. Further study of analysis and interpretation of data from the behavioral sciences. Prerequisite: PSYC 340.

Credits: 3.00

PSYC 349 - Seminar in Psyc Research Meth

For advanced psychology Graduate students. Topics may include but are not limited to: factor analysis, discriminant function analysis, multivariate analysis of variance, advanced experimental design, computer application in data collection and analysis. Prerequisite: PSYC 341; or Instructor permission.

Credits: 3.00

PSYC 350 - Family Therapy

An exploration of current theories and techniques in family therapy, through readings and discussion, as well as observation of taped and live family therapy sessions. Prerequisite: Graduate standing in Clinical Psychology; or Instructor Permission.

Credits: 3.00

PSYC 351 - Behavior Therapy: Adults

Review of literature relating to theory, practice, research. Emphasis on the evaluation of a variety of procedures applied to behavior disorders in adults. Prerequisite: Instructor Permission.

Credits: 3.00

PSYC 352 - Behavior Therapy: Children

Review of literature relating to theory, practice, research. Emphasis on the evaluation of a variety of procedures applied to behavior disorders in children. Prerequisite: Instructor Permission.

Credits: 3.00

PSYC 353 - Clinical Human Neuropsychology

Clinical seminar on effects on human behavior of neocortical dysfunction. Review of theoretical, clinical approaches to brain function, emphasis on recent developments in diagnostic techniques, ensuing theoretical developments.

Prerequisite: PSYC 221, PSYC 222, or equivalent.

Credits: 3.00

PSYC 354 - Psychopathology I

An advanced course dealing with models of classification, diagnosis, epidemiology

of behavior disorders in children. Prerequisite: Instructor Permission.

Credits: 3.00

PSYC 355 - Psychopathology II

An advanced course dealing with models of classification, diagnosis, epidemiology of behavior disorders in adults. Prerequisite: Instructor Permission.

Credits: 3.00

PSYC 357 - Cross Culture Clin Interv&Rsch

Issues for psychologists regarding clinical intervention and research with Black, Latino/a, Native and Asian Americans and international populations of color with an eye towards cultural competence. Prerequisites: Graduate standing.

Credits: 3.00

PSYC 359 - Interpersonal Psychotherapy

An examination of psychotherapy as an interpersonal process. Resistance, transference, and counter-transference examined as interpersonal interactions and related to interpersonal personality theory. Prerequisites: Advanced Graduate standing; Instructor permission.

Credits: 3.00

PSYC 361 - Advanced Personality Theory

Personality development from a psychoanalytic, humanistic, trait, and sociocultural perspective. Also, methods of personality measurement, such as scale construction and the analysis of fantasy and projective material. Prerequisite: Permission.

Credits: 3.00

PSYC 362 - Community Clinical Psychology

Seminar examining community intervention strategies for psychological problems and health risk behaviors. Topics: history of community psychology, discussion of intervention programs, consultation issues, research. Prerequisite: Instructor Permission.

Credits: 3.00

PSYC 363 - Advanced Primary Prevention

Review of research literature on prevention of psychopathology and promotion of competence; development of model prevention programs; evaluation, ethical issues, and political issues. Prerequisite: Instructor Permission.

Credits: 3.00

PSYC 364 - Professional Affairs & Ethics

The origins of professions and of psychology in particular. Accreditation, laws affecting psychology, organization of the profession, licensing certification, and the code of ethics for psychology. Prerequisite: Instructor Permission.

Credits: 3.00

PSYC 366 - Advanced Developmental Psyc

Critical Analysis of selected topics in developmental psychology. Research, theory, applied, professional issues including, for example, moral development, infancy, early conceptual development, professional writing. Prerequisite:

Graduate standing in Psychology. Repeatable course.

Credits: 3.00

PSYC 369 - Health Psychology

Psychological aspects of the etiology, treatment, prevention of physical illness.

Topics include: stress and disease, compliance, health care systems, coping with illness, positive health behavior. Prerequisite: Instructor Permission.

Credits: 3.00

PSYC 370 - Adult Psychological Assessment

Intelligence, neuropsychology, interviewing, psychodiagnosis, objective and projective personality methods, behavioral assessment, report writing. Supervised assessment practicum (100 hours) in university and in-patient mental health settings. Prerequisite: Instructor Permission.

Credits: 3.00

PSYC 371 - Child & Adolescent Psyc Assess

Interviewing, intelligence testing, behavioral assessment, social cognition, family environments, specific disorders of childhood. Supervised assessment practicum (100 hours) in in-patient and out-patient mental health settings and schools.

Prerequisite: Instructor Permission.

Credits: 3.00

PSYC 372 - Psychological Intervention I

Introduction to psychotherapy, theories, and strategies. Skill building in case formulation, therapeutic goals, and effective intervention techniques. Supervised therapy practicum (100 hours) in university setting. Prerequisite: Instructor Permission.

Credits: 3.00

PSYC 373 - Psychological Intervention II

Theories and strategies of psychological intervention. Supervised service delivery (150 hours) at University Counseling and Testing Center including individual and group therapy and crisis intervention. Prerequisite: Instructor Permission.

Credits: 0.00

PSYC 374 - Advanced Clinical Practicum

Year-long, 20 hours/week supervised service delivery (1,000 hours) involving psychological intervention and consultation. Training takes place in a variety of mental health agencies. Prerequisites: Second-year student or above (or equivalent) in Ph.D. program in Clinical Psychology and permission. (May be taken more than once.)

Credits: 1.00

PSYC 375 - Internship in Clinical Psyc

Credits: 0.00

PSYC 380 - Contemporary Topics

Selected topics in depth, emphasis on critical analysis of original literature. Recent topics: anxiety, behavioral pharmacology, biological bases of memory, depression, organizational behavior, psychotherapy research, primate behavior, skilled

performance.

Credits: 3.00

PSYC 381 - Clinical Research Seminar

Year-long seminar on methods and design in clinical research. Oral and written presentation of a research proposal and results. Required twice for clinical students. Prerequisite: Instructor Permission.

Credits: 3.00

PSYC 382 - Adv Professional/Research Sem

Discussion of current research and student research presentation in areas of concentration ("clusters"). Prerequisite: Graduate standing in General/Experimental Program.

Credits: 1.00

PSYC 385 - Advanced Readings & Research

Readings, with conferences, to provide graduate students with backgrounds and specialized knowledge relating to an area in which an appropriate course is not offered.

Credits: 3.00

PSYC 391 - Master's Thesis Rsch

Credits: 1.00 to 18.00

PSYC 395 - Special Topics

Credits: 3.00

PSYC 491 - Doctoral Dissertation Research

Credits: 1.00 to 18.00

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Courses in Public Administration (PA)

PA 206 - Intro Cont Public Affairs

Contemporary policy issues including government and the economy, the role of leadership, ethical and moral issues in public policy, and other contemporary issues impacting society. Prerequisites: Economics 11, 12, or equivalent recommended.

Credits: 3.00

PA 295 - Special Topics

Current issues and new developments in public policy and public administration. Prerequisite: Permission.

Credits: 3.00

PA 301 - Fundamentals of Public Admin

Analysis of major elements of management in the public sector (organization, personnel, budgeting) with special attention to problems arising from political imperatives generated by a democratic society.

Credits: 3.00

PA 302 - Public Sector Organizations

Examination of basic classical and contemporary theory, research on human relations, internal structures, environments, types, general properties of complex organizations and bureaucracies. (Summer cross-listing: Psychology 240).

Credits: 3.00

PA 303 - Research Methods

Data analyses and communication of statistical information for management decision making. Methods of modeling relationships, comparing strategies, and assessing probabilities. Instruction in computer use. Additional lab required.

Credits: 3.00

PA 305 - Public Budgeting&Pub Finance

A focus on the budget as the primary policy and planning document in public organizations.

Credits: 3.00

PA 306 - Introduction to Public Policy

Study of stages in the policy process; development of public policy in the federal system; and policy analysis and evaluation at each stage in the policy process.

Credits: 3.00

PA 307 - Administrative Ethics

Administrative behavior with a focus on ethical dilemmas that arise in the bureaucracy. An examination of a number of moral issues and ways to resolve them.

Credits: 3.00

PA 308 - Decision Making Models

Credits: 3.00

PA 311 - Policy Analysis&Program Eval

A seminar providing hands-on knowledge in policy analysis and program evaluation using case studies of current analysis projects and problems. Specific techniques include planning, survey administration, forecasting, cost benefit analysis, and impact assessment.

Credits: 3.00

PA 312 - Mgmt in Hlth Services&Med Care

Addresses major issues and challenges faced by health services managers relating to established and evolving social, economic, and professional policies in a context of practical problem assessment and appropriate resolution.

Credits: 3.00

PA 313 - Public Policy Implementation

A seminar considering aspects of the public policy implementation process from initiation to completion and evaluation with regards to system design, policy goals, communication, compliance, and political environment.

Credits: 3.00

PA 314 - Administrative Law

Examines legal foundations of public administration focusing on legal issues of most importance to present or future administrators.

Credits: 3.00

PA 315 - Hlth Srvc & Med Care in US

Defines the milieu of issues and challenges faced by managers in the health services setting.

Credits: 3.00

PA 316 - Effective Mgmt Techniques

Concentration on leadership, the role of managers, and essential components of well-managed organizations in the public, nonprofit, and private sector.

Credits: 3.00

PA 317 - Systems Anly & Strategic Mgmt

Students will be introduced to systems thinking and network dynamics with a particular focus on managing across organizational and sectoral boundaries, including public-private partnerships, intergovernmental arrangements, and strategic alliances. Tools to undertake strategic analysis and planning will be

explored.

Credits: 3.00

PA 318 - Admin Theory & Practice

Extensive examination of literature pertaining to the practice and theory of public administration. Explores public/private partnerships, intergovernmental management, ethics, and administrators as agents for organizational change.

Credits: 3.00

PA 319 - State Administration

Elements of public management at the state level i.e. the state/federal relationship regarding control; management within the force field of local conflict and cooperation; and management within the context of inter-agency conflict and cooperation. Cross-listed with: POLS 224.

Credits: 3.00

PA 321 - Negotiation & Mediation

Explores the principles of today's negotiations and mediations through readings, heavy emphasis on practical exercises between students, and case analyses of actual negotiations. Prerequisite: Graduate standing.

Credits: 3.00

PA 334 - Organizational Behav&Cultures

Credits: 3.00

PA 380 - Internship

Supervised administrative experience culminating in a written report.

Credits: 3.00

PA 391 - Master's Thesis Research

Thesis topic must be approved by faculty advisor.

Credits: 6.00

PA 395 - Special Topics

For advanced students within areas of expertise of the faculty. Varied course offerings. Contemporary topics. Instructor Permission.

Credits: 6.00

PA 397 - Readings & Research

Readings, with conferences, term paper, to provide graduate students with specialized knowledge in an area in which an appropriate course is not offered.

Credits: 6.00

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Courses in Public Serv Tech Gen (PSTG)

PSTG 004 - Chem Lab

Credits: 0.00

PSTG 299 - Visiting Grad

Credits: 0.00

PSTG 300 - Nurse Midwifery Grad Program

Credits: 6.00

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Courses in Radiation Therapy (RADT)

RADT 052 - Principles Radiation Therapy

Introduction to the practice and theory of radiation therapy through lectures and discussions.

Credits: 2.00

RADT 144 - Seminar:Patient Care Issues

Topics will include new treatment modalities, outreach programs, coping with disease, etc. RADT majors only. Prerequisite: Junior standing in Radiation Therapy. S/U grading.

Credits: 3.00

RADT 173 - Clinical Lab:Radiation Therapy

Introduction to the clinical environment through activities which include patient care and handling, immobilization techniques, therapy unit calibrations and manipulation, etc. RADT majors only. Prerequisite: 52. Fall.

Credits: 3.00

RADT 174 - Clinical Practicum

Students participate and observe in the Fletcher Allen Health Care Radiation Therapy Department. RADT majors only. Prerequisite: RADT 173. Spring.

Credits: 2.00

RADT 175 - Medical Imaging

Introduction to radiographic anatomy and the various imaging techniques presently available to include magnetic resonance imaging (MRI), positron emission tomography (PET), ultrasound, etc. Fall.

Credits: 2.00

RADT 176 - Clinical Radiation Oncology

The various types of neoplasms, methods of diagnosis of treatment, and elementary pathology are presented. RADT majors only. Prerequisites: Anatomy and Physiology 19-20, concurrent enrollment in RADT 174. Spring.

Credits: 3.00

RADT 223 - Clin Pract: Radiation Therapy

A continuation of RADT 174 emphasizing increasing clinical capabilities. RADT

majors only. Prerequisite: 174. Fall.

Credits: 3.00

RADT 274 - Clin Intern:Radiation Therapy

Students are assigned to approved clinical education sites to observe and increase their participation in the clinical environment. Evaluations based on defined clinical objectives and competencies to be completed by the clinical and University faculty. RADT majors only. Prerequisite: Successful completion of all previous required major courses and concurrent enrollment in RADT 280. Spring. Credits: 14.00

RADT 275 - Dosimetry

Treatment plan verification using three-dimensional computer models, simulation data, and knowledge of treatment unit capabilities. RADT majors only.

Prerequisites: Physics 11 & 12, BMT4. Fall.

Credits: 3.00

RADT 277 - Techniques Radiation Therapy

Instructs students in the theory and clinical application of radiotherapeutic techniques. RADT majors only. Prerequisites: Concurrent enrollment in 275 and 223. Fall.

Credits: 4.00

RADT 280 - Qual Assurance&Treatment Plan

The integration of clinical oncology, radiobiology, dosimetry, and treatment planning, and how they affect patient outcomes. RADT majors only. Spring.

Credits: 3.00

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Courses in Recreation Management (RM)

RM 001 - Intro to Recreation Management

Introduction to the broad field of outdoor recreation and tourism, including history, philosophy, current issues, career opportunities, and the Recreation Management Program.

Credits: 1.00

RM 030 - US National Parks

The natural beauty and unique phenomena of our National Parks are emphasized. Historical development and current problems are cited. Credit not granted for both 30 and Natural Resources 2.

Credits: 3.00

RM 050 - Tourism Planning

Examination of tourism including its economic, environmental, and social effects. Emphasis on planning to maintain the integrity of tourist regions.

Credits: 3.00

RM 138 - Park & Recreation Design

Recreation design methodology applied to the design of public and private recreational facilities.

Credits: 4.00

RM 152 - Forest Resource Values

Cross-listed with Forestry 152.

Credits: 3.00

RM 153 - Recreation Admin & Operations

Administration and operation of outdoor recreation agencies and businesses. Special emphasis on recreation administrative structures, personnel management, and maintenance of parks and outdoor recreation areas. Prerequisites: Junior or senior standing.

Credits: 3.00

RM 157 - Ski Area Management

An analysis of current management problems affecting private ski areas in Vermont and the Northeast. Prerequisites: Junior or senior standing. Alternate

years.

Credits: 4.00

RM 158 - Resort Mgmt & Marketing

Study of the management of year-round resort facilities. Emphasis on resort marketing, internal support functions, and associated recreational facilities.

Prerequisites: Junior or senior standing.

Credits: 3.00

RM 160 - Parks & People I

A Living/Learning Center Program. Consideration of impacts of recreation on the environment. Discussion of the operation of the Vermont State Park System.

Credit for 160 will not be granted until 161 has been successfully completed.

Credits: 1.00

RM 161 - Parks & People II

A Living/Learning Center Program. Consideration of impacts of recreation on the environment. Discussion of the operation of the Vermont State Park System.

Credit for 160 will not be granted until 161 has been successfully completed.

Credits: 1.50

RM 188 - Special Topics

Independent study. Prerequisites: Junior standing, permission.

Credits: 3.00

RM 191 - Rec Management Practicum

Supervised field experience in national, state, urban, or private park and recreation operations. Prerequisite: Junior or senior standing in Recreation Management.

Credits: 1.00 to 6.00

RM 230 - Ecotourism

Study of nature-based travel emphasizing international destinations. Examination of ecotourism as a tool for preservation and economic development. Prerequisites: Junior or senior standing (Not offered for graduate credit.)

Credits: 3.00

RM 235 - Outdoor Recreation Planning

Planning large land areas for outdoor recreation use. Emphasis on the planning process relative to the leisure time use of natural resources. Prerequisites:

Advanced standing in Recreation Management or permission. UG only.

Credits: 4.00

RM 240 - Park and Wilderness Management

History, philosophy, and management of wilderness, national parks, and related areas. Prerequisite: Junior or senior standing in Recreation Management.

Credits: 3.00

RM 255 - Environmental Interpretation

Philosophy, principles, and techniques of communicating environmental values, natural history processes, and cultural features to recreation visitors through the use of interpretive media. Prerequisite: Advanced standing in Recreation Management or permission.

Credits: 4.00

RM 258 - Entrepreneurship Rec&Tourism

Study of entrepreneurial theories, concepts, and practices and their application to recreation and tourism. Emphasis on preparation of individual business plans.

Prerequisites: Junior or senior standing in Recreation Management or permission.
(Not offered for graduate credit.)

Credits: 3.00

RM 299 - Recreation Management Honors

Honors project dealing with management of outdoor recreation and tourism.

Prerequisite: By application only; see program chair. UG only.

Credits: 3.00

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Courses in Religion (REL)

REL 020 - Intro Rel:Comparative

Study of patterns and differences in religious life; selected comparisons of Asian, Western, and tribal religions.

Credits: 3.00

REL 021 - Intro Rel:Asian Traditions

Study of the Hindu, Buddhist, and East Asian religious traditions as expressed in their basic symbolisms, writings, practices, and cultural forms.

Credits: 3.00

REL 022 - Intro Rel:Western Traditions

Study of the basic motifs, mythic patterns, and historical transformations in religious life from the ancient Near East to the modern West.

Credits: 3.00

REL 023 - Intro Rel:Bible

Study of religious expressions as exemplified in biblical and related texts.

Credits: 3.00

REL 027 - Integr Humanities

Study of religious and philosophical thought in Western culture from Hebraic and Greek antiquity to present. Prerequisites: Concurrent enrollment in Integrated Humanities Program, English 27, 28 and History 27, 28.

Credits: 3.00

REL 028 - Integrated Humanities

Study of religious and philosophical thought in Western culture from Hebraic and Greek antiquity to present. Prerequisite: Concurrent enrollment in Integrated Humanities Program; ENGS 027, ENGS 028, HST 027, and HST 028.

Credits: 3.00

REL 080 - Religion & Race in America

Historical survey of forms of African-American religion in the U.S. in their relation to slavery, segregation, and civil rights; current issues in education and cultural diversity.

Credits: 3.00

REL 095 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

REL 096 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

REL 100 - Interpretation of Religion

Examination of major theories and methods used in studying and interpreting religious phenomena. Prerequisite: Three hours in Religion.

Credits: 3.00

REL 101 - Social Dimension Rel Life

Comparative study of communal forms of religious life, such as cosmic state, monasticism, sect, caste and denomination, from a variety of cultures-Eastern, Western, tribal, and modern-with a concern for their meanings as fundamental forms of religious expression. Prerequisite: Three hours in Religion or Sociology.

Credits: 3.00

REL 104 - Mysticism, Shamanism & Possessn

Comparative study of ways in which the inward dimension of religious life finds expression. Prerequisite: Three hours in Religion.

Credits: 3.00

REL 108 - Myth, Symbol & Ritual

Study of patterns and significance of myth and ritual as they appear in cross-cultural perspective, with reference to contemporary interpretations of symbol and language. Prerequisite: Three hours in Religion.

Credits: 3.00

REL 109 - Ritualization:Rel,Body,Culture

A cross-cultural examination of ritual strategies for integrating personal and social experience, with attention to various theories and types of religious ritual.

Prerequisite: Three hours in Religion.

Credits: 3.00

REL 114 - Hebrew Scriptures

Study of the history and writings of the Hebraic-Judaic religion to the first century B.C. Prerequisite: Three hours in Religion.

Credits: 3.00

REL 116 - Judaism

Investigation of sustaining rituals, customs, institutions, and beliefs of normative Judaism. Prerequisite: Three hours in Religion.

Credits: 3.00

REL 122 - Christian Origins

Historical study of the first four centuries of Christianity in its sociocultural context, including consideration of New Testament texts. Prerequisite: Three hours in Religion.

Credits: 3.00

REL 124 - Christianity

Historical study of the Christian tradition examining major religious movements of early, medieval, and Reformation Christianity, and the spirituality of Christians during these periods. Prerequisite: Three hours in Religion.

Credits: 3.00

REL 128 - Religion in America

Study of the relationship between religion, the cultural ethos, and identity in America. Prerequisite: Three hours in Religion.

Credits: 3.00

REL 130 - Islam

Overview examining doctrines and practices of Muslims and their religious institutions from the rise of Islam to the present. Prerequisite: Three hours in Religion.

Credits: 3.00

REL 131 - Studies in Hindu Tradition

Selected writings, rituals, and developments in the Hindu tradition with reference to cultural assumptions of India. Prerequisite: Three hours in Religion.

Credits: 3.00

REL 132 - Buddhism in India & East Asia

A study of early and Mahayana Buddhist thought and of some developments of Mahayana in China and Japan. Prerequisite: Three hours in religion. May be taken for credit after Religion 134 only with prior permission of instructor.

Credits: 3.00

REL 134 - Buddhism Sri Lanka: Elite & Pop

An examination of Theravada Buddhist belief and practice in the context of Sri Lankan culture, with attention to lay and monastic interaction. Prerequisite: Three hours in Religion. May be taken for credit after REL 132 only with prior permission of Instructor.

Credits: 3.00

REL 141 - Religion in Japan

An examination of Japanese values as expressed in folk, Shinto, and Buddhist traditions, and in social structures, aesthetic pursuits, or business practices.

Prerequisite: Three hours in Religion.

Credits: 3.00

REL 145 - Religion in China

Examination of Classical, Confucian and Taoist thought through texts in translation, developments in these traditions, and interactions with folk religion and Buddhism in the premodern period. Prerequisite: Three hours in Religion.

Credits: 3.00

REL 168 - Contemporary Spiritual Life

Study of human involvement with the spiritual as manifested in contemporary religious groups, or in modern theory and practice of meditation. Prerequisite: Three hours in Religion.

Credits: 3.00

REL 173 - Studies in Gender & Religion

Selected topics focusing on the social and religious construction of gender and the shape of women's religious lives. Religious traditions studied vary by semester.

Prerequisite: Three hours in Religion. May be repeated up to six hours.

Credits: 3.00

REL 180 - Moral&Rel Persp on Holocaust

A study of the Holocaust in relation to questions of moral responsibility, justice, guilt, and human suffering, focusing on Jewish responses. Prerequisite: Three hours in Religion, HST 190, or Permission of Instructor.

Credits: 3.00

REL 195 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

REL 196 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

REL 197 - Readings & Research

Variable credit.

Credits: 3.00

REL 198 - Readings & Research

Variable credit.

Credits: 1.00 to 6.00

REL 201 - Senior Seminar

Selected contemporary issues in theory and interpretation; preparation and presentation of individual senior projects. Prerequisites: Twelve hours in religion, including 100 and six hours at the intermediate level, senior standing. UG only.

Credits: 3.00

REL 214 - Studies in Judaica

Selected topics of concentration emerging out of and related to the study of normative Judaism, e.g. the prophetic faith, Rabbinic Judaism, Hasidism, and Jewish mysticism. Prerequisite: Nine hours in religion, with three hours at the intermediate level (116 recommended). May be repeated up to six hours. (Not offered for graduate credit.)

Credits: 3.00

REL 224 - Studies in Christianity

Examination of selected issues, movements, periods, or individuals within the Christian tradition. Prerequisites: Nine hours in religion (122, 124, or 173 recommended). May be repeated up to six hours. UG only.

Credits: 3.00

REL 226 - Studies in Hellenistic Rel

Study of religion in the Mediterranean area during the period from the 4th century B.C. through the 4th century A.D. including Christian origins. Prerequisite: Nine hours in religion, with three hours at the intermediate level. (Not offered for graduate credit.)

Credits: 3.00

REL 228 - Studies in Western Rel Thought

Important figures, issues, movements, or texts examined. Prerequisite: Nine hours in religion, with three hours at the intermediate level. May be repeated up to six hours. (Not offered for graduate credit.)

Credits: 3.00

REL 230 - Studies in Islam

Topics varying by semester such as Women and Islam, Sufi (mystical) traditions, Shi'ite Islam, Islam and the West, and South Asian Muslim Cultures. Prerequisites: Nine hours in Religion, with three hours at the intermediate level (130 recommended). UG only.

Credits: 3.00

REL 259 - Religion and Secular Culture

Comparison of religious and secular systems of meaning, value, and practice. Prerequisite: Nine hours in religion, with three hours at the intermediate level. (Not offered for graduate credit.)

Credits: 3.00

REL 280 - Symbol & Archetype

Study of the work of C.G. Jung and the Jungian circle as it bears upon the interpretation of religion and as it represents a 20th century religious quest.

Prerequisite: Nine hours in religion, with six hours at the intermediate level. (Not offered for graduate credit.)

Credits: 3.00

REL 291 - Tpcs in Hist & Phenom of Rel

Prerequisite: Nine hours in Religion, with six hours at the intermediate level; Junior standing. May be repeated up to six hours.

Credits: 3.00

REL 292 - Tpcs in Hist & Phenom of Rel

Prerequisite: Nine hours in Religion, with six hours at the intermediate level; Junior standing. May be repeated up to six hours.

Credits: 3.00

REL 297 - Interdisciplinary Seminar

Student-faculty workshop on a topic of current interest, employing resources from various disciplines. Prerequisites: Nine hours in religion, with six hours at the intermediate level, junior standing, instructor's permission. (Not offered for graduate credit.)

Credits: 3.00

REL 298 - Interdisciplinary Seminar

Student-faculty workshop on a topic of current interest, employing resources from

various disciplines. Prerequisites: Nine hours in religion, with six hours at the intermediate level, junior standing, instructor's permission. (Not offered for graduate credit.)

Credits: 3.00

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Courses in Resource Economics (RSEC)

RSEC 121 - Resource Economics

Credits: 3.00

RSEC 222 - Natural Resources Evaluation

Credits: 3.00

RSEC 256 - Special Topics

Credits: 1.00 to 6.00

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Courses in Russian (RUSS)

RUSS 001 - Elementary Russian

An introduction to all aspects of contemporary standard Russian: speaking, listening, reading, writing. Cultural components include topics such as music, art, literature, and current events. No previous knowledge of Russian needed for RUSS 001.

Credits: 4.00

RUSS 002 - Elementary Russian

An introduction to all aspects of contemporary standard Russian: speaking, listening, reading, writing. Cultural components include topics such as music, art, literature, and current events. Prerequisite: RUSS 001 or equivalent.

Credits: 4.00

RUSS 051 - Intermediate Russian

Continued practical work in all language skills (speaking, listening, reading, writing), with more analysis of the structure of Russian. Continuation of cultural components. Prerequisite: RUSS 001, RUSS 002.

Credits: 4.00

RUSS 052 - Intermediate Russian

Continued practical work in all language skills (speaking, listening, reading, writing), with more analysis of the structure of Russian. Continuation of cultural components. Prerequisite: RUSS 051.

Credits: 4.00

RUSS 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

RUSS 096 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 1.00

RUSS 101 - Phonology

Practical work on Russian intonation, element order, and phonetics, using primarily Russian materials. Classroom and language laboratory work. May be

taken together with RUSS 052. Prerequisite: RUSS 052 or concurrent enrollment in RUSS 052.

Credits: 3.00

RUSS 121 - Composition & Conversation

Continued practical work on all four language skills. Emphasis on oral and written self-expression. Presentations and compositions based on Russian-language media and literature. Prerequisite: RUSS 052

Credits: 3.00

RUSS 122 - Composition & Conversation

Continued practical work on all four language skills. Emphasis on oral and written self-expression. Presentations and compositions based on Russian-language media and literature. Prerequisite: RUSS 052.

Credits: 3.00

RUSS 141 - Reading Comprehension

Development of contextual strategies for reading authentic texts on a number of content areas, primarily expository texts from Russian newspapers, magazines, historical and scientific documents. Prerequisite: RUSS 052.

Credits: 3.00

RUSS 142 - Listening Comprehension

Intensive directed aural work with authentic Russian-language media (especially television, radio, and films), supplemented by work on vocabulary development and listening strategies. Prerequisite: RUSS 052.

Credits: 3.00

RUSS 161 - Russian Lexicology

Study of Russian word roots and derivational morphology to increase vocabulary recognition and retention, building on correspondences with English/Latinic equivalent roots where possible. Prerequisite: RUSS 052.

Credits: 3.00

RUSS 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

RUSS 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

RUSS 197 - Readings & Research

Credits: 3.00

RUSS 198 - Readings & Research

Credits: 3.00

RUSS 201 - Survey of Russian Literature

Readings and discussions about Russian literature to the rise of modernism. Particular attention to the social and historical context of the 19th century novel. Prerequisite: RUSS 052. WLIT 118 recommended.

Credits: 3.00

RUSS 202 - Survey 20th Century Russ Lit

Readings and discussions about Russian literature from the rise of modernism to present. Particular attention to function of literature in Soviet society. Prerequisite: RUSS 052. WLIT 118 recommended.

Credits: 3.00

RUSS 221 - Cult & Civ to 1905 Revolution

Social, cultural, and political institutions from the time of Peter the Great to the 1905 revolution. Particular attention to Russian music, art, and literature.

Prerequisite: RUSS 052.

Credits: 3.00

RUSS 222 - Cult & Civ in the 20th Century

Social, cultural, and political institutions from the 1905 revolution to the present. Particular attention to tensions between official and unofficial culture during the Soviet period. Prerequisite: RUSS 052.

Credits: 3.00

RUSS 251 - Russian News Media

Analysis of journalistic style and content in news coverage of contemporary events as reported in Russian newspapers and radio and television broadcasts.

Prerequisite: RUSS 052 ,RUSS 141, or RUSS 142 recommended.

Credits: 3.00

RUSS 282 - Seminar on Selected Author(s)

Study of author(s) through close readings of representative texts supplemented by lectures and reports on the works' sociocultural context. May be repeated.

Prerequisite: One 100-level Russian course.

Credits: 3.00

RUSS 295 - Advanced Readings & Research

See Schedule of Courses for specific titles.

Credits: 3.00

RUSS 296 - Advanced Readings & Research

See Schedule of Courses for specific titles.

Credits: 3.00

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Courses in Secondary Education (EDSC)

EDSC 011 - Ed Tech in Sec Ed Classroom

Students are introduced to a variety of uses for information technology in education with particular applications to stimulate and manage a student-centered classroom.

Credits: 3.00

EDSC 050 - Exploring Education

Introduction to philosophical, psychological, sociological questions basic to teaching and learning. Exploration of beliefs and understandings about personal learning and the field of education.

Credits: 3.00

EDSC 055 - Special Topics

Credits: 3.00

EDSC 197 - Readings & Research

Credits: 3.00

EDSC 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in education and related areas.

Credits: 3.00

EDSC 207 - Adoles Lrng/Beh&Cog Perspect

Indepth examination of cognitive learning theory and its background in behavioral and other learning theories, with application to teaching in a secondary setting. Prerequisites: Acceptance to licensing program. (Crosslisted with EDML 207).

Credits: 4.00

EDSC 209 - Practicum in Teaching

Working with teachers and students in a secondary school, licensing candidates will assess the needs of students, document effects of direct service and the need for new curriculum. Prerequisites: 203, 207 or concurrent enrollment.

Credits: 4.00

EDSC 215 - Reading in Secondary Schools

Design of methods and materials for integrating reading and learning skills in content instruction. Focus on learning support for at risk learners. Prerequisites: 203, 207, 209 or concurrent enrollment.

Credits: 4.00

EDSC 216 - General Methods for Sec Tchrs

Development of teaching methods for secondary instruction, adaptation to learning styles, models of teaching with design, lesson planning and assessment, with focus on cross-disciplinary collaboration. Prerequisites: 203, 207, 209 or concurrent enrollment.

Credits: 3.00

EDSC 225 - Tchg Soc Studies in Sec Schls

Includes multiple teaching modes, questioning techniques, micro-teaching laboratory, analysis of historical content to determine students' prerequisite cognitive skills and processes for construction of historical scenarios. Prerequisite: Twelve hours of education and related areas.

Credits: 3.00

EDSC 226 - Teaching Internship

Collaboration with professional teachers in design and implementation of effective instruction, with special focus on developing programs in a high school setting.

Prerequisite: EDSC 203, EDSC 207, EDSC 209, EDSC 215, EDSC 216, and Special Methods.

Credits: 12.00

EDSC 227 - Tchng Science in Sec Schls

Consideration of science curricula and instructional strategies for grades 7-12. Topics may include: teaching science as problem solving, research in science teaching, affective education through science. Prerequisite: Twelve hours in education and related areas or Instructor permission.

Credits: 3.00

EDSC 230 - Teaching for Results

Analysis of planning, curriculum, design, teaching, evaluation and classroom management from the perspective of research and practice. Special focus on the student with special needs. Prerequisites: Concurrent enrollment in 226.

Credits: 3.00

EDSC 240 - Teach English:Secondary School

Approaches to teaching composition, literature, and the English language in secondary school. Prerequisite: Acceptance into licensure program.

Credits: 3.00

EDSC 257 - Tchg Math in Secondary Schools

Contemporary secondary school mathematics curricula and instructional strategies for grades 7-12. Topics may include problem solving, research in mathematics education, use of calculators and computers, manipulatives, and evaluation. Prerequisite: Twelve hours in education and related areas or permission.

Credits: 3.00

EDSC 259 - Tchg Foreign Lang in Sec Schls

An overview of language teaching methodology. The learning/ teaching process as it relates to language learning; techniques used in the teaching and testing of second language skills and culture. Prerequisite: Acceptance into licensure program.

Credits: 3.00

EDSC 295 - Lab Experience

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 5.00

EDSC 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 1.00 to 6.00

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Courses in Social Work (SWSS)

SWSS 002 - Foundations of Social Work

An introduction to the profession of social work, its functions, values, knowledge, and the problems it addresses.

Credits: 3.00

SWSS 003 - Human Needs & Social Services

Students provide volunteer service in a human service agency, relate observations to theory about clients, agency structure, programs, and operations, and assess their commitment to the profession of social work. Prerequisite: SWSS 002 or Instructor permission.

Credits: 3.00

SWSS 005 - Biosociopolitical Issues SW

Outlines human body organ systems and extrapolates to the socio-political.

Bioethical dilemmas, environmental racism, and multiple chemical sensitivity studied from a social work perspective.

Credits: 3.00

SWSS 007 - Quantitative Meth SW Research

Introduction to statistics and social work research methods. This course introduces students to quantitative methodology in research and practice.

Credits: 3.00

SWSS 047 - Human Beh in the Soc Envr I

Introduction to life-span development from birth to death. There is a primary focus on the individual. Prerequisites: 2, 3, or instructor's permission.

Credits: 3.00

SWSS 048 - Human Beh in the Soc Envr II

A systems approach to understanding various levels of social organization; for example, families, groups, organizations, and communities. Prerequisite: 47.

Credits: 3.00

SWSS 055 - Special Topics

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Open to first-

year students.

Credits: 3.00

SWSS 164 - Intro Social Work Research

Introduction to models and methods of social research from a social work perspective. Prerequisite: SWSS 002, SWSS 003, SWSS 047, SWSS 048, or Instructor permission.

Credits: 3.00

SWSS 165 - Iss & Pol in Social Welfare I

An introduction to economic, political, historical, and social forces that influence the development and implementation of social welfare policy. Prerequisite: SWSS 002, SWSS 003, SWSS 047, SWSS 048, or Instructor permission.

Credits: 3.00

SWSS 166 - Iss & Pol in Social Welfare II

In-depth examination of social welfare policy and accompanying social services in the U.S.; major policy analysis models presented and used. Prerequisite: SWSS 165 or Instructor permission.

Credits: 3.00

SWSS 167 - Racism & Contemporary Issues

Study of perception, conceptualization, and comprehension of racism. Strategies, techniques, and procedures to identify and decrease many facets of racism.

Credits: 3.00

SWSS 168 - Social Work Intervention I

Social work theory and practice methods employed by social workers in providing services to individuals and small groups. Prerequisite: Social Work major, senior standing or permission.

Credits: 3.00

SWSS 169 - Social Work Intervention II

Social work theory and practice methods employed by social workers in providing services to families, organizations, and communities. Prerequisites: Social Work major, 168, senior standing or permission.

Credits: 3.00

SWSS 171 - Field Experience Seminar I

Weekly integrative seminar; discussion of practice within field agency.

Prerequisite: Concurrent enrollment in 173/174.

Credits: 3.00

SWSS 172 - Field Experience Seminar II

Weekly integrative seminar; discussion of practice within field agency.

Prerequisite: Concurrent enrollment in 173/174.

Credits: 3.00

SWSS 173 - Field Experience I

Field experience under BSW or MSW supervision in social service agencies four days each week. Taken concurrently with 171/172. Prerequisites: Social Work majors, senior standing.

Credits: 6.00

SWSS 174 - Field Experience II

Field experience under BSW or MSW supervision in social service agencies four days each week. Taken concurrently with 171/172. Prerequisites: Social Work majors, senior standing.

Credits: 6.00

SWSS 197 - Readings & Research

Prerequisite: Social Work major. Pre-arrangement only. Variable credit.

Credits: 3.00

SWSS 200 - Contemporary Issues

Content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Instructor Permission.

Credits: 3.00

SWSS 212 - Social Work Practice I

A comprehensive introduction to concepts and skills employed by social workers in interactions and interventions with individuals, families, and groups is provided.

Prerequisite: MSW standing; or Instructor permission.

Credits: 3.00

SWSS 213 - Social Work Practice II

Knowledge and skills of social work practice with organizations and communities is emphasized. Prerequisite: Completion of SWSS 212; MSW advanced standing; or Instructor permission.

Credits: 3.00

SWSS 216 - Th Found of Hum Beh&Soc Envr I

This course introduces students to the biological, psychological, cultural/social, and economic forces that influence human behavior and their implication for social work practice. Prerequisite: MSW standing; or Instructor permission.

Credits: 3.00

SWSS 217 - Th Found Hum Beh&Soc Envr II

Focus is on theories regarding the nature and functioning of human service organizations and communities in relation to meeting human needs. Prerequisite: SWSS 216 or Instructor permission.

Credits: 3.00

SWSS 220 - Soc Welfare Pol & Services I

An introduction to history and philosophy of social work and social welfare and the structure of service programs is provided. Prerequisite: MSW standing or Instructor permission.

Credits: 3.00

SWSS 221 - Soc Welfare Pol & Services II

Focus is on the analysis of the economic, political, and social forces that influence the development and implementation of social welfare policy. Prerequisite: SWSS 220; or Instructor permission.

Credits: 3.00

SWSS 224 - Child Abuse & Neglect

An MSW foundation elective that considers child abuse and neglect from historical, cultural, sociopolitical and psychological perspectives and examines professional social work responses to them. Prerequisite: Matriculation in the foundation year of Graduate study in Social Work; or Instructor permission.
Credits: 3.00

SWSS 225 - Transf Ourselves&Comm:SW Persp

An MSW foundation elective that examines systems of oppression and social work strategies to decrease biased practices and create more equitable communities and institutions. Prerequisite: Matriculation in the foundation year of graduate study in Social Work; or Instructor permission.
Credits: 3.00

SWSS 226 - Assessment Theory Social Work

An MSW foundation elective analyzing competing and complementary assessment theories and their implications in social work in health/mental health and with children and families. Prerequisite: MSW standing or Instructor permission.
Credits: 3.00

SWSS 227 - Found of Social Work Research

An introduction to qualitative and quantitative methods of applied social research including program evaluation and the evaluation of practice and application to social work is taught. Prerequisite: MSW standing or Instructor permission.
Credits: 3.00

SWSS 290 - Foundation Yr Field Practicum

Supervised field-based learning of 15-20 hours per week at non-profit agencies. Students learn the purposeful application of theory, ethics and skills of generalist social work. Prerequisite: Permission of Coordinator of Field Education.
Credits: 3.00 to 4.00

SWSS 291 - Senior Seminar

Undergraduate only.
Credits: 3.00

SWSS 295 - Lab Experience

Supervised field work designed to give students experience in specialized areas for their professional development. Pre-arrangement only. Credit as arranged.
Undergraduate only.
Credits: 6.00

SWSS 296 - Social Work in Global Context

Study of social work issues in different parts of the world. Located at the University of Lapland in Finland. Prerequisite: Background in human services or social work major; or MSW standing; permission of the Instructor.
Credits: 3.00

SWSS 301 - Social Work in Health

Based on examinations of current trends with clients of multiple ages, needs, and

cultural perspectives, this course examines social work roles in delivering health services. Prerequisites: Completion of foundation coursework; MSW advanced standing; or Instructor permission.

Credits: 3.00

SWSS 302 - Social Work in Mental Health

Advanced knowledge and skills in working with children with severe emotional disturbances and adults with persistent mental illness. Community-based services are emphasized. Prerequisites: Completion of foundation coursework; MSW advanced standing; or Instructor permission.

Credits: 3.00

SWSS 310 - Soc Work W/ Children & Fam I

Focus is on families whose major task is child rearing and child caring. Covers advanced knowledge, concepts, and methods of contemporary child/family services within a family-centered approach. Prerequisites: Completion of foundation course work; MSW advanced standing; or Instructor permission.

Credits: 3.00

SWSS 311 - Soc Work W/Children & Fam II

Focus is on families with adolescents, families with no children and families with dependent adults. Advanced analysis of families from an adult member perspective and from a critical view of family ideology and myth. Prerequisites: Completion of foundation coursework; MSW advanced standing; or Instructor permission.

Credits: 3.00

SWSS 316 - Crit Appl of Hum Beh&Soc Envr

This course emphasizes advanced analyses of behavioral and social theories as related to social work practice in health and mental health and/or with children and families. Prerequisite: Completion of 216 and 217, MSW advanced standing or permission.

Credits: 3.00

SWSS 320 - Adv Soc Welf Policy Anyl&Prac

In depth analysis of social welfare policy with application to children and families or health and mental health is required. There is an emphasis on the skills of the policy practitioner. Prerequisite: Completion of SWSS 220 and SWSS 221; MSW advanced standing; or Instructor permission.

Credits: 3.00

SWSS 327 - Adv Social Work Research

An analysis of social work research from methodological and theoretical perspectives is emphasized. The application of research to the student's concentration area is required. Prerequisites: Completion of SWSS 227; a basic statistics course; MSW advanced standing; or Instructor permission.

Credits: 3.00

SWSS 330 - Assessment in Social Work

An advanced MSW concentration elective that analyzes competing and complementary assessment strategies and their implications in social work in

health/mental health and with children and families. Prerequisite: Completion of MSW foundation course work; or Instructor permission.

Credits: 3.00

SWSS 331 - Feminist Social Work Practice

An advanced MSW concentration elective that analyzes practice conceptions and dilemmas of feminist social work in a global context and emphasizes professional activism and leadership. Prerequisite: Completion of MSW foundation course work; or Instructor permission.

Credits: 3.00

SWSS 332 - SW w/Battered Women&Children

An advanced MSW concentration elective that investigates theoretical and practical issues of social work practice with battered women and their children and develops related recommendations. Prerequisite: Completion of MSW foundation course work; or Instructor permission.

Credits: 3.00

SWSS 333 - Social Work with Groups

An advanced MSW concentration elective that integrates professional history, conceptual overviews and direct experience with methods for group work distinctive to social work practice. Prerequisite: Completion of MSW foundation course work or Instructor permission.

Credits: 3.00

SWSS 380 - Prof Issues in Social Work

Designed to cover selected social work issues in depth. Major emphasis on intensive and critical analysis of the literature and practice in a given area.

Prerequisite: Instructor Permission.

Credits: 4.00

SWSS 390 - Concentration Year Field Pract

Supervised field-based learning of 15-20 hours per week. Students are placed in agencies to apply advanced social work practice related to their concentration.

Prerequisite: Permission of Coordinator of Field Education.

Credits: 3.00

SWSS 395 - Field Practicum

Prerequisite: Permission of Instructor. Variable credits.

Credits: 3.00 to 4.00

SWSS 397 - Independent Study

Individual work on Social Work issue(s) selected by the student in consultation with a faculty member. Prerequisite: Instructor permission required.

Credits: 3.00

SWSS 398 - Final Project

A written identification and analysis of a social work issue related to the student's concentration is prepared and presented. Prerequisite: Successful completion of foundation coursework and Instructor permission. Variable three credits. Total of three credits required. Fulfills Graduate College comprehensive examination

requirement.

Credits: 1.00

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Courses in Sociology (SOC)

SOC 001 - Introduction to Sociology

Fundamental principles and problems in the sociological analysis of the structure and dynamics of modern society.

Credits: 3.00

SOC 011 - Social Problems

Introduction to sociology through detailed examination of a selected number of major structural problems characteristic of contemporary societies. Problems treated may vary.

Credits: 3.00

SOC 014 - Deviance & Social Control

Analysis of the causes and consequences of social behavior that violates norms. Examines patterns of deviant socialization and social organization and forms of deviance control.

Credits: 3.00

SOC 019 - Race Relations in the US

Analysis of racial prejudice, discrimination, and other dominant group practices directed toward Native, Asian-, and African-Americans and their social movements for integration, accommodation, and separatism.

Credits: 3.00

SOC 020 - Aging: Change & Adaptation

Individual and social meanings of aging and old age; physical, physiological, psychological, and sociological changes accompanying aging; individual, family, community, and societal adaptations to aging. Crosslists: Nursing 20 and Early Childhood and Human Development 20/Education.

Credits: 3.00

SOC 029 - Sex, Marriage & Family

Description and analysis of contemporary patterns in American sexual, marital, and familial behavior; their historical development, variants, and the evolving alternatives to traditional normative forms.

Credits: 3.00

SOC 032 - Social Inequality

Introduction to structured class inequality in the U.S., causes and consequences. Focus on wealth, prestige, and power. Inequalities of age, gender, and ethnicity also examined.

Credits: 3.00

SOC 043 - Survey of Mass Communication

The historical development of the socioeconomic, political, educational, and religious impacts of the press, film, radio, and television in American society.

Credits: 3.00

SOC 057 - Drugs & Society

Patterns of illicit drug distribution, use, abuse, and control in contemporary society. Examines the interaction of cultural, social, psychological, and physiological factors in prohibited drug-taking.

Credits: 3.00

SOC 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

SOC 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

SOC 100 - Fund of Social Research

Introduction to research methods in social science. Includes examination of research design, measurement, data collection, data analysis, and the presentation and theoretical interpretation of research findings. Prerequisite: Three hours of sociology or six hours in a related social science. Crosslist: Political Science 181.

Credits: 4.00

SOC 101 - Developm't Sociological Theory

Classical sociological theory including Marx, Weber, Durkheim, and Mead, as well as DuBois and early female theorists such as Martineau. Reading and writing intensive. Prerequisites: Six hours of Sociology or equivalent preparation in another social science with Instructor permission.

Credits: 3.00

SOC 102 - Population, Environment & Soc

Analysis of the causes and consequences of varying relationships among population size, distribution and composition, social organization, technology, and resource base. Prerequisite: Three hours of Sociology.

Credits: 3.00

SOC 103 - Environ Crises Modern Society

Examines global, national, and local ecological crises both empirically and theoretically. Emphasis on economic processes, political/legal aspects, and social activism. Prerequisite: Three hours of Sociology.

Credits: 3.00

SOC 105 - The Community

Comparative examination of patterns of social interaction in social groups with common territorial bases in contemporary societies and the analysis of community structure and dynamics. Prerequisite: Three hours of Sociology.

Credits: 3.00

SOC 109 - The Self & Social Interaction

Analysis of the roles of sociocultural and situational factors in individual behavior and experience and the social genesis, development, and functioning of human personality. Prerequisite: Three hours of Sociology or PSYC 001.

Credits: 3.00

SOC 115 - Crime

Analysis of the nature and types of behavior that violates law, the mechanisms for defining such behaviors as criminal and their causes and consequences.

Prerequisite: Three hours of Sociology.

Credits: 3.00

SOC 118 - Race, Crime&Criminal Justice

A comprehensive examination of race, gender, and class on racial minorities' participation in criminal activities and how individuals are treated by the criminal justice system. Prerequisite: Three hours of Sociology.

Credits: 3.00

SOC 119 - Race & Ethnicity

Description and analysis of ethnic, racial, and religious groups in the U.S. Examination of social/cultural patterns in the larger society and in these groups themselves. Prerequisite: Three hours of Sociology. Cross-listed with: ANTH 187.

Credits: 3.00

SOC 120 - Aging in Modern Society

Analysis of contemporary needs and problems of the elderly, including discrimination, poverty, health care, and loneliness, and the evaluation of services and programs for the elderly. Prerequisite: Three hours of Sociology or professional experience working with the elderly.

Credits: 3.00

SOC 122 - Women & Society

Analysis of the changes in the role of women in contemporary society and their consequences for female socialization, the family, and the other major social institutions. Prerequisite: Three hours of sociology. Crosslist: WGST 101.

Credits: 3.00

SOC 132 - Affluence & Poverty in Mod Soc

Examination of structured social inequality in contemporary American society with special attention to the distribution of wealth and its relationship to power, prestige, and opportunity. Prerequisite: Three hours of Sociology.

Credits: 3.00

SOC 150 - Popular Culture

Analysis of social significance of a selected range of contemporary non-elite

cultural forms in the U.S., such as rock music, television programming, and popular literature. Prerequisite: Three hours of Sociology.

Credits: 3.00

SOC 151 - Sociology of Religion&Ideology

Beliefs and value systems and their institutional arrangements, focusing on relationships between these systems and the larger social structure, in cross-cultural and historical perspective. Prerequisites: Three hours of Sociology or six hours of Religion.

Credits: 3.00

SOC 154 - Social Org of Death & Dying

Comparative examination of sociocultural adaptations to mortality with special attention to family, medical, legal, religious, and economic responses to fatal illness and death in contemporary society. Prerequisite: Three hours of Sociology.

Credits: 3.00

SOC 161 - Sociology of Leisure

Analysis of the sociocultural organization of nonwork activity, emphasizing the relationships of class, life style, education, and work to contemporary recreation and leisure use patterns. Prerequisite: Three hours of Sociology.

Credits: 3.00

SOC 171 - Soc Chng&Dev Persp in 3rd Wrld

perspectives on development in the Third World. Prerequisite: Three hours in sociology.

Credits: 3.00

SOC 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 4.00

SOC 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

SOC 197 - Readings & Research

Credits: 1.00

SOC 198 - Readings & Research

Credits: 3.00

SOC 203 - Adv Environmental Sociology

Examination of theoretical interpretations of environmental problems, sources, and solutions, focusing on the social conditions under which problems arise. Emphasis on writing and individual research projects. Prerequisite: Six hours of sociology. UG only.

Credits: 3.00

SOC 205 - Rural Communities in Mod Soc

The changing structure and dynamics of rural social organization in context of modernization and urbanization. Emphasis on rural communities in the U.S.

Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC

001 and SOC 101, or Instructor permission. Cross-listed with:CDAE 205

Credits: 3.00

SOC 206 - Urban Communities in Mod Soc

The changing structure and dynamics of urban social organization in context of modernization and urbanization. Emphasis on cities and metropolitan areas in the U.S. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 207 - Community Org & Development

Communities as changing sociocultural organizational complexes within modern society. Special attention given to problems of formulation and implementation of alternative change strategies. Prerequisite: Six hours of Sociology including 1 and 100, or 1 and 101, or instructor permission.

Credits: 3.00

SOC 209 - Small Groups

Examination of the structure and dynamics of small groups and the interpersonal, informal network of relations that characterize the interaction of members.

Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 211 - Soc Movements&Collective Behav

Examination of origins, development, structure, and consequences of crowds, riots, crazes, rumors, panics, and political and religious movements and their relationships to cultural and social change. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 213 - Women in Dev in 3rd World

An examination of the meaning and measurement of development, sociodemographic characteristics, sex stratification, and effects of Colonialism and Westernization on women's issues in the third world. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission. Cross-listed with: WGST 205.

Credits: 3.00

SOC 214 - Delinquency

Analysis of the nature and type of juvenile behavior that violates law, the mechanisms for defining such behaviors as delinquent, and their causes and consequences. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 216 - Criminal Justice

Analysis of the social structures and processes involved in the identification and labeling of individuals as criminal offenders: criminal law, its enforcement and the courts. Prerequisite: Six hours of Sociology including 1 and 100, or 1 and 101, or

instructor permission.

Credits: 3.00

SOC 217 - Corrections

Analysis of the social structures and processes involved with individuals designated as offenders of criminal law: probation, prison, parole, and programs of prevention and rehabilitation. Prerequisite: Six hours of Sociology.

Credits: 3.00

SOC 219 - Race Relations

Examination of American racial subordination in social and historical perspective. Analysis of interracial contacts, racial subcultures and social structures, and responses to racial prejudice and discrimination. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 220 - Internship in Gerontology

Supervised service or research internship integrating theoretical and practical gerontological issues. Prerequisites: 6 hours of Sociology including 1 and 100, or 1 and 101 or instructor permission or 20, 120; 221 or 222; or equivalent gerontological preparation (Not offered for graduate credit.)

Credits: 3.00

SOC 222 - Aging & Ethical Issues

Analysis of selected ethical issues posed by an aging society and faced by older persons, their families, health care and service providers, and researchers.

Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 223 - Sociology of Reproduction

Examines reproduction of cultural values in relation to social conduct of reproduction of human life (childbearing) under advanced capitalism. Prerequisite: Six hours of Sociology to include one of 29, 122, or 229. Crosslist: WGST 201. (not for Graduate credit)

Credits: 3.00

SOC 225 - Organizations in Mod Society

Examination of basic classical and contemporary theory and research on the human relations, internal structures, environments, types, and general properties of complex organizations and bureaucracies. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 229 - Family as Social Institution

Examination of the institution of the American family in cross-cultural and historical perspective. Theories and research on family continuity, change, and institutional relationships explored. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 232 - Social Class & Mobility

Comparative and historical analysis of causes, forms, and consequences of structured social inequality in societies. Examination of selected problems in contemporary stratification theory and research. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 240 - Political Sociology

Examination of the social organizations of power and authority in modern societies and the dynamics and institutional relationships of political institutions, interest groups, parties, and publics. Prerequisite: Six hours of Sociology including 1 and 100, or 1 and 101, or instructor permission.

Credits: 3.00

SOC 243 - Mass Media in Modern Society

Intensive examination of selected topics in the structure of media organizations and their relationships to and impacts upon the major institutions and publics of contemporary issues. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 250 - Sociology of Culture

The relations of cultural forms and subjective experience to social structure and power; in-depth applications of interpretive approaches in contemporary sociology. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 252 - Sociology of Emotions

Studies the theoretical premises of a sociocultural explanation of emotions; examines specific emotions such as respect, shame, hatred, love and compassion in humans; and explores the existence of emotions in non-human animals. Prerequisites: Three hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 254 - Sociology of Health & Medicine

The social organization and institutional relationships of medicine in society and the role of sociocultural factors in the etiology, definition, identification, and treatment of illness. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 255 - Soc Mental Health

Analysis of the social structures and processes involved in the identification, definition, and treatment of mental illness and its sociocultural etiology and consequences. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 258 - Sociology of Law

Analysis of the sociocultural structure of the legal institution and its relationships to other institutions: the social organization of the legal profession, lawmaking, and the courts. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 272 - Soc of African Societies

Current social, cultural, political, and economic changes occurring in African societies, including issues of development, the state and civil society, social class, ethnonationalism, and democratization. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

SOC 274 - Research Seminar

Principles of research design, data gathering, ethics, measurement, data analysis, and data presentation. Students will complete a research project. Prerequisites: 6 hours of Sociology including 1 and 100, or 1 and 101, or instructor permission.

Credits: 3.00

SOC 275 - Meth of Data Anyl in Soc Rsch

Quantitative analysis of sociological data; includes table, regression, and path analysis, scaling and factor analysis, and the analysis of variance emphasizing multivariate techniques. Prerequisite: 6 hours of Sociology including 1 and 100, or 1 and 101, or instructor permission.

Credits: 3.00

SOC 279 - Contemporary Sociological Thry

Critical examination of contemporary functional, conflict, exchange, interactionist, and structural theoretical approaches. A number of other theoretical approaches selected by seminar participants also examined. Prerequisite: 6 hours of Sociology including 1 and 100, or 1 and 101, or instructor permission.

Credits: 3.00

SOC 281 - Seminar

Presentation and discussion of advanced problems in sociological analysis. Prerequisite: Twelve hours of Sociology; Instructor permission.

Credits: 3.00

SOC 282 - Seminar

Presentation and discussion of advanced problems in sociological analysis. Prerequisite: Twelve hours of Sociology; Instructor permission.

Credits: 3.00

SOC 285 - Internship

Prerequisite: Twelve hours of sociology including at least one 200-level course in substantive area relevant to field placement, departmental permission. UG only.

Credits: 3.00

SOC 286 - Internship

Prerequisite: Twelve hours of sociology including at least one 200-level course in substantive area relevant to field placement, departmental permission. UG only.
Credits: 3.00

SOC 288 - Rsch Meth Teaching Sociology

The development and evaluation of the teaching of sociology. Prerequisite: Twelve hours of Sociology; permission of Department. Open only to students who serve concurrently as teaching assistants in the Department.
Credits: 3.00

SOC 289 - Rsch Meth Teaching Sociology

The development and evaluation of the teaching of sociology. Prerequisite: Twelve hours of Sociology; permission of Department. Open only to students who serve concurrently as teaching assistants in the Department.
Credits: 3.00

SOC 295 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 100, or Instructor permission.
Credits: 4.00

SOC 296 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.
Credits: 3.00

SOC 297 - Readings & Research

Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.
Credits: 1.00

SOC 298 - Readings & Research

Prerequisite: Six hours of Sociology included SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.
Credits: 3.00

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Courses in Spanish (SPAN)

SPAN 001 - Elementary I

Fundamentals of Spanish composition, comprehension, pronunciation, speaking, reading, writing. Structure of the basic Spanish sentence. No prior knowledge expected.

Credits: 4.00

SPAN 002 - Elementary II

Continuation of SPAN 001. Prerequisite: SPAN 001 or equivalent.

Credits: 4.00

SPAN 009 - Basic Spanish Grammar Review

Thorough review of Spanish grammar in preparation for intermediate level. Considerable emphasis on written exercises.

Credits: 3.00

SPAN 051 - Intermediate Language Study I

Significant review of grammar, proceeding from basic knowledge of Spanish to increased proficiency in understanding, speaking, reading and writing.

Compositions, oral practice, reading. Prerequisite: SPAN 002 or SPAN 009 or equivalent. Placement Exam; 2-3 years in high school; consultation.

Credits: 3.00

SPAN 052 - Intermediate Language Study II

Continues building on the skills developed in SPAN 051. More emphasis on accurate language usage and more extensive readings. Prerequisite: SPAN 051 or equivalent. Placement Exam; 3-4 years in high school; consultation.

Credits: 3.00

SPAN 095 - Introductory Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

SPAN 096 - Introductory Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.00

SPAN 101 - Composition & Conversation

Writing practice, sentence structure, correct expression, and guided discussions in Spanish of assigned topics. A good command of basic grammar expected.

Prerequisite: SPAN 052 or Instructor permission.

Credits: 3.00

SPAN 105 - Phonetics & Phonology

The sound system of Spanish: Spanish/English pronunciation contrasted; vowels, consonants, rhythms, intonation. Counts as major/minor elective, not for A&S language requirement. Prerequisite: SPAN 052 or Instructor permission.

Credits: 3.00

SPAN 109 - Spanish Grammar

An intensive study of Spanish grammar. Topical approach. Prerequisite: SPAN 052 or Instructor permission.

Credits: 3.00

SPAN 140 - Analyzing Hispanic Literatures

Introduction to basic genres of Hispanic literatures (narrative, poetry, drama, essay); development of analytical and critical reading/discussion skills. Short analytical papers and ample class discussion. Prerequisite: SPAN 101 or concurrent enrollment with Instructor permission.

Credits: 3.00

SPAN 141 - Intro To Literature of Spain

An introductory survey of major developments in Spanish peninsular literature. Readings and discussions focus on textual analysis, and historical and cultural contexts. Senior majors by permission only. Prerequisites: 140 pre- or co-requisite.

Credits: 3.00

SPAN 142 - Intro To Lit Spanish America

Readings and discussion focus on textual analysis, and historical and cultural contexts. Seniors by permission only. Prerequisites: 140 pre- or co-requisite.

Credits: 3.00

SPAN 195 - Intermediate Special Topics

See Schedule of Courses for specific titles. Prerequisite: SPAN 140.

Credits: 3.00

SPAN 196 - Intermediate Special Topics

See Schedule of Courses for specific titles. Prerequisite: SPAN 140.

Credits: 3.00

SPAN 197 - Readings & Research

Permission of chair required. Prerequisite: SPAN 140.

Credits: 3.00

SPAN 198 - Readings & Research

Permission of Chair required. Prerequisite: SPAN 140.

Credits: 3.00

SPAN 201 - Adv Composition & Conversation

To improve both written and oral proficiency. Textbook supplemented by panel discussions, debates, translation, and a weekly composition. Prerequisite:101 or permission. (Not offered for graduate credit).

Credits: 3.00

SPAN 202 - Topics in Spanish Lang Study

Varied topics devoted to a special area such as translation, creative writing, Spanish for the professions (medicine, business, journalism, law), etc.

Prerequisite: 101 or permission.(Not offered for graduate credit).

Credits: 3.00

SPAN 211 - History of Spanish Language

The evolution of the Spanish language from its origins to the present.

Prerequisites: One 100-level literature course or equivalent. UG only.

Credits: 3.00

SPAN 235 - Perform Early Cult'l Identity

A study of the most popular entertainment in Spain before 1700: theater. Classic plays explore cultural and personal identities in times of conflict and change.

Prerequisite: SPAN 140.

Credits: 3.00

SPAN 236 - Poetic Voices/Cultural Change

A topical approach to exploration of self and society in Spain's poetic voices before 1700. Verses range from humorous to amorous, from satirical to political.

Prerequisite: SPAN 140.

Credits: 3.00

SPAN 237 - Tricksters/Knights&Wayward Wmn

A topical approach to Spain's diverse cultural panorama before 1700. Adventures in prose about knights, plotting wives, nuns, priests and Jewish and Moorish figures. Prerequisite: 140. UG only.

Credits: 3.00

SPAN 245 - Cervante's Voices & Portraits

Cervantes' innovative short fiction and theater are the media for exploring cultural change and the literary legacies of 16th-century Spain. Prerequisite: SPAN 140.

Credits: 3.00

SPAN 246 - Cervante's Don Quixote

Study of the world's most widely published novel. Don Quixote's crazy adventures with the sword and the pen explore fiction, reality, and life itself." Prerequisite: 140.

Credits: 3.00

SPAN 252 - Span Lit:Dictatorshp-Democracy

Literature in Spain from the Franco dictatorship to the present. Topics to include censorship and dissidence, writing-in-exile, and contemporary trends.

Prerequisite: 140. UG only.

Credits: 3.00

SPAN 279 - Act Out:Perf Cult'l Pol Lat Am

A study of the relationship between Latin-American performance and its political contexts. Emphasis is placed on works particularly concerned with reshaping culture, politics, and aesthetics. Prerequisite: SPAN 140.

Credits: 3.00

SPAN 281 - Contemp Spanish-Amer Fiction

A study of representative works by major authors tracing the development of narrative forms from their roots in the last century to the present. Prerequisite: SPAN 140.

Credits: 3.00

SPAN 286 - Span-Am Lit of Social Protest

Readings of major texts. Topics might range from early protests against Spain, to resistance by repressed groups, to contemporary protests against imperialism.

Prerequisite: 140.

Credits: 3.00

SPAN 287 - Early Span Narratives Americas

Readings and analysis of late 15th and 16th century narratives. Discussion of European and Native American perspectives, religious disputes, and the "Leyenda Negra" (Black Legend). Prerequisite: SPAN 140.

Credits: 3.00

SPAN 290 - Hispanic Films in Context

Approaching film as reflection and shaper of Hispanic cultures through comparison with texts relevant to cultural context. Includes study of film terminology and analysis. Prerequisite: SPAN 140.

Credits: 3.00

SPAN 291 - Early Cultures of Spain

A study of the Spanish cultures from earliest times through 1700, emphasizing major intellectual, political, and artistic developments. Prerequisite: SPAN 140.

Credits: 3.00

SPAN 292 - Modern Cultures of Spain

A study of the cultures of Spain from the Enlightenment to the present, emphasizing the major intellectual, political, and artistic developments.

Prerequisite: SPAN 140.

Credits: 3.00

SPAN 293 - Early Latin-American Cultures

A study of colonial Latin American cultures from pre-Hispanic times through Independence. Emphasis on major intellectual, artistic, and cultural developments.

Prerequisite: SPAN 140.

Credits: 3.00

SPAN 294 - Modern Latin-American Cultures

An overview of the cultures of Latin America with a multidisciplinary approach to understanding cultural constructions. Themes included: the city, nationhood, subjectivity, marginality. Prerequisite: 140. UG only.

Credits: 3.00

SPAN 295 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: SPAN 140.

Credits: 4.00

SPAN 296 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: SPAN 140.

Credits: 3.00

SPAN 297 - Advanced Readings & Research

Permission of Chair required. Prerequisite: SPAN 140.

Credits: 3.00

SPAN 298 - Advanced Readings & Research

Permission of Chair required. Prerequisite: SPAN 140.

Credits: 3.00

SPAN 299 - Topics in Hispanic Cultures

Focus on a particular cultural topic in the Hispanic world. Study might emphasize regional studies, current conflicts on ecology, ethnicity, and gender. Prerequisite: 140. UG only.

Credits: 3.00

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Courses in Special Education (EDSP)

EDSP 005 - Iss Aff Persons W/Disabilities

Students explore the effects of severe disabilities. Best service practices, current legislation, advocacy, and family issues for children and adults are emphasized.
Credits: 3.00

EDSP 197 - Independent Study

Credits: 1.00 to 3.00

EDSP 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in education and related areas.
Credits: 3.00

EDSP 201 - Foundations of Special Ed

Examination of historical, current trends in the treatment of individuals with disabilities, including the effects of litigation, legislation, and economic considerations on educational and residential service delivery systems. Prerequisite: Twelve hours in education and related areas, or permission.
Credits: 3.00

EDSP 202 - Stdnt w/Signif Dis:Char&Ed Int

Normal development - birth through six years, developmental disorders, disabilities, medical/health considerations. Management of significant disabilities through the employment of such procedures as handling, positioning, and feeding. Prerequisites: Permission
Credits: 3.00

EDSP 216 - Curr&Instr Needs/All Students

Introduction to curriculum and instruction for all students with a focus on individuals who present academic and behavioral challenges. Emphasis on assessment, evaluation, curriculum, instruction, theories of learning and social development. Prerequisite: Permission.
Credits: 3.00

EDSP 217 - Instr Indiv/Significant Disab

Individualized instruction for learners with significant disabilities emphasizing objectives, assessment, task analysis, and behavior analysis. Prerequisite: Permission.
Credits: 3.00

EDSP 224 - Meeting Inst Needs/All Stdnts

Students apply principles of learning and social development to improve academic and social skills of all individuals with a focus on those who present academic and behavioral challenges. Prerequisite: Instructor permission.
Credits: 3.00

EDSP 228 - Instr for Severely Handicapped

Students apply advanced principles of behavior analysis in the development and implementation of instructional programs for learners with moderate and severe disabilities. Prerequisite: Instructor permission and introductory behavior analysis course.
Credits: 3.00

EDSP 280 - Assessment in Special Ed

Course covers assessment knowledge and skills essential for special educators, including test selection, administration and scoring, and legal issues related to special education assessment. Prerequisite: Admission to Graduate Program in Special Education or permission of the Instructor.
Credits: 3.00

EDSP 290 - Meeting Curr Needs of Students

Study of curriculum and technology areas related to the development, adaptation, and assessment of all students focusing on students with academic and behavioral challenges. Prerequisite: Permission.
Credits: 3.00

EDSP 295 - Laboratory Exp in Education

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.
Credits: 6.00

EDSP 296 - Laboratory Exp in Education

Credit as arranged.
Credits: 3.00

EDSP 297 - Curr for Indvls W/Handicaps

Students develop and implement an objectives-based curriculum for learners with learning disabilities, mental retardation, behavior disorders, and/or multidisabilities. Prerequisite: Permission.
Credits: 3.00

EDSP 298 - Special Educ Practicum

Students provide direct instruction for six learners with learning disabilities, mental retardation, behavior disorders, and/or multidisabilities. Prerequisite: Instructor permission.

Credits: 3.00

EDSP 301 - Hst of Serv/Hndicapped Individ

Historical and current trends in treatment of individuals with disabilities, including effects of litigation, legislation, economic consideration in education, vocational, residential service delivery systems. Prerequisite: Acceptance as candidate for M.Ed. degree in special education, or permission.

Credits: 3.00

EDSP 302 - Phys&Dev Char of Indiv w/Disab

Normal development - birth through six years, developmental disorders, disabilities, medical/health considerations. Management of significant disabilities through the employment of such procedures as handling, positioning, and feeding. Prerequisite: Instructor permission.

Credits: 3.00

EDSP 305 - Res Dev&Coll:Fam/Sch/Com/Agency

An overview of collaborative teaming, function assessment and Vermont's System of Care for students with emotional and behavioral disabilities. A practicum experience is included. Prerequisite: BA.

Credits: 3.00

EDSP 306 - Emot&Behav Dis/Child&Adolesc

This course provides an overview of emotional disorders (e.g., depression, anxiety, ADHD, conduct disorder) experienced by youth and relevant assessment tools for an educational setting. Prerequisite: BA.

Credits: 3.00

EDSP 307 - Prev&Interv Strategy:Students

This course covers effective prevention and intervention strategies with, or at-risk, for emotional and behavioral disorders. It covers such topics as classroom management, social skills training, anger management, internalizing disorders. Prerequisite: BA in Education/related field.

Credits: 3.00

EDSP 310 - Curr & Tech in Spec Education

Curricular and assessment areas essential to education of students with disabilities. Development, adaptation of curricula and assessment in early education, elementary and secondary and adult levels for mild, moderate, and severe disabilities. Prerequisite: Instructor permission.

Credits: 3.00

EDSP 311 - Curr & Tech in Spec Education

Curricular and assessment areas essential to education of students with disabilities. Development, adaptation of curricula and assessment in early education, elementary and secondary and adult levels for mild, moderate, and severe disabilities. Prerequisite: Instructor permission.

Credits: 3.00

EDSP 312 - Adv Behavior Prin in Spec Ed

A survey on behavior theory and research applications for learners with learning

disabilities, mental retardation, behavior disorders, and multidisabilities.

Prerequisite: Acceptance to M.Ed. program or Instructor permission.

Credits: 3.00

EDSP 313 - Adv Behavior Prin in Spec Ed

A survey on behavior theory and research applications for learners with learning disabilities, mental retardation, behavior disorders, and multidisabilities.

Prerequisite: Acceptance to M.Ed. program or Instructor permission.

Credits: 3.00

EDSP 319 - Intern Sp Personnel in Spec Ed

Students will undertake an approved internship in an institution which reflects the particular area of interest and needs of the student. Prerequisite: Permission. for special education services. Prerequisite: Instructor permission.

Credits: 6.00

EDSP 322 - Intern: Triadic Model Consult

Competency-based instruction in oral and written communication, consultation, and workshop level training is provided. Students apply the consultation model in an educational setting. Prerequisite: EDSP 310, EDSP 312, or Instructor permission.

Credits: 3.00

EDSP 323 - Intern: Systems Development

Competency-based instruction in planning for system level development and change. Students apply systems theory in an educational setting. Prerequisite: EDSP 310, EDSP 312, or Instructor permission.

Credits: 3.00

EDSP 380 - Professional Problems in Educ

Designed to cover selected educational problems in depth. The major emphasis will be on intensive and critical analysis of the literature and practice in a given area.

Credits: 3.00

EDSP 386 - Intern:Mgmt Lrng Env for Hdcpd

Implementation of data-based individualized education in one-to-one, small group, and large group instruction for severely disabled student(s) in special or regular classrooms. Prerequisite: EDSP 217, EDSP 290, EDSP 228 or Instructor permission.

Credits: 3.00

EDSP 387 - Collaborative Consultation

Adult development and group dynamics theory provide the knowledge base for collaborating with parents and teachers to meet the diverse needs of students with disabilities. Cross-listed with: EDLP 387, EDSS 387.

Credits: 3.00

EDSP 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1.00 to 6.00

EDSP 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 3.00

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Courses in Speech (SPCH)

SPCH 011 - Effective Speaking

Fundamentals course in effective, informative, and persuasive public speaking and critical listening. Includes theory and practice.

Credits: 3.00

SPCH 095 - Special Topics

See Schedule of Courses for specific titles. Credits: 1-3. Fall only.

Credits: 6.00

SPCH 096 - Special Topics

See Schedule of Courses for specific titles. Credits: 1-3. Spring only.

Credits: 3.00

SPCH 111 - Persuasion

Human motivation, attitudes, emotion, stereotypes, attention and audience psychology as applied in the speaking situation. Prerequisite: SPCH 011.

Credits: 3.00

SPCH 112 - Argument & Decision

Inductive, deductive, causal, and analogical reasoning as applied to the speaking situation. Prerequisite: SPCH 011.

Credits: 3.00

SPCH 214 - Issues in Public Address

Each semester emphasizes analysis of specific speakers, movements, theses, and strategies encompassed by a selected topic of public address. Prerequisite: Nine hours of related courses, of which three must be at the 100 level.

Credits: 3.00

SPCH 283 - Seminar

Seminar topics include: Nonverbal Communication, Rhetorical Criticism, Advanced Argumentation, Advanced Persuasion, Debate, Interpersonal Communication in Group Interaction, Communication in Conflict Management. Prerequisite: Six hours of speech, of which at least three hours must be at the 100 level. Credits: 3. Fall only.

Credits: 3.00

SPCH 284 - Seminar

Seminar topics include: Nonverbal Communication, Rhetorical Criticism, Advanced Argumentation, Advanced Persuasion, Debate, Interpersonal Communication in Group Interaction, Communication in Conflict Management. Prerequisite: Six hours of speech, of which at least three hours must be at the 100 level. Credits: 3. Spring only.

Credits: 3.00

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Courses in Statistics (STAT)

STAT 011 - Intro to Stats via Microcomp

Various study designs considered. Graphical and analytic techniques for presenting results. Wide variety of applications surveyed. PC-based software used. Experience gained in sample survey work. Prerequisite: High school algebra.

Credits: 3.00

STAT 051 - Probability With Statistics

Introduction to probabilistic and statistical reasoning, including probability distribution models and applications to current scientific/social issues. Roles of probability, study design, and exploratory/confirmatory data analysis. Prerequisite: Two years H.S. algebra. No credit for Sophomores, Juniors, or Seniors in the mathematical and engineering sciences.

Credits: 3.00

STAT 095 - Special Topics

Lectures, reports, and directed readings at an introductory level. Prerequisite: As listed in course schedule.

Credits: 3.00

STAT 111 - Elements of Statistics

Basic statistical concepts, methods, and applications, including correlation, regression, confidence intervals, and hypothesis tests. Prerequisite: Two years of high school algebra; Sophomore standing.

Credits: 3.00

STAT 141 - Basic Statistical Methods

Foundational course for students taking further quantitative courses. Exploratory data analysis, probability distributions, estimation, hypothesis testing. Introductory regression, experimentation, contingency tables, and nonparametrics. Computer software used. Prerequisites: Math. 11, 13, 19 or 21, sophomore standing.

Credits: 3.00

STAT 143 - Statistics for Engineering

Data analysis, probability models, parameter estimation, hypothesis testing. Multi-factor experimental design and regression analysis. Quality control, SPC,

reliability. Engineering cases and project. Statistical analysis software.

Prerequisites: Math. 12, 14, 20 or 22, sophomore standing.

Credits: 3.00

STAT 151 - Applied Probability

Foundations of probability, conditioning, and independence. Business, computing, biological, engineering reliability, and quality control applications. Classical discrete and continuous models. Pseudo-random number generation.

Prerequisites: Math. 12, 14, 20 or 22.

Credits: 3.00

STAT 191 - Special Projects

Student-designed special project under supervision of a staff member culminating in a report. Prerequisite: Junior standing; permission of Program Director.

Credits: 3.00

STAT 195 - Special Topics

Lectures, reports, and directed readings. Prerequisite: As listed in course schedule.

Credits: 3.00

STAT 200 - Med Biostatistics&Epidemiology

(Same as Biostatistics 200.) Introductory design and analysis of medical studies. Epidemiological concepts, case-control and cohort studies. Clinical trials. Students evaluate statistical aspects of published health science studies. Prerequisite: 141 or 143; or 211.

Credits: 3.00

STAT 201 - Stat Analysis Via Computers

(Same as Biostatistics 201.) Intensive coverage of computer-based data processing and analysis using statistical packages, subroutine libraries, and user-supplied programs. Students analyze real data and prepare a comprehensive report. Prerequisites: 111 with instructor's permission, or 141, or corequisite 211.

Credits: 3.00

STAT 211 - Statistical Methods I

(Same as Biostatistics 211.) Fundamental concepts for data analysis and experimental design. Descriptive and inferential statistics, including classical and nonparametric methods, regression, correlation, and analysis of variance.

Statistical software. Prerequisite: Junior standing.

Credits: 3.00

STAT 221 - Statistical Methods II

(Same as Biostatistics 221.) Multiple regression and correlation. Basic experimental design. Analysis of variance (fixed, random, and mixed models). Analysis of covariance. Computer software usage. Prerequisites: 141 or 143; or 211.

Credits: 3.00

STAT 223 - Applied Multivariate Analysis

(Same as Biostatistics 223.) Multivariate normal distribution. Inference for mean

vectors and covariance matrices. Multivariate analysis of variance (MANOVA), discrimination and classification, principal components, factor analysis.

Prerequisites: Any 200-level Statistics course, 221 or 225 recommended, matrix algebra recommended.

Credits: 3.00

STAT 224 - Stats for Quality&Productivity

(Same as Biostatistics 224.) Statistical process control; Shewhart, cusum and other control charts; process capability studies. Total Quality Management.

Acceptance, continuous, sequential sampling. Process design and improvement. Case studies. Prerequisites: 141 or 143; or 211.

Credits: 3.00

STAT 225 - Applied Regression Analysis

(Same as Biostatistics 225.) Simple linear and multiple regression models; least squares estimates, correlation, prediction, forecasting. Problems of multicollinearity and influential data (outliers).

Credits: 3.00

STAT 227 - Adv Statistical Methods II

(Same as Psychology 341.) Prerequisite: 211 with computer experience or Psychology 340.

Credits: 3.00

STAT 229 - Survival Analysis

(Same as Biostatistics 229.) Probabilistic models and inference for time-to-event data. Censored data, life tables, Kaplan-Meier estimation, logrank tests, proportional hazards regression. Specialized applications (e.g. clinical trials, reliability). Prerequisites: Any 200-level Statistics course, one year of calculus.

Credits: 3.00

STAT 231 - Experimental Design

(Same as Biostatistics 231.) Randomization, complete and incomplete blocks, cross-overs, Latin squares, covariance analysis, factorial experiments, confounding, fractional factorials, nesting, split plots, repeated measures, mixed models, response surface optimization. Prerequisites: 211; 221 recommended.

Credits: 3.00

STAT 233 - Survey Sampling

(Same as Biostatistics 233.) Design and data analysis for sample surveys. Simple random, stratified, systematic, cluster, multistage sampling. Practical issues in planning and conducting surveys. Prerequisites: 211; or 141 or 143 with instructor's permission.

Credits: 3.00

STAT 235 - Categorical Data Analysis

(Same as Biostatistics 235.) Measures of association and inference for categorical and ordinal data in multiway contingency tables. Log linear and logistic regression models. Prerequisite: 211.

Credits: 3.00

STAT 237 - Nonparametric Statistical Mthd

(Same as Biostatistics 237.) Nonparametric and distribution free methods; categorical, ordinal, and quantitative data; confidence intervals; rank and chi-square hypothesis tests; computer-intensive procedures (bootstrap, exact tests). Prerequisites: 211; or 141 or 143 with instructor's permission. Credits: 3.00

STAT 241 - Statistical Inference

(Same as Biostatistics 241.) Introduction to statistical theory: related probability fundamentals, derivation of statistical principles, and methodology for parameter estimation and hypothesis testing. Prerequisites: 151 or 251; 141 or equivalent; Math. 121. Credits: 3.00

STAT 251 - Probability Theory

(Same as Math. 207.) Distributions of random variables and functions of random variables. Expectations, stochastic independence, sampling and limiting distributions (central limit theorems). Concepts of random number generation. Prerequisite: Math. 121, Statistics 151 recommended. Credits: 3.00

STAT 252 - Appl Models

Markov chain models for biological, social, and behavioral systems models. Random walks, transition and steady-state probabilities, passage and recurrence times. Prerequisite: 151 or 251. Credits: 1.00

STAT 253 - Appl Time Series & Forecasting

(Same as Biostatistics 253.) Autoregressive moving average (Box-Jenkins) models, autocorrelation, partial correlation, differencing for nonstationarity, computer modeling. Forecasting, seasonal or cyclic variation, transfer function and intervention analysis, spectral analysis. Prerequisite: 211 or 225; or 141 or 143 with instructor's permission. Credits: 3.00

STAT 256 - Neural Computation

(See Computer Science 256.) Credits: 3.00

STAT 261 - Statistical Theory I

(Same as Biostatistics 261, 262.) Point and interval estimation, hypothesis testing, and decision theory. Application of general statistical principles to areas such as nonparametric tests, sequential analysis, and linear models. Prerequisites: For 261: 151 with instructor permission or 251; for 262: 241 with instructor permission or 261. Credits: 3.00

STAT 265 - Integrated Product Development

(Same as Business Administration 293.) Credits: 3.00

STAT 270 - Stochastic Thry in Elec Eng

(See Electrical Engineering 270.)

Credits: 3.00

STAT 281 - Statistics Practicum

Intensive experience in carrying out a complete statistical analysis for a research project in substantive area with close consultation with a project investigator.

Prerequisites: Any one of 200, 201, 221 through 237; or 253; some statistical software experience. No credit for graduate students in Statistics or Biostatistics.

Credits: 3.00

STAT 293 - Undergrad Honors Thesis

A program of reading, research, design, and analysis culminating in a written thesis and oral defense. Honors notation appears on transcript and Commencement Program. Contact Statistics Program Director for procedures.

Credits: 3.00

STAT 294 - Undergrad Honors Thesis

A program of reading, research, design, and analysis culminating in a written thesis and oral defense. Honors notation appears on transcript and Commencement Program. Contact Statistics Program Director for procedures.

Credits: 4.00

STAT 295 - Special Topics

For advanced students. Lectures, reports, and directed readings on advanced topics. Prerequisite: As listed in course schedule.

Credits: 4.00

STAT 308 - Applied Biostatistics

Intensive introduction to the rationale for and application of biostatistical methods in planning experiments and interpreting data in the biological, health and life sciences. Cross-listings: Molecular Physiology and Biophysics 308, Biostatistics 308.

Credits: 5.00

STAT 321 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Corequisites: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.00

STAT 323 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Co-requisites: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.00

STAT 324 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Co-requisites: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.00

STAT 325 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Co-requisites: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.00

STAT 329 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Co-requisite: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.00

STAT 380 - Sem:Statistics & Biostatistics

Presentation and discussion of current topics, methodological research and applications in Statistics and Biostatistics by graduate students, faculty and guest speakers. Prerequisite: Instructor Permission.

Credits: 0.50

STAT 381 - Statistical Research

Methodologic or data analytic research culminating in oral and written reports to the faculty. Prerequisite: Instructor Permission. Cross-listed with: BIOS 381.

Credits: 3.00

STAT 385 - Consulting Practicum

Supervised field work in statistical consulting. Experiences may include advising UVM faculty and students or clients in applied settings such as industry and government agencies. Prerequisites: Second year Graduate standing in Statistics or Biostatistics and permission of Statistics Program Director.

Credits: 3.00

STAT 391 - Master's Thesis Research

Credits: 3.00

STAT 395 - Advanced Special Topics

Lectures or directed readings on advanced and contemporary topics not presently included in other statistics courses. Prerequisites: As listed in course schedule.

Cross-listed with: BIOS 395.

Credits: 3.00

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Courses in Surgery (SURG)

SURG 195 - EMT - Basic

Credits: 6.00

SURG 196 - EMT - Basic

Credits: 3.00

SURG 197 - EMT - Intermediate

Credits: 3.00

SURG 198 - EMT - Intermediate

Credits: 3.00

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Courses in Theatre (THE)

THE 001 - Introduction to Theatre

Overview of general theatre practices and theories, emphasizing history, script analysis, character development, and communicative skills directed toward a modern audience.

Credits: 3.00

THE 005 - Oral Interpretation of Lit

Performance of literature that is traditionally non-dramatic. Offered Summer Session only.

Credits: 3.00

THE 010 - Acting I: Intro to Acting

Exercises to increase self-awareness and heighten perceptions of human behavior. Basics of script analysis and development of vocal and physical skills through practice and performance.

Credits: 3.00

THE 020 - Fundamentals of Lighting

Primary course in the area of stage lighting design and execution.

Credits: 4.00

THE 030 - Fundamentals of Scenery

A hands-on introduction to the theory and practical application of the scenic elements involved in play production (drawing, building, and painting techniques).

Credits: 4.00

THE 040 - Fundamentals of Costuming

Primary course in area of costume design and construction. Fall.

Credits: 4.00

THE 041 - History of Costume

(Same as Community Development and Applied Economics 117 and Womens Studies 78.) Overview of period costume and its adaptation for the stage.

Alternating fall semesters.

Credits: 3.00

THE 042 - Fund Theatrical Make-up

Focus on the development of drawing, painting, and sculpture skills as they relate to the creation of a dramatic character for the stage. Prerequisite: 40. Alternating Fall semesters.

Credits: 3.00

THE 050 - Dramatic Analysis

Examination of structural characteristics of the basic forms and styles of drama and the manner in which they affect theatrical representation.

Credits: 3.00

THE 095 - Special Topics

See schedule for specific titles. Fall

Credits: 3.00

THE 110 - Acting II:Contmp Scene Study

Continuation of Acting I. Development of acting techniques through intensive scene work: refining script analysis and performance skills using contemporary scenes. Prerequisites: 10, permission for non-theatre majors and minors.

Credits: 3.00

THE 111 - Acting III:Voice & Speech

Study of the basics of voice production and Standard American Speech; exercises and practice focusing on freeing the voice and developing good vocal habits.

Prerequisites: 10 or permission for non-theatre majors and minors. Spring.

Credits: 3.00

THE 112 - Acting IV: Stage Movement

Development of physical freedom and articulate physical expression through techniques promoting relaxation, flexibility, strength, creative spontaneity, and purposeful movement. Techniques applied to short movement performances.

Prerequisite: 10, or permission for non-theatre majors and minors. Fall only.

Credits: 3.00

THE 120 - Lighting Design

Explores, through classroom instruction and projects, the development of lighting designs for a variety of live performance situations. Prerequisite: 20. Fall.

Credits: 3.00

THE 130 - Scene Design

A practical application of the elements, principles, and styles of theatrical stage design through research, sketching, and rendering techniques. Prerequisite: 30.

Credits: 3.00

THE 131 - Scene Painting Concepts&Appl

Lab course to study practical application of painting technique used in theatre, trompe l'oeil. Develops skills introduced in 30. Prerequisites: 30, 130, and either 20 or 40.

Credits: 3.00

THE 140 - Costume Design

Elements, principles, and styles of design applied to the visual creation of a dramatic character. Prerequisites: 40; 41 highly recommended. Spring.

Credits: 3.00

THE 141 - Adv Costume:Draping&Flat Pattn

Explores the methods of creating period shapes. Students develop a sloper, fit it to a human body, create a researched and completed period costume. Prerequisite: 40. Spring, every fourth year. Spring only.

Credits: 3.00

THE 142 - Adv Cost Const:Per Undrgarmts

Focuses on techniques for creating artificial understructures that support period silhouettes. Corsets, hoop skirts, petticoats, etc., are researched, fit on the human body, and constructed. Prerequisite: 40. Spring, every fourth year.

Credits: 3.00

THE 143 - Adv Costume Constr:Millinery

Explores methods of hat construction, including work in various media. Methods of shaping, covering, and trimming are researched, leading to the completion of hats. Prerequisites: 40. Spring, every fourth year.

Credits: 3.00

THE 144 - Adv Costume Constr:Tailoring

Explores traditional methods of tailoring as well as practical adaptations for the stage. Research, discussion, and demonstration lead to completion of a period suit. Prerequisite: 40. Spring, every fourth year.

Credits: 3.00

THE 150 - Hist I:Class/Med/Ren Thtr

A study of the theatrical rituals of Greece, Rome, and the Middle Ages leading to the reinvention of theatre in Renaissance Italy, England, and Spain. Prerequisites: 50 or English 95, Dramatic Analysis.

Credits: 3.00

THE 151 - Hst II:Ren France-20C Eur&USA

A study of the historical context, theatrical conventions, and the plays representations of Neoclassicism, Romanticism, Realism, and the revolts against Realism. Prerequisite: 150.

Credits: 3.00

THE 160 - Stage Management

Theory and practice for stage managing in the non-commercial theatre. Prerequisites: 10; two of 20, 30, 40, 50. Spring.

Credits: 3.00

THE 190 - Theatre Practicum

Students actively involved in current department productions may earn credit for work on stage or backstage. Project proposals must be approved by department faculty and be of significant scope to qualify for credit. Prerequisite: Variable, see department chair or advisors.

Credits: 3.00

THE 195 - Special Topics

See Schedule of Courses for specific titles. Credits: 1-3. Fall only.

Credits: 6.00

THE 196 - Special Topics

See Schedule of Courses for specific titles. Credits: 1-3. Spring only.

Credits: 3.00

THE 197 - Readings & Research

Credits: 9.00

THE 198 - Readings & Research

Credits: 0.50 to 9.00

THE 200 - Professional Preparation

Topics include preparing for auditions, portfolio reviews, interviews, and research papers for entrance into graduate schools or professional theatre venues.

Prerequisite: Junior/Senior standing and by Instructor permission only.

Credits: 3.00

THE 210 - Acting V:Shakespeare Scene Study

Refining and developing script analysis and performance skills using

Shakespeare, ancient Greek, Moliere, or other stylized texts. Prerequisite: 10. Fall.

Credits: 3.00

THE 230 - Advanced Scene Design

An in-depth study of the realization process for a stage design. A combination of script analysis, sketching, model making, rendering, and paint elevations, all as forms of communication. Prerequisites: 30, 130. Alternating fall semesters.

Credits: 3.00

THE 250 - Directing I

Theory of theatrical directing, including script analysis; approaches to audition, rehearsal, and performance; coaching actors. Prerequisites: 10, 20, 30, 40, 50; either 130 or 140, either 150 or 151. Fall.

Credits: 3.00

THE 251 - Directing II

Development of skills and aesthetic values through the direction of a complete one act play. Not offered as performance opportunity. Enrolled students may not perform as actors in their own projects. Prerequisites: 250, and declared senior Theatre majors only. Spring.

Credits: 3.00

THE 283 - Seminar

Fall only. Credits: 3

Credits: 3.00

THE 284 - Seminar

Spring only. Credits: 3

Credits: 3.00

THE 297 - Senior Readings and Research

Fall only. Credits: 3

Credits: 3.00

THE 298 - Senior Readings & Research

Spring only. Credits: 1-3

Credits: 3.00

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Courses in Vermont Studies (VS)

VS 052 - Introduction to Vermont

Survey of Vermont's geography, history, politics, social issues, ethnic populations, culture, and environment. Special emphasis on an interdisciplinary approach to the study of Vermont.

Credits: 3.00

VS 055 - Environmental Geology

See GEOL 055.

Credits: 4.00

VS 064 - Native Americans of Vermont

See ANTH 064. Cross-listed with: ANTH 064.

Credits: 3.00

VS 092 - Vermont Field Studies

Cross-listed with: GEOG 092.

Credits: 3.00

VS 095 - Introductory Special Topics

See schedule of courses for specific titles.

Credits: 3.00

VS 096 - Introductory Special Topics

See schedule of courses for specific titles.

Credits: 3.00

VS 123 - The Vermont Political System

See POLS 123. Prerequisite: POLS 021.

Credits: 3.00

VS 160 - The Literature of Vermont

(See English 160.)

Credits: 3.00

VS 184 - Vermont History

Survey of Vermont history from early times to the present. Prerequisite: Three Hours in History; HST 011 or HST 012 recommended. Cross-listed with: HST 184.

Credits: 3.00

VS 191 - Internships

Prerequisite: Nine hours of Vermont Studies; permission of Director of Vermont Studies; Junior/Senior standing.

Credits: 3.00

VS 192 - Vermont Field Studies

Prerequisite: Three hours in Geography. Cross-listed with: GEOG 192.

Credits: 3.00

VS 195 - Intermediate Special Topics

See schedule of courses for specific titles.

Credits: 3.00

VS 196 - Intermediate Special Topics

See schedule of courses for specific titles.

Credits: 3.00

VS 197 - Readings & Research

Prerequisite: Declared minor in Vermont Studies.

Credits: 3.00

VS 198 - Readings and Research

Prerequisite: Declared minor in Vermont Studies.

Credits: 3.00

VS 230 - The Vermont Economy

(See Economics 230, Seminar C.) Prerequisites: EC 170, 171, 172.

Credits: 3.00

VS 284 - Seminar in Vermont History

Topical approach to Vermont history through original research utilizing primary sources available at UVM, the Vermont Historical Society, and the Vermont State Archives. Prerequisites: Junior or senior standing, 12 hours of history, including 184 or permission. (Same as HST 284).

Credits: 3.00

VS 295 - Advanced Special Topics

See schedule of courses for specific titles. Prerequisite: Advanced undergraduate or graduate standing.

Credits: 3.00

VS 296 - Advanced Special Topics

See schedule of courses for specific titles. Prerequisite: Advanced undergraduate or graduate standing.

Credits: 4.00

VS 297 - Readings & Research

Prerequisite: Declared minor in Vermont Studies.

Credits: 1.00 to 3.00

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Courses in Wildlife & Fisheries Biology (WFB)

WFB 074 - Wildlife Conservation

Historical and contemporary values of wildlife; impacts on habitats and populations; strategies for conservation, allocation, and use. Nonmajors only. Prerequisite: Basic understanding of biological terms and concepts. Credits: 3.00

WFB 130 - Ornithology

Taxonomy, classification, identification, morphology, physiology, behavior, and ecology of birds. Prerequisite: BIOL 001, BIOL 002, or equivalent. Credits: 3.00

WFB 131 - Field Ornithology

Identification and field studies of birds, emphasizing resident species. Two weeks in summer. Prerequisite: WFB 130 . Preference to WFB majors. Credits: 2.00

WFB 150 - Wildf Habitat & Pop Measrmnt

Field methods for measuring habitat variables and estimating population parameters. One week in summer. Prerequisites: 131, Forestry 21 or Botany 109, Natural Resources 140. Credits: 1.00

WFB 161 - Fisheries Biology & Management

Introduction to freshwater fish, habitats, and life histories. Overview of fishery management techniques and principles, including sampling and assessment methods, stocking, population and habitat manipulation, and regulations. Prerequisites: Biology 1, 2 or equivalent. Credits: 4.00

WFB 174 - Prin of Wildlife Management

Application of ecology and sociology to the management of wildlife populations and habitat; integration of wildlife management with demands for other resources; consideration of game species, endangered species, and biological diversity. Prerequisites: Natural Resources 103 or Biology 102 or Botany 160. Credits: 3.00

WFB 175 - Wildlife and Society

Investigates how people's attitudes, institutions, policies, and behaviors have affected wildlife across the North American landscape. Alternate years.

Credits: 3.00

WFB 176 - Florida Ecology Field Trip

Major ecosystems and associated wildlife, ranging from north Florida flatwoods to south Florida Everglades. Field trip over spring recess. Prerequisite: WFB 130, WFB 174; Instructor permission. Alternate years.

Credits: 2.00

WFB 177 - Texas Wildlife Field Trip

Major ecosystems and associated wildlife of south Texas, including Gulf coast, coastal prairies, lower Rio Grande Valley, and Chihuahuan desert. Field trip over spring recess. Prerequisite: WFB 130; Instructor permission. Alternate years.

Credits: 2.00

WFB 185 - Special Topics

Credits: 3.00

WFB 186 - Special Topics

Credits: 3.00

WFB 187 - Undergrad Special Projects

Individual projects supervised by a faculty member. Projects may involve independent field, laboratory, or library investigations. Formal report required. Prerequisite: Junior standing; submission of a project prospectus for permission.

Credits: 1.00 to 5.00

WFB 188 - Undergrad Special Projects

Individual projects supervised by a faculty member. Projects may involve independent field, laboratory, or library investigations. Formal report required. Prerequisite: Junior standing; submission of a project prospectus for permission.

Credits: 1.00 to 5.00

WFB 191 - Wildlife & Fisheries Practicum

Supervised work experience in the wildlife and fisheries area. Prerequisite: Instructor permission. Credit as arranged.

Credits: 1.00

WFB 232 - Ichthyology

Biology of fishes. Focus is on form and function, morphology, physiology, behavior, life history, and ecology of modern fishes. Prerequisites: Biology 1, 2 or equivalent; junior standing. Alternate years. Undergraduate/ graduate credit.

Credits: 3.00

WFB 271 - Wetlands Wildlife

Breeding biology, behavior, habitat management, and population ecology of wetland wildlife with emphasis on waterfowl. Prerequisites: WFB 174, NR 103. Undergraduate/ graduate credit.

Credits: 4.00

WFB 272 - Wetlands Wildlife Laboratory

Laboratory and field assessment of the ecology and management of wetland habitats and their associated wildlife populations. Prerequisites: Previous or concurrent enrollment in WFB 271 or NR 260. Undergraduate/graduate credit. Credits: 1.00

WFB 273 - Terrestrial Wildlife

Integration of ecological principles, wildlife biology, land use, and human dimensions in wildlife. Emphasis on development and maintenance of terrestrial wildlife habitat, and population regulation of terrestrial species. Prerequisite: 174. Undergraduate/graduate credit. Credits: 3.00

WFB 274 - Terrestrial Wildlife Lab

Laboratory and field experience related to terrestrial species and management of their habitat. Field project required. Prerequisite: Previous or concurrent enrollment in 273. Credits: 1.00

WFB 275 - Wildlife Behavior

Behavior and social organization of game and nongame species as they pertain to population management. Prerequisites: One year of biology, an ecology course, 74 or 174 recommended. Undergraduate/graduate credit. Credits: 3.00

WFB 279 - Marine Ecology

Structure and function of major marine communities, including open ocean, benthos, coral reefs, and estuaries. Emphasis on unique ecological insights gained in the marine environment. Prerequisites: Biology 1 and 2, an ecology course, or instructor permission. Undergraduate/graduate credit. Credits: 3.00

WFB 285 - Advanced Special Topics

Credits: 4.00

WFB 286 - Advanced Special Topics

Credits: 4.00

WFB 287 - Advanced Special Projects

Advanced readings and discussions or special field and/or laboratory investigations dealing with a topic beyond the scope of existing formal courses. Prerequisite: Senior standing or permission. Credit arranged. (Not offered for graduate credit.) Credits: 3.00

WFB 288 - Advanced Special Projects

Advanced readings and discussions or special field and/or laboratory investigations dealing with a topic beyond the scope of existing formal courses. Prerequisite: Senior standing or permission. Credit arranged. (Not offered for graduate credit.) Credits: 2.00

WFB 299 - Wildlife & Fisheries Honors

Honors project dealing with wildlife or fisheries biology. Prerequisite: By application only; see program chair. UG only.

Credits: 3.00

WFB 311 - Ecology of Fishes

Structure of fish assemblages, zoogeography, morphology, life history strategies, bioenergetics, competition, predation, and fish effect on ecosystems.

Prerequisites: Graduate standing or Instructor permission; NR 140 or STAT 201; an ecology course.

Credits: 3.00

WFB 352 - Population Dynamics & Modeling

Modeling and analysis of animal population dynamics, as influenced by environmental, ecological, and management factors; estimation of population size, density, survivorship, reproduction, and migration. Prerequisite: NR 140 or STAT 211; an ecology course.

Credits: 4.00

WFB 387 - Graduate Special Problems

Advanced readings or special investigation dealing with a topic beyond the scope of existing formal courses or thesis research, culminating in an acceptable paper.

Prerequisite: Instructor Permission.

Credits: 3.00

WFB 388 - Graduate Special Problems

Advanced readings or special investigation dealing with a topic beyond the scope of existing formal courses or thesis research, culminating in an acceptable paper.

Prerequisite: Instructor Permission.

Credits: 3.00

WFB 391 - Master's Thesis Research

Credit as arranged.

Credits: 1.00 to 18.00

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Courses in Women's Studies (WST)

WST 073 - Intro to Women's Studies

Survey of feminist theory and its application to specific areas of inquiry, including analysis of the intersections among race, class, and gender.

Credits: 3.00

WST 076 - Women in Literature

(See English 42.)

Credits: 3.00

WST 078 - History of Costume

(See Theatre 41.)

Credits: 3.00

WST 084 - Mothers and Daughters

Interdisciplinary exploration of historical, social, and cultural definitions of the mother/daughter experience informed by contemporary feminist perspectives.

Credits: 3.00

WST 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

WST 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.00

WST 101 - Women and Society

(See Sociology 122.) Prerequisite: 73 or three hours of sociology.

Credits: 3.00

WST 111 - Wmns Spirit:Challenge Inst Rel

Women's experience of the sacred and the self in Eastern and Western religious traditions. Analysis of political and cultural structures alienating women from their experience.

Credits: 3.00

WST 115 - Studies in Gender & Religion

(See Religion 173.) Prerequisite: Three hours in religion or instructor's permission.

Credits: 3.00

WST 121 - Lit Genre:Wmn Writing Autobiog

(See English 181.) Prerequisite: Three hours in English or Women's Studies.

Credits: 3.00

WST 122 - 19th Century Women's Writing

(See English 147.) Prerequisite: Three hours in English or Women's Studies.

Credits: 3.00

WST 131 - Contemporary Feminist Art

Credits: 3.00

WST 141 - Gender and Law

Feminist jurisprudence and legal theory. Topics include economic consequences of reproduction, sexuality, divorce, custody; sexual harassment, employment discrimination; surrogate motherhood, domestic violence, rape, pornography, prostitution.

Credits: 3.00

WST 151 - Feminism:Theories and Issues

(See Philosophy 170.) Prerequisite: One course in philosophy or instructor's permission.

Credits: 3.00

WST 157 - Greek Feminism

The construction of the status of women in ancient Greek society. Readings include lyric, tragic, and comic poetry, philosophy, oratory, novel, and nonliterary documents. Prerequisite: Sophomore standing; three hours in literature, History, Anthropology, or Sociology. Cross-listed with: CLAS 157/HST 157/WLIT 157.

Credits: 3.00

WST 161 - History of Women in U S

Prerequisite: History 11 or 12, or three hours in Women's Studies. Cross-listed with: HST 182.

Credits: 3.00

WST 170 - Gender,Space & Environment

(See Geography 178.) Prerequisite: Six hours in geography or Women's Studies, or instructor's permission.

Credits: 3.00

WST 172 - Women and Depression

The exploration of the impact of gender socialization, sexual oppression, discrimination, self-esteem, and body image on women's mental health in our society.

Credits: 3.00

WST 174 - Women, Science & Nature

The position of women in relation both to science and nature is considered historically, culturally, and in terms of current feminist perspectives.

Credits: 3.00

WST 179 - Ecofeminism

(See Environmental Studies 179.) Prerequisite: 73 or Environmental Studies 1, 2.
Sophomore standing.
Credits: 3.00

WST 181 - Women in American Politics

(See Political Science 135.) Prerequisite: Political Science 21 or three hours in
Women's Studies.
Credits: 3.00

WST 191 - Internship

Approved programs of learning outside the classroom. Students work at local
women's agencies, in consultation with faculty sponsors. Prerequisites: A contract
must be obtained from and returned to the Women's Studies Program office during
registration; permission of Director of Women's Studies.
Credits: 3.00

WST 192 - Internship

Approved programs of learning outside the classroom. Students work at local
women's agencies, in consultation with faculty sponsors. Prerequisites: A contract
must be obtained from and returned to the Women's Studies Program office during
registration; permission of Director of Women's Studies.
Credits: 3.00

WST 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.
Credits: 3.00

WST 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.
Credits: 3.00

WST 201 - Sociology of Reproduction

(See Sociology 223.) Prerequisite: Six hours of sociology to include one of 29,
122, or 129; or instructor's permission.
Credits: 3.00

WST 205 - Women Dev Third Wrld Countries

(See Sociology 213.) Prerequisite: Six hours of sociology or instructor's
permission.
Credits: 3.00

WST 271 - Psychology of Women

(See Psychology 231.) Prerequisite: One psychology course at the 100 level or
instructor's permission.
Credits: 3.00

WST 273 - Seminar in Feminist Theory

An interdisciplinary examination of theories accounting for women's position in
culture and society. Special emphasis on the relationship between gender, race,
class, ethnicity, and sexuality. Prerequisites: 73, six additional hours in Women's
Studies, and admission to the Women's Studies major or minor program.

Credits: 3.00

WST 295 - Advanced Special Topics

See Schedule of Courses for specific titles. UG only.

Credits: 3.00

WST 296 - Advanced Special Topics

See Schedule of Courses for specific titles. UG only.

Credits: 3.00

WST 297 - Independent Study

Selection and development of topic for investigation using assigned faculty member as preceptor. Prerequisites: 73, approval of Director of Women's Studies.

Credits: 3.00

WST 298 - Independent Study

Selection and development of topic for investigation using assigned faculty member as preceptor. Prerequisites: 73, approval of Director of Women's Studies.

Credits: 3.00

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Courses in World Literature (WLIT)

WLIT 011 - French Lit in Translation

Selected topics in French literature. Readings and discussion of representative works in English translation. No knowledge of French required.
Credits: 3.00

WLIT 013 - Italian Lit in Translation

Selected topics in the literature of Italy. Readings and discussion of representational work in English translation. No knowledge of Italian is necessary.
Credits: 3.00

WLIT 014 - Spanish Lit in Translation

Selected topics in Spanish literature. Readings and discussion of representative works in English translation. No knowledge of Spanish required.
Credits: 3.00

WLIT 015 - Span-Amer Lit in Translation

Selected topics in Spanish-American literature. Readings and discussion of representative works in English translation. No knowledge of Spanish required.
Credits: 3.00

WLIT 016 - Latino Writers US:Contemp Pers

Study of texts written by Latinos since the 1960s. Topics: construction of "ethnic identities," representation of race/gender relations; writers and their communities.
Credits: 3.00

WLIT 017 - German Lit in Translation

Topics such as German author(s), genre, literary movement, or theme such as Goethe, proverbs, Expressionism, Faust, Holocaust, or the German film.
Credits: 3.00

WLIT 018 - Russian Lit in Translation

Topics such as Russian author(s) (e.g. Dostoevsky, Tolstoy), genre (e.g. the Russian novel), literary school (e.g. Russian Formalism), or period (19th or 20th century literature).
Credits: 3.00

WLIT 024 - Myths & Legends of Trojan War

Homeric epics, Virgil's Aeneid, selections from tragedy dealing with the Trojan War and Greco-Roman cultural identity. Examples from art and archaeology supplement the literary theme. Cross-listed with: CLAS 024.

Credits: 3.00

WLIT 035 - The End of the Roman Republic

Participants describe the Republic's end: Caesar justifies conquest and civil war; Catullus and Sallust reveal a society in turmoil; Cicero documents first-century politics: political gangs, bribery, and violence. Cross-listed with: CLAS 035.

Credits: 3.00

WLIT 037 - Early Roman Emp:Lit&Translat'n

Poetry and prose in the first century C.E. (the age of Augustus, Nero, Trajan), emphasizing varieties and limitations of political and literary freedom. Cross-listed with: CLAS 037.

Credits: 3.00

WLIT 042 - Mythology

Cross-listed with CLAS 042.

Credits: 3.00

WLIT 095 - Special Topics

Special topics in literary studies. Individual courses might include comparative study of particular literary genres, periods, authors or works from varied international literatures.

Credits: 3.00

WLIT 096 - Special Topics

Special topics in literary studies. Individual courses might include comparative study of particular literary genres, periods, authors or works from varied international literatures.

Credits: 3.00

WLIT 110 - Classical Chinese Lit in Trans

Selected topics in Chinese Literature. Reading and discussion are in English. No knowledge of Chinese language is required.

Credits: 3.00

WLIT 111 - French Lit in Translation

Credits: 3.00

WLIT 112 - Francophone Lit in Translation

Selected topics in the literature of the French-speaking world (excluding France). Readings and discussion of representative works in English translation. No knowledge of French required. Prerequisite: Sophomore standing or Instructor permission.

Credits: 3.00

WLIT 113 - Italian Lit in Translation

Readings and discussion of representational work in English translation. No knowledge of Italian is necessary. Prerequisite: Sophomore standing or instructor permission.

Credits: 3.00

WLIT 114 - Spanish Lit in Translation

Selected topics in Spanish literature. Readings and discussion of representative works in English translation. No knowledge of Spanish required. Prerequisite: Sophomore standing or Instructor permission.

Credits: 3.00

WLIT 115 - Span-Amer Lit in Translation

Selected topics in Spanish-American literature. Readings and discussion of representative works in English translation. No knowledge of Spanish required. Prerequisite: Sophomore standing or Instructor permission.

Credits: 3.00

WLIT 116 - Latino Writers US:Contemp Pers

Study of texts written by Latinos since the 1960s. Topics: construction of "ethnic identities," representation of race/gender relations; writers and their communities. Prerequisite: Sophomore standing or Instructor permission.

Credits: 3.00

WLIT 117 - German Lit in Translation

Topics such as German author(s), genre, literary movement, or theme such as Goethe, proverbs, Expressionism, Faust, Holocaust, or the German film. Prerequisite: Sophomore standing; Instructor permission.

Credits: 3.00

WLIT 118 - Russian Lit in Translation

Topics such as Russian author(s) (e.g. Dostoevsky, Tolstoy), genre (e.g. the Russian novel), literary school (e.g. Russian Formalism), or period (19th or 20th century literature). Prerequisite: Sophomore standing.

Credits: 3.00

WLIT 122 - Dante's Comedy

A study of Dante's Comedy in Modern English translation. (Same as English 122.)

Credits: 3.00

WLIT 145 - Comparative Epic

Prerequisite: Sophomore standing. Cross-listed with: CLAS 145.

Credits: 3.00

WLIT 154 - Stories and Histories

Prerequisite: Sophomore standing; three hours in Classics.

Credits: 3.00

WLIT 155 - Ancient Epic

Homer, Apollonius, and Vergil, as well as readings selected from other Greek and Latin epic (including epyllia) and didactic poetry. Prerequisite: Sophomore standing. Cross-listed with: CLAS 155.

Credits: 3.00

WLIT 156 - Greek & Roman Satiric Spirit

Comedy, satire, epigram and prose fantasy as vehicles for political, social, and literary criticism in the Greco-Roman world. Prerequisite: Sophomore standing.

Cross-listed with: CLAS 156.

Credits: 3.00

WLIT 195 - Special Topics

Special topics in literary studies. Individual courses might include comparative study of particular literary genres, periods, authors or works from varied international literatures. Prerequisite: Sophomore standing or Instructor permission.

Credits: 3.00

WLIT 196 - Special Topics

Special topics in literary studies. Individual courses might include comparative study of particular literary genres, periods, authors or works from varied international literatures. Prerequisite: Sophomore standing or Instructor permission.

Credits: 3.00

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<u>ALANA U.S. Ethnic Studies</u>	<u>Minor</u>	ALANA U.S. Ethnic Studies, CAS
<u>Accounting</u>	<u>B. S., Minor</u>	SBA
<u>African Studies</u>	<u>Minor</u>	Area and International Studies, CAS
<u>African-, Latino/a-, Asian-, Native American (ALANA) Studies</u>	<u>Minor</u>	ALANA Studies, CAS
<u>Agriculture and the Environment</u>	<u>B. S.-CALS, B. S.-ENVNR</u>	Environmental Sciences, CALS, ENVNR
<u>Agriculture and Resource Entrepreneurship</u>	<u>B. S., Minor</u>	Community Development and Applied Economics, CALS
<u>Agroecology/Sustainable Agriculture</u>	<u>B. S.</u>	Plant and Soil Science, CALS
<u>Anatomy and Neurobiology</u>	<u>M. S., Ph. D.</u>	Anatomy and Neurobiology, GRAD
<u>Animal Science (overall)</u>	<u>B. S., Minor, M. S., Ph. D.</u>	Animal Science, CALS, GRAD
<u>Animal Science, General (concentration)</u>	<u>B. S.</u>	Animal Science, CALS
<u>Anthropology</u>	<u>B. A., Minor</u>	Anthropology, CAS

<u>Applied and Interdisciplinary Mathematics</u>	<u>B. A.</u>	Mathematics and Statistics, CAS
<u>Applied Design</u>	<u>Minor</u>	Community Development and Applied Economics, CALS
<u>Applied Mathematics</u>	<u>Minor</u>	Mathematics and Statistics, CEM
<u>Archaeology</u>	<u>Minor</u>	Anthropology, CAS
<u>Area and International Studies</u>	B. A., <u>Minor</u>	Area and International Studies, CAS
<u>Art Education (K-12)</u>	<u>B. S.</u> , <u>Postbaccalaureate Certificate</u>	Education, CESS
<u>Art History</u>	<u>B. A.</u> , <u>Minor</u>	Art, CAS
<u>Art, Studio</u>	<u>B. A.</u> , <u>Minor</u>	Art, CAS, CE-EU
<u>Asian Studies</u>	<u>B. A.</u> , <u>Minor</u>	Area and International Studies, CAS

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<u>Biochemistry (graduate)</u>	<u>M. S.</u> , <u>Ph. D.</u>	Biochemistry, GRAD
<u>Biochemistry (undergraduate)</u>	<u>B. S.</u>	Biochemistry(UGProgram), CALS, CAS
<u>Biological Sciences</u>	<u>B. S.</u> , <u>Minor</u>	Biological Sciences, CALS
<u>Biology, General (concentration)</u>	<u>B. A.</u> , <u>B. S.</u>	Biology, CAS
<u>Biology (overall)</u>	B. A., B. S., <u>Minor</u> , <u>M. A.</u> , <u>M. S.</u> , <u>Ph. D.</u>	Biology, CAS, GRAD
<u>Biomedical Electrical Engineering</u>	<u>B. S.</u>	Electrical and Computer Engineering, CEM
<u>Biomedical Engineering</u>	<u>M. S.</u>	Mechanical Engineering, GRAD
<u>Biomedical Mechanical Engineering</u>	<u>B. S.</u>	Mechanical Engineering, CEM
<u>Biomedical Technologies (overall)</u>	<u>B. S.</u> , <u>Minor</u> , <u>M. S.</u>	Biomedical Technologies, CNHS, GRAD
<u>Biomedical Technology (concentration)</u>	<u>B. S.</u>	Biomedical Technologies, CNHS
<u>Biomolecular Chemistry</u>	<u>B. A.</u>	Chemistry, CAS

<u>BioStatistics</u>	<u>M. S.</u>	Mathematican&statistics, GRAD
<u>Botany (overall)</u>	<u>B. A.</u> , B. S., <u>Minor</u> , M. S., <u>M. S. T.</u> , <u>M. A. T.</u> , <u>Ph.D.</u>	Botany, CALS, CAS, GRAD
<u>Botany, General</u> (concentration)	<u>B. S.</u>	Botany, CALS
<u>Business</u>	<u>Minor</u>	SBA
<u>Business Administration</u>	<u>B. S.</u> , <u>M. B. A.</u>	SBA, GRAD

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<u>Canadian Studies</u>	<u>B. A.</u> , <u>Minor</u>	Area and International Studies, CAS
<u>Cell and Molecular Biology</u>	<u>B. A.</u> , <u>B. S.</u> , <u>M. S.</u> , <u>Ph. D.</u>	Biology, CAS, GRAD
<u>Chemistry</u>	B. A., <u>B. S.</u> , <u>Minor</u> <u>M. A.</u> <u>T.</u> , <u>M. S.</u> , <u>Ph. D.</u>	Chemistry, CAS, GRAD
<u>Chemistry,General</u> (concentration)	<u>B. A.</u>	Chemistry, CAS
<u>Chinese</u>	<u>Minor</u>	EastAsianLanguages,CAS
<u>Civil and Environmental Engineering (overall)</u>	B. S., <u>M. S.</u> , <u>Ph. D.</u>	Civil and Environmental Engineering, CEM, GRAD
<u>Civil Engineering, Engineering Management</u> (concentration)	<u>B. S.</u>	Engineering Management, CEM
<u>Civil Engineering</u>	<u>B. S.</u>	Civil and Environmental Engineering, CEM
<u>Classical Civilization</u>	<u>B. A.</u> , <u>Minor</u>	Classics, CAS
<u>Communication Sciences</u>	<u>B. A.</u> , <u>Minor</u> <u>M. S.</u>	Communication Sciences, CAS, GRAD
<u>Community Development and Applied Economics</u>	<u>M. S.</u>	Community Development and Applied Economics, GRAD
<u>Community and International Development</u>	<u>Minor</u>	Community Development and Applied Economics, CALS
<u>Computer Engineering</u>	<u>B. S.</u>	Electrical and Computer Engineering, CEM
<u>Computer Science (overall)</u>	<u>B. A.</u> , <u>B. S.</u> , <u>Minor</u> , <u>M. S.</u>	Computer Science, CAS, CEM, GRAD, CE-EU

<u>Computer Science (concentration)</u>	<u>B. S.</u>	Computer Science, CEM
<u>Computer Science and Information Systems</u>	<u>B. S.</u>	Computer Science, CEM
<u>Conservation Biology and Biodiversity/Environmental Sciences</u>	<u>B. S.-CAL S, B. S.-ENVNR</u>	Environmental Sciences, CALS, ENVNR
<u>Consulting Teacher/Special Education</u>	<u>M. Ed.</u>	Education, Integrated Professional Studies, GRAD
<u>Consulting Teacher/Learning Specialist(Special Education)</u>	<u>Post-Master's Certificate</u>	Education, Integrated Professional Studies, CESS
<u>Consumer and Advertising</u>	<u>Minor</u>	Community Development and Applied Economics, CALS
<u>Consumer Affairs</u>	<u>Minor</u>	Community Development and Applied Economics, CALS
<u>Counseling</u>	<u>M. S., Post-Master's Certificate</u>	Integrated Professional Studies, GRAD, CESS
<u>Curriculum and Instruction</u>	<u>M. Ed.</u>	Education, GRAD
<u>Cytotechnology</u>	<u>B. S.</u>	Biomedical Technologies, CNHS

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<u>Dairy Production / Farm Management</u>	<u>B. S.</u>	Animal Science, CALS
<u>Dental Hygiene</u>	<u>A.S.</u>	Dental Hygiene, CNHS
<u>Dietetics</u>	<u>B. S.</u>	Nutrition and Food Sciences, CALS

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<u>Early Childhood Education (PreK-3)</u>	<u>B. S.</u>	Integrated Professional Studies, CESS
<u>Early Intervention (Special Education)</u>	<u>Post-Master's Certificate</u>	Integrated Professional Studies, CESS
<u>Ecological Design</u>	<u>B. S.-CAL S, B. S.-ENVNR</u>	Environmental Sciences, CALS, ENVNR
<u>Ecology and Environmental Biology of Plants</u>	<u>B. S.</u>	Botany, CALS
<u>Economics</u>	<u>B. A., Minor</u>	Economics, CAS
<u>Educational Leadership</u>	<u>M. Ed., Post-Master's Certificate</u>	Education, GRAD, CESS
<u>Educational Leadership and Policy Studies</u>	<u>Ed. D.</u>	Education, GRAD
<u>Educational Studies</u>	<u>M. Ed.</u>	Education, GRAD
<u>Electrical Engineering (overall)</u>	<u>B. S., Minor, M. S., Ph. D.</u>	Electrical and Computer Engineering, CEM, GRAD
<u>Electrical Engineering, Engineering Management (concentration)</u>	<u>B. S.</u>	Engineering Management, CEM
<u>Electrical Engineering, General (concentration)</u>	<u>B. S.</u>	Electrical and Computer Engineering, CEM
<u>Elementary Education (K-6)</u>	<u>B. S., Postbaccalaureate Certificate</u>	Education, CESS
<u>Engineering Management</u>	<u>B. S.</u>	CEM
<u>English</u>	<u>B. A., Minor, M. A., M. A.-T.</u>	English, CAS, GRAD, CE-EU
<u>Entrepreneurship</u>	<u>B. S.</u>	SBA
<u>Environmental Analysis and Assessment</u>	<u>B. S.-CAL S, B. S.-ENVNR</u>	Environmental Sciences, CALS, ENVNR
<u>Environmental Biology (Biology concentration)</u>	<u>B. A., B. S., Minor</u>	Biology, CAS
<u>Environmental Chemistry</u>	<u>B. S., Minor</u>	Chemistry, CAS
<u>Environmental Engineering</u>	<u>B. S.</u>	Civil and Environmental Engineering, CEM
<u>Environmental Geology (concentration)</u>	<u>B. A., B. S., Minor</u>	Environmental Sciences, Geology, CAS
<u>Environmental Resources</u>	<u>B. S.-CAS, B. S.-ENVNR, Minor</u>	Environmental Sciences, CALS, ENVNR
<u>Environmental Sciences (CAL S, ENVNR)</u>	<u>B. S.-CAL S, B. S.-CAS, B. S.-ENVNR</u>	Environmental Sciences, CALS, ENVNR, CAS
<u>Environmental Sciences (CAS)</u>		

<u>Environmental Soil Science</u>	B. S.	Plant and Soil Science, CALS
<u>Environmental Studies</u>	B. S.-CALC , B. A.-CAS , B. S.-ENVNR , Minor	Environmental Studies, CALS, CES, ENVNR, CAS
<u>Equine Science</u>	B. S.	Animal Science, CALS
<u>Essential Early Education/Special Education</u>	M. Ed.	Education, Integrated Professional Studies, GRAD
<u>European Studies (Western, Northern, Mediterranean)</u>	B. A. , Minor	Area and International Studies, CAS

***College and School Acronyms**

CALS = College of Agriculture and Life Sciences

CAS = College of Arts and Sciences

CE-EU = Continuing Education-Evening University

CEM = College of Engineering and Mathematics

CESS = College of Education and Social Services

CNHS = College of Nursing and Health Sciences

GRAD = Graduate College

SBA = School of Business Administration

ENVNR = The Rubenstein School of Environment and Natural Resources

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Family and Consumer

Sciences Education (7-12) [B. S.](#)

Education, CESS

Field Naturalist

[M. S.](#)

Botany, GRAD

Film Studies

[Minor](#)

English, CAS

Finance

[B. S.](#)

SBA

Fisheries Biology

[B. S.](#)

Wildlife and Fisheries
Biology, ENVNR Biology,
CAS

Forensic Biology

[B. A.](#)

Forestry

[B. S.](#), [Minor](#), [M. S.](#), [B.S./M.P.A.](#)

Forestry, ENVNR, GRAD

French

[B. A.](#), [Minor](#), [M. A.](#), [M. A. T.](#)

Romance Languages,
CAS, GRAD

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Geography

[B. A.](#), [Minor](#), [M. A.](#), [M. A. T.](#)

Geography, CAS, GRAD

<u>Geology (overall)</u>	B. A., B. S., Minor , <u>M. A. T.</u> , <u>M. S.</u> , <u>M. S. T.</u>	Geology, CAS , GRAD
<u>German</u>	B. A. , Minor , <u>M. A.</u> , <u>M. A. T.</u>	German and Russian, CAS, GRAD
<u>Gerontology</u>	Minor	Sociology, CAS
<u>Greek</u>	B. A. , Minor	Classics, CAS
<u>Greek and Latin</u>	<u>M. A.</u> , <u>M. A. T.</u>	Classics, GRAD

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<u>Higher Education and Student Affairs Administration</u>	<u>M. Ed.</u>	Integrated Professional Studies, GRAD
<u>Historic Preservation</u>	<u>M. S.</u>	Historic Preservation, GRAD
<u>History</u>	B. A. , Minor , <u>M. A.</u> , <u>M. A. T.</u> , <u>B.A./M.A.</u>	History, CAS, GRAD
<u>Holocaust Studies</u>	Minor	Holocaust Studies, CAS
<u>Horticulture</u>	B. S.	Plant and Soil Science, CALS
<u>Human Development and Family Studies</u>	B. S. , Minor	Integrated Professional Studies, CESS
<u>Human Resource Management</u>	B. S.	SBA

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<u>Individually Designed Major</u>	B. A.-CAS , B. S.-CALC , B. S.-CESS , Minor-CAS , <u>M. Ed.</u> , <u>Post-Master's Certificate</u>	CALS, CAS, CESS, GRAD
<u>Integration Specialist (Special Education)</u>	<u>Post-Master's Certificate</u>	Education, CESS

<u>Intensive Special Education (Special Education)</u>	<u>M. Ed., Post-Master's Certificate</u>	Education, CESS
<u>International Development, Community and</u>	<u>Minor</u>	Community Development and Applied Economics, CALS
<u>International Management</u>	<u>B. S.</u>	SBA
<u>Italian</u>	<u>Minor</u>	Romance Languages, CAS
<u>Italian Studies</u>	<u>Minor</u>	Romance Languages, CAS

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<u>Japanese</u>	<u>Minor</u>	East Asian Languages, CAS
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<u>Latin</u>	<u>B. A., Minor, M. A. T.</u>	Classics, CAS, GRAD
<u>Latin American Studies</u>	<u>B. A., Minor</u>	Area and International Studies, CAS
<u>Literacy and Special Education/Special Education</u>	<u>M. Ed.</u>	Education, GRAD

***College and School Acronyms**

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Management Information Systems					B. S.			SBA
Marketing					B. S.			SBA
Materials Science					M. S. , Ph. D. , B.S./M.S.			Materials Science, GRAD
Mathematical Sciences					Ph. D.			Mathematics and Statistics, GRAD
Mathematics (overall)					B. A. , B. S. , Minor; M. S. ; M. A. T. ; M. S. T. , B.S./M.S.			Mathematics and Statistics, CEM, CAS, GRAD, CE-EU
Mathematics (concentration)					B. A. , B. S.			Mathematics and Statistics, CEM, CAS
Mechanical Engineering (overall)					B. S. , M. S. , Ph. D.			Mechanical Engineering, CEM, GRAD
Mechanical Engineering, General (concentration)					B. S. , B.S./M.S.			Mechanical Engineering, CEM
Mechanical Engineering, Engineering Management (concentration)					B. S.			Engineering Management, CEM
Medical Laboratory Science					B. S.			Biomedical Technologies, CNHS
Medicine					M.D./M.S. and M.D./Ph.D.			GRAD

<u>Microbiology</u>	B. S. , Minor	Microbiology and Molecular Genetics, CALS																					
<u>Microbiology and Molecular Genetics (overall)</u>	B. S. , Minor ; M. S. , Ph. D. , B.S./M.S.	Microbiology and Molecular Genetics, CALS, GRAD																					
<u>Middle Eastern Studies</u>	Minor	Area and International Studies, CAS																					
<u>Middle-Level Education (5-8)</u>	B. S. , Postbaccalaureate Certificate	Education, CESS																					
<u>Molecular Diagnostics</u>	Minor	Biomedical Technologies, CNHS																					
<u>Molecular Genetics</u>	B. S. , Minor	Microbiology and Molecular Genetics, CALS																					
<u>Molecular Physiology and Biophysics</u>	M. S. , Ph. D.	Molecular Biology and Biophysics, GRAD																					
<u>Movement Sciences and Rehabilitation</u>	M. S.	Physical Therapy, GRAD																					
<u>Music (overall)</u>	B. A. , Minor	Music, CAS																					
<u>Music Education (K-12)</u>	B. S. , Postbaccalaureate Certificate	Education, CESS																					
<u>Music Performance</u>	B.M.	Music, CAS																					
<u>Music Theory</u>	B.M.	Music, CAS																					
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H	I	J	L	M	P	R																	
S	T	V	W	Z	OTHER																		
<u>Natural Resources (overall)</u>	B.S. , Ph. D.	Natural Resources, ENVNR, GRAD																					
<u>Natural Resources, Integrated</u>	B. S.	Natural Resources, ENVNR																					
<u>Natural Resources, Resource Ecology</u>	B. S.	Natural Resources, ENVNR																					
<u>Natural Resources, Resource Planning</u>	B. S. , M. S.	Natural Resources, ENVNR, GRAD																					
<u>Neurobiology</u>	B. A. , B. S.	Biology, CAS																					

<u>Nuclear Medicine Technology</u>	B. S.	Biomedical Technologies, CNHS
<u>Nursing</u>	B. S. , M. S. , B.S./M.S.	Nursing, CNHS, GRAD
<u>Nutrition and Food Sciences</u>	B. S. , Minor , M. S.	Nutrition and Food Sciences, CALS, GRAD

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<u>Pathology</u>	M. S.	Pathology, GRAD
<u>Pharmacology</u>	M. S. , Ph. D.	Pharmacology, GRAD
<u>Philosophy</u>	B. A. , Minor B. S. ,	Philosophy, CAS
<u>Physical Education (K-12)</u>	Postbaccalaureate Certificate	Education, CESS
<u>Physical Sciences (Chemistry and Physics)</u>	M. S.-Chemistry , M. S.-Physics	Chemistry, Physics, GRAD
<u>Physical Therapy</u>	M. P. T.	Physical Therapy, CNHS, GRAD
<u>Physics</u>	B. A. , B. S. , Minor , M. S. , M. A. T. , M. S. T. , B.S./M.S.	Physics, CAS, GRAD
<u>Plant and Soil Science (overall)</u>	B. S. , Minor , M. S. , Ph. D.	Plant and Soil Science, CALS, GRAD
<u>Plant Molecular Biology</u>	B. S.	Botany, CALS
<u>Political Science</u>	B. A. , Minor B. S.-Electrical and Computer Engineering , B. S.-Mechanical Engineering	Political Science, CAS
<u>Premedical Engineering</u>		Electrical Engineering, Mechanical Engineering, CEM
<u>Preveterinary / Preprofessional Science</u>	B. S. , B.S./D.V.M.	Animal Science, CALS
<u>Private Outdoor Recreation and Tourism</u>	B. S.	Recreation Management, ENVNR
<u>Production and Operations</u>	B. S.	SBA
<u>Professional Biology</u>	B. A. , B. S.	Biology, CAS
<u>Public Outdoor Recreation</u>	B. S.	Recreation Management, ENVNR

<u>Psychology (overall)</u>	B. A. , B. S., Minor , M. A. , Ph. D.	Psychology, CAS, GRAD
<u>Psychology Biobehavioral</u>	B. S.	Psychology, CAS
<u>Psychology Traditional</u>	B. S.	Psychology, CAS
<u>Public Administration</u>	M. P. A.	Public Administration, Community Development and Applied Economics, CALs, GRAD
<u>Pure Mathematics</u>	Minor	Mathematics and Statistics, CEM, CAS

	A	B	C	D	E	F	G
	H	I	J	L	M	N	P
	S	T	V	W	Z	OTHER	

<u>Radiation Therapy</u>	B. S.	Biomedical Technologies, CNHS
<u>Reading and Language Arts</u>	M. Ed.	Education, GRAD
<u>Recreation Management</u>	B. S. , Minor	Recreation Management, ENVNR
<u>Religion</u>	B. A. , Minor	Religion, CAS
<u>Resource Ecology</u>	B. S.	Natural Resources, ENVNR
<u>Resource Planning</u>	B. S.	Natural Resources, ENVNR
<u>Russian</u>	B. A. , Minor	German and Russian, CAS
<u>Russian/Eastern European Studies</u>	B. A. , Minor	Area and International Studies Program, CAS

	A	B	C	D	E	F	G
	H	I	J	L	M	N	P
	R	T	V	W	Z	OTHER	

	Undergraduate Teacher Licensure , B. S. , Postbaccalaureate	Education, CESS
<u>Secondary Education (7-12)</u>		

	<u>Certificate, M. Ed.</u>	
	<u>B. A.-CAS, B. S.-CALs,</u>	
Self-Designed	<u>B. S.-CESS, Minor-</u> <u>CAS, M. Ed., Post-</u>	CALS, CAS, CESS, GRAD
	<u>Master's Certificate</u>	
<u>Social Anthropology</u>	<u>Minor</u>	Anthropology, CAS
<u>Social Work</u>	<u>B. S., M. S. W.</u>	Social Work, CESS, GRAD
<u>Sociolinguistics</u>	<u>Minor</u>	Anthropology, CAS
<u>Sociology</u>	<u>B.A, Minor</u>	Sociology, CAS, CE-EU
<u>Solid Earth, Geology</u>	<u>B. A., B. S.</u>	Geology, CAS
<u>Spanish</u>	<u>B. A., Minor</u>	Romance Languages, CAS
<u>Speech</u>	<u>Minor</u>	Theatre, CAS
<u>Special Education</u>	<u>Minor, M.Ed. Post-</u> <u>Master's Certificate</u>	Integrated Professional Studies, CESS, GRAD
<u>Statistics</u>	<u>B. A., B. S., Minor, M. S.</u>	Mathematics and Statistics, CEM, GRAD
<u>Studio Art</u>	<u>B. A., Minor</u>	Art, CAS, CE-EU
<u>Sustainable Agriculture</u>	<u>Minor</u>	Plant and Soil Science, CALs
<u>Sustainable Landscape Horticulture</u>	<u>B. S.</u>	Plant and Soil Science, CALs

***College and School Acronyms**

CALS = College of Agriculture and Life Sciences

CAS = College of Arts and Sciences

CE-EU = Continuing Education-Evening University

CEM = College of Engineering and Mathematics

CESS = College of Education and Social Services

CNHS = College of Nursing and Health Sciences

GRAD = Graduate College

SBA = School of Business Administration

ENVNR = The Rubenstein School of Environment and Natural Resources

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Academic Offerings A to Z

Subject

Degree(s) Contact(s)*

	A	B	C	D	E	F	G
	H	I	J	L	M	N	P
	R	S	V	W	Z	OTHER	

Teacher Education

[B.S.](#)

Education, CESS

Theatre

[B.A.,
Minor](#)

Theatre, CAS

	A	B	C	D	E	F	G
	H	I	J	L	M	N	P
	R	S	T	W	Z	OTHER	

Vermont Studies

[Minor](#)

Vermont Studies, CAS

Veterinary Medicine (Pre-veterinaryScience)

[B.S.](#)

Animal Science, CALS


	A	B	C	D	E	F	G
	H	I	J	L	M	N	P
	R	S	T	V	Z	OTHER	

<u>Water Resources</u>	B.S. , M.S.	Environmental Sciences, Natural Resources, Water Resources, CALS, ENVNR
<u>Wildlife and Fisheries Biology (overall)</u>	B.S. , Minor , M.S.	Wildlife and Fisheries Biology, ENVNR
<u>Wildlife Biology (concentration)</u>	B.S. , Minor	Wildlife and Fisheries Biology, ENVNR
<u>Women's Studies</u>	B.A. , Minor	Women's Studies, CAS, CE-EU

	A	B	C	D	E	F	G
	H	I	J	L	M	N	P
	R	S	T	V	W	OTHER	

<u>Zoology</u>	B.A. , B.S. , Minor	Biology, CAS
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Subject	Contact(s)*						
	A	B	C	D	E	F	G
	H	I	J	L	M	N	P
	R	S	T	V	W	Z	

Athletic Training Concentration	Education, CESS
Evening Degrees	Art, English, Mathematics, Psychology, Sociology, CE-EU
Gerontology Certificate	CE-EU
Healthcare Management Certificate	Public Administration, SBA, CNHS, CE-EU
Medical Degrees and Programs 	College of Medicine
Military Studies	Military Studies
Post-Baccalaureate	CE-EU
Premedical Program	
Pre-Dental Studies	Career Services
Pre-Law Studies	Career Services, CAS

***College and School Acronyms**

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Departments and Programs

ALANA U.S. / Ethnic Studies Program

Colleges: [Arts and Sciences](#)

Faculty: [ALANA U.S. / Ethnic Studies](#)

Course: [ALANA U.S. / Ethnic Studies \(ALAN\)](#)

Contact Information:

*University of Vermont
ALANA Studies Program
A504 Old Mill Annex
94 University Place
Burlington, VT 05405-0114*

Phone: (802) 656-2263

Fax: (802) 656-8653

Email: Stella.Moyser@uvm.edu

Web Site: <http://www.uvm.edu/~alana/>

Academic Offerings

- Undergraduate Minors
 - [ALANA U.S. Ethnic Studies](#)

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Minor in Accounting

College: [School of Business Administration](#)

Requirements

Prerequisites:

Economics 11, Economics 12, Mathematics 19 or 21, Statistics 111 or 141. Students must have basic microcomputer literacy, including a working knowledge of word processing and spreadsheet software. Students lacking this basic knowledge are responsible for attaining it through course work, self study, tutorials, or workshops.

Introductory Accounting: BSAD 60 and 61 or BSAD 65. (A student may not receive credit for BSAD 65 after completion of either BSAD 60 or BSAD 61.) Students must earn at least a 2.0 in *each* introductory accounting course taken to continue with an accounting minor. If a 2.0 is not achieved, a student may switch to a business administration minor.

Upper Level Accounting Requirements: BSAD 161, 162, 164, and 168. A student must earn a 2.0 average in these four courses to earn an accounting minor.

Students Majoring in Business

Students majoring in Business Administration are not required to have a minor to meet degree requirements; however, a business student may choose to have a minor outside of Business. The department issuing the minor sets the requirements and determines if the student is eligible to minor in their program. The student must contact the appropriate department to obtain more information.

Non-Business Students

Two different minors are available in the School of Business Administration for non-business majors: Business Administration or Accounting. An application is required and may be obtained at the Student Services Office, 101 Kalkin Hall. Acceptance into the minor program requires completion of the prerequisite courses with a GPA of 2.0 or better in these courses. Admission may be more restrictive if applications exceed the

capacity of the program.

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Minor in African Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Requirements

A total of 18 credit hours (six courses), at least nine of which must be at the 100 level or above, and which must include the following:

- A. Anthropology 162
Geography 51
History 40
- B. Two courses chosen from among the following:
Community Development and Applied Economics 2, 272
*Anthropology 177, 179, 283
BSAD 237
*Education (EDFS) 206
French 289
*Geography 177
History 140
or appropriate Special Topics or seminar courses, chosen in consultation with the African Studies Program advisor.

*Students may count these courses towards fulfillment of the minor requirements only if individual projects, relevant to the African area, have been arranged in consultation with the African Studies advisor.

International Studies 197 (Readings and Research on an African Topic under the direction of participating faculty members - to be arranged in consultation with the African Studies advisor) or International Studies 195 (Special Topics Seminars, taught by participating faculty members).

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Environmental Sciences (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Environmental Sciences](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)

Specific Requirements

Students may major in Environmental Sciences through the College of Agriculture and Life Sciences, the College of Arts and Sciences, or the School of Natural Resources. For general information about the Environmental Sciences curriculum, see [Studying the Environment](#).

Environmental Sciences majors through the College of Agriculture and Life Sciences must fulfill the following requirements for graduation:

- General CALS distribution requirements.
- Core distribution requirements for major (also fill distribution requirements): Animal Science 1, 230; Community Development and Applied Economics 2; Plant and Soil Science 11; Botany 160; Microbiology and Molecular Genetics 101.
- Environmental Science minimal basic science/quantitative courses (also fill distribution requirements): Biology 1, 2; Chemistry 31, 32; Chemistry 42¹; Geology 55 or Plant and Soil Science 161²; Math 19, 20; Natural Resource 140 or Statistics 141.
- Environmental Sciences foundation courses: ENSC 1, 101, 130, 201, 202.
- Concentration requirement, 14 credit hours in one of the following: **Agriculture and the Environment, Conservation Biology and Biodiversity, Ecological Design, Environmental Analysis and Assessment, Environmental Resources, Water Resources**. Detailed lists of courses for each concentration are available from the Program Director and the Office of the Dean.

¹ Students should consider taking Chemistry 141/142.

² Plant and Soil Science 161 is required for many advanced PSS courses in several curricular concentrations; most students should take this course.

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Environmental Sciences (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Environmental Sciences](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

A total of 122 credits are required for the degree.

Required courses: BIOL 1, 2; CHEM 31, 32; **CHEM 42; GEOL 55 or PSS 161; *MATH 19, 20; *NR 140 or STAT 141; ENSC 1, 101, 130, 185, 201, 202; 14 credits in one of the following advising tracks - Water Resources, Environmental Analysis and Assessment, Ecological Design, Agriculture and the Environment, Conservation Biology and Biodiversity, or Environmental Resources. Students may also elect a self-designed track in a particular area of interest.

*Also fulfills ENVNR general education requirement.

**Students interested in areas such as environmental analysis and assessments should consider taking more advanced courses, such as CHEM 141/142.

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Community Development and Applied Economics: Agricultural and Resource Entrepreneurship Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics](#)

Overview

With Vermont as your laboratory, you will acquire knowledge in applied economics and skills management, strategic planning, marketing, and public policy related to developing or operating a small, natural-resource based business.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [CDAE General Requirements](#)

Specific Requirements

Major Requirements: BSAD 065, CDAE 167, CDAE 168, CDAE 264, CDAE 266, CDAE 267.

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Minor in Agricultural and Resource Entrepreneurship

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics](#)

Requirements

Any student interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Fifteen to sixteen credits including 12 credits in required courses CDAE 166, 167, 168, 266; one course three to four credits from the following restricted electives: CDAE 157, 264, 267.

Arts and Sciences Majors: This minor is also available for Arts and Sciences students. Courses required are: CDAE 61, 166, 167, 168, and 266. Arts and Sciences students should note that BSAD 65, MATH 19, and CS 2 or instructor permission are listed as prerequisites for some of the upper level courses.

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Plant and Soil Science: Agroecology / Sustainable Agriculture Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science Department](#)

Overview

A goal of the Agroecology/Sustainable Agriculture concentration is to develop a knowledge base and skills to critically analyze and address issues related to sustainable agriculture.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)
- [Plant and Soil Science Core](#)

Specific Requirements

Faculty help students develop individualized courses of study to match their interests and career goals.

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Minor in Animal Science

College: [Agriculture and Life Sciences](#)

Department(s): [Animal Science](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Animal Science department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Five courses with a minimum of 15 credit hours including Introductory Animal Sciences (ASCI 1); two courses selected from core sciences including 43, 110, 122, 141, 205, 215 or 216; two courses selected from applied sciences including 113, 115, 117, 118, 125, 134, 135, 161, 220, 231, 233, 234, 263, or 264. At least three credits must be at 200 level or above.

For students in the College of Arts and Sciences:

Five courses with a minimum of 15 credit hours, including Introductory Animal Science (ASCI 1), two courses in Core Science including ASCI 43, 110, 122, 141, 205, 215, 216, and two courses selected from Applied Sciences including 115, 117, 118, 134, 135, 161, 211, 220, 231, 233, 234, 263, 264. At least 8 credits must be at the 100 level, 3 of which must be at the 200 level. Acceptance into this program is by application only. Contact Dept. of Animal Science, 102 Terrill, for more information.

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Animal Science: General Animal Science Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Animal Science](#)

Overview

Under this concentration, students design a program to suit their needs, or keep a broader-based program to meet a particular career goal. For example, this option is often used by students who have an interest in human/animal interactions, animal welfare, and zoo animals. The student and advisor select a combination of basic science, production, or companion animal courses and balance these with courses available elsewhere in the College or University. It usually involves an internship experience.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Animal Science Requirements](#)

Possible Curriculum

First Year

Course	Hours
Foundations	6
Cultural Diversity	1-3
Introduction to Animal Science	4
Organic Chemistry	4
Inorganic Chemistry	4
Math	3
Biology	4
Written English	3
Physical Education	1
Electives	3-6

Total 33-36

Sophomore Year

Course	Hours
Anatomy & Physiology of Domesitc Animals	4
Animal Nutrition, Metabolism, & Feeding	4
Fundamentals of Nutrition	3
Zoos, Exotics, & Endangered Species	3
Biology	4
Environmental Biology	3
Principles of Wildlife Management	3
Statistics	3
Physical Education	1
Electives	3-6
Total	31-34

Junior Year

Course	Hours
Ornithology	3
Terrestrial Wildlife	3
Advanced Zoos, Exotics, & Endangered Species	3
Dog Training & Behavior	3
Animals in Society / Animal Welfare	3
Animal Health	3
Career Seminar	1
Psychology Research Methods	4
Electives	6-12
Total	29-35

Senior Year

Course	Hours
Reproductive Physiology	4
Animal Behavior	3
Endocrinology	3
Clinical Topics in Companion Animal Medicine	3
Florida Ecology Field Trip	2
Field Experience	12
Electives	3-9
Total	30-36

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Anthropology (B. A.)

College: [Arts and Sciences](#)

Department(s): [Anthropology](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours in Anthropology including 21, 24, 26, and 28; 225 or 228 (recommended for the junior year) and five additional courses, of which three should be at the 100 level and at least one at the 200 level.

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Mathematics: Applied and Interdisciplinary Mathematics Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Mathematics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

This concentration combines a major in applied mathematics with an approved minor that emphasizes the application of mathematics. Such minors include various disciplines in the physical, life, and earth sciences, the social sciences, and business. A student may expand the approved minor to form a double major with mathematics. The requirements for this option are: (a) Math. 21, 22, 121, CS 21, Math. 124, 230, and 237; (b) at least nine additional hours in mathematics, statistics, or computer science courses number 100 or above, at least three of which must be in mathematics or statistics, at least six of which must be numbered 200 or above; (c) an approved minor. Parts (b) and (c) must form a coherent program that has the written approval of the student's faculty advisor in the Mathematics and Statistics Department.

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Minor in Applied Design

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics Department](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Nine credits in required courses: CDAE 15; 1 or 16, 101 or 231 plus two additional elective courses at or above the 100 level, approved by the student's advisor to define an applied design focus for a total of 15 credits.

Arts and Sciences Majors: Nine of the 15 hours must be at the 100 level or above. The Applied Design minor is not available to students majoring or minoring in Studio Art.

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Minor in Applied Mathematics

College: [Arts and Sciences](#), [Engineering and Mathematics](#)

Department(s): [Mathematics and Statistics](#)

Requirements

Fifteen hours of mathematics courses numbered 52 or higher, including one of 230, 237, or 271.

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Minor in Archaeology

College: [Arts and Sciences](#)

Department(s): [Anthropology](#)

Requirements

This minor is not available to students pursuing degree programs not offered by the College of Arts and Sciences.

Archaeology: 24; 210; three from the following: 160, 161, 188, 200, 250.

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Art Education: Teacher Education/Art Education (Grades K-12)(B. S.)

College: [Education and Social Services](#), [Arts and Sciences](#)

Departments: [Education](#), [Art](#)

Overview

The College works cooperatively with the [Art Department](#) in the [College of Arts and Sciences](#) to offer a program in Art Education which leads to both degree and licensure for grades K-12.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Teacher Education](#)

Specific Requirements

Students fulfill course requirements in general education, professional art education, professional education courses, studio art, art history, and related subjects. Graduates satisfy College of Education and Social Services requirements for teacher licensure and partake in coursework in the Art Department in the College of Arts and Sciences. The program allows sufficient additional advanced courses as recommended by the Art Department for admission to graduate school.

Students must be enrolled in the College of Education and Social Services. Those admitted as first-year students or sophomores to the Art Education Program are considered Candidates in the Program. Admission as Majors is made at the beginning of the junior year following formal review procedures during the second semester of the sophomore year.

Students must meet with their advisors and get approval to set up student teaching and accompanying courses prior to enrolling in student teaching.

A minimum of 124 approved semester hours is required for the degree including three

semester hours of teaching reading for teacher licensure.

Students are responsible for obtaining information regarding teacher licensure and degree requirements from the Office of Student Services, 528 Waterman.

Possible Curriculum

First Year

	Fall Spring	
HDFS 5, Human Development	3	
Studio Art Foundation	3	3
Art History	3	3
General Education Electives	6	6
EDSP 5, Issues Affecting Persons with Disabilities		3
Race & Culture		1
Total	15	16

Sophomore Year

	Fall Spring	
Studio Art Foundation	3	
Art History Elective	3	
Studio Art	3	6
Physical Education Elective	1	1
General Education Electives	6	9
Total	16	16

Students apply to the Art Education Major during second semester of sophomore year. Students must be accepted in order to enroll in required methods courses.

Junior Year

	Fall Spring	
EDAR 177, Curriculum & Pract. in Elem. Art	4	
EDAR 178, Curriculum & Pract. in Middle/HS Art	4	
Studio Art	6	6
General Education Electives	3	3
EDAR 284, Current Issues in Art & Ed.		3
EDSC 215, Rdg. in Sec. Schools or other approved reading courses		3
Total	17	14-15

Senior Year

	Fall Spring	
EDFS 203, Soc Hist & Phil Found of Ed	3	
Studio Art	6	

General Education Electives	6	
EDSC 226, Teaching Internship	12	
EDAR 283, Current Issues in Art & Ed	3	
Total	15	15

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Art History (B. A.)

College: [Arts and Sciences](#)

Department(s): [Art](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours in Art History, including six hours from 5, 6 and 8; 12 hours to include three hours from each of four different categories (196 courses in these categories also qualify): Ancient and Medieval (146, 148, 149, 155), Early Modern European (158, 161, 164, 165), Modern, American, and Canadian (170, 172, 174, 177, 180), Asian (185, 187, 188, 192), Other Non-Western Traditions, New Approaches to Art History, and Contemporary Art (140, 179, 189, 199); 12 additional Art History hours, to include at least one course (three hours) numbered 282 or above to be taken during the junior or senior year, preferably during the senior year. Six hours of Studio Art; the study of a foreign language through 51-52. French or German is strongly recommended for students considering eventual graduate work in Art History.

For Art Education, see [College of Education and Social Services](#).

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Minor in Art History

College: [Arts and Sciences](#)

Department(s): [Art](#)

Requirements

Eighteen hours, including six hours from 5, 6, and 8; 12 hours of 100-level courses or above.

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Studio Art (B. A., Art-Studio)

College: [Arts and Sciences](#)

Department(s): [Art](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours in Studio Art, including nine hours in foundation courses (to include Art 3 and two from 1, 2, 4) with three different instructors; 15 hours at the 100 level (only three of which may be 197; six of which may be 195) with two different instructors, including courses in the areas of two-dimensional study (drawing, painting, printmaking, photography, film, and video) and of three-dimensional study (sculpture, ceramics, fine metals); and six hours at the 200 level, three of them in the senior year; nine hours of Art History, including two of the following: 5, 6, or 8; and one of the following: 140, 170, 172, 174, 177, 179, 180, and 199 when approved for this requirement (permission depends upon topic; check with Art Department).

Note: A Studio Art major may not take more than one Evening Division course per semester in Studio Art.

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Minor in Studio Art

College: [Arts and Sciences](#)

Department(s): [Art](#)

Requirements

This minor is not available to students pursuing degree programs not offered by the College of Arts and Sciences.

Eighteen hours, including six hours at introductory level of which at least three hours must be in 1, 2, 3, or 4. Twelve hours at the 100 level or above.

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Area and International Studies: Asian Studies Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Overview

In selecting courses from the Asian Studies listing, students must consult with an appropriate Asian Studies advisor and demonstrate in their choices thematic and/or geographic coherence.

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

[Asian Studies Course Offerings](#)

The Asian Studies major consists of at least 33 credit hours in courses from the Asian Studies listing (see Courses of Instruction; Asian Studies) to include the following:

- Completion of two years' (normally 16 hours) study of a language of the geographic subarea of concentration. No more than 16 hours of language study may be counted toward the major. For students who have demonstrated fluency in the language of the subarea of concentration (for instance, native speakers of the language), the language requirement will be waived. Such students will still be required to complete the 33-credit hour requirement.
- The remaining credit hours must include at least nine hours at the 100 level and three hours at the 200 level. These hours must be selected from at least three academic disciplines. Language courses may not be used to fulfill this requirement.

Note: Courses significantly but not entirely on Asia may be counted toward a

student's major requirements only if papers or projects relevant to their Asian subarea or their Asian thematic focus have been completed. The Dean's Office must receive written approval from the advisor in order for these courses to be counted toward the major.

Students who major in Asian Studies and minor in an Asian language may overlap only one course as is stipulated in the College of Arts and Sciences [Bachelor of Arts Degree](#) description.

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Minor in Asian Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Requirements

In selecting courses from the Asian Studies listing, students must consult with an appropriate Asian Studies advisor and demonstrate in their choices thematic and/or geographic coherence. Such courses must also accord with the following requirements:

Eighteen hours in courses from the Asian Studies listing (see Courses of Instruction; Asian Studies) including at least two courses in an Asian language, and at least one course in each of two other academic disciplines. At least eight credit hours must be at the 100 level or above. For students who have demonstrated fluency in an Asian language relevant to the other courses they have chosen for their minor concentration (for instance, native speakers of the language) the language requirement will be waived, and courses from a third academic discipline will be substituted.

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Biochemistry (B. S.)

College: [Agriculture and Life Sciences](#), [Arts and Sciences](#)

Department(s): [Biochemistry Program](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Arts and Sciences B. S. Requirements](#)

Specific Requirements

The Biochemistry core requires satisfactory completion of BIOL 1, 2 or BIOL 11, 12 (Introductory Biology); MATH 21, 22 (Calculus); PHYS 31, 42 with 21/22 (Physics); CHEM 35, 36 (Introductory Chemistry); CHEM 143, 144 (Organic Chemistry); CHEM 162 (Thermodynamics); BIOC/CHEM/MMG 205 (Biochemistry I); BIOC/CHEM/MMG 206 (Biochemistry II); BIOC/CHEM/MMG 207 (Biochemistry Lab); CHEM 221 (Instrumental Analysis); CHEM 282 (Senior Thesis); BOT 132 or BIO 101 (Genetics); MMG 102 or BIOL 103 (Cell Biology); and advanced Biochemistry electives.

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Biological Sciences (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Biological Sciences Program](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Biological Sciences Core Courses](#)

Specific Requirements

In conjunction with a personal faculty advisor, each student plans a curriculum appropriate for individual career goals. Students are urged to participate in undergraduate research and to work one-on-one with a faculty scientist on the cutting edge of research. While each program of study is personalized, all graduates must complete the College requirements and the following major requirements: Biological Sciences Core plus one semester each of anatomy, biochemistry, ecology, physiology, statistics, and two semesters of physics. In addition, each student must satisfactorily complete an undergraduate research project or two advanced biological science courses at the 200 level or above. These courses may be selected from the diverse offerings of departments throughout the University. This program requires the successful completion of 122 credit hours of courses to earn the Bachelor of Science degree.

Possible Curriculum

First Year

	Fall	Spring
Foundations 195, 196	3	3
Cultural Diversity ²	1-3	
BSCI 195 (seminar)	1	
Social Science ²	3	
Biology 1B, 2B	4	4

Chemistry 31, 32 ¹	4	4
Math 19 or 21		3
Physical Education Activities		1
Total	16-18	15

Sophomore Year

	Fall	Spring
Organic Chemistry 141, 142	4	4
Math 20 or 22	3	
English 1 or 50	3	
Genetics 132	3	
Electives ²	3	6
Statistics 141 ¹		3
Physical Education Activities		1
General Biology Course		3
Total	16	17

Junior Year

	Fall	Spring
Physics 11/12	4	4
Physics 21/22	1	1
Microbiology 101	4	
Anatomy	4	
Physiology		4
Research 197, 198 or Electives ²	3-4	6-9
Total	16-17	15-18

Senior Year

	Fall	Spring
Biochem. 201	3	
Biochem Lab 202	1	
Undergrad Res. 197, 198	3	3
Ecology ¹		4
Electives ²	8-11	8-11
Total	15-18	15-18

¹ Selected from list of alternative courses fulfilling requirements of the major.

² Electives include selection of courses to meet the College requirement for social sciences and the humanities and fine arts. Electives may be used for a double major,

minor, advanced biology, or simply general interest courses. Sequence of courses may be modified with guidance of advisor.

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Minor in Biological Sciences

College: [Agriculture and Life Sciences](#)

Department(s): [Biological Sciences Program](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Biological Sciences program. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may also enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Biology 1 and 2 plus a sequence of three semester courses (nine to 12 credits) in the biological sciences selected with advice of the faculty advisor and approved by the program chair. The courses are selected to provide a relevant extension of the student's major program into the biological sciences.

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Biology: General Biology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration serves students who wish a very broad training in life science, including zoology.

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Bachelor of Arts in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional 200-level or other advanced courses approved by the department (including at least one course with laboratory). One course may be taken from outside the Department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the required advanced courses. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: After consultation with their Biology Department faculty advisor, students take a variety of courses drawn from the approximately three dozen offered by the Biology Department or from other approved courses in life science. Consult the [Biology Department](#) for a listing.

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Biology: General Biology Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration serves students who wish a very broad training in life science, including zoology.

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Bachelor of Science in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; Chemistry 141, 142; Physics 21, 22 in combination with 11, 12, or preferably 31, 42; Math. 19, 20 or 21, 22. Statistics 141 or 211. Forty-six hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, and 104. Of the remaining 23 hours in 200-level courses, no more than 11 hours may be taken outside the department from the list of approved courses. Up to six hours of Biochemistry 301, 302 and/or up to six hours for Biology 197, 198 or Honors 208, 209 will be accepted as credit toward the 23 hours in 200-level courses. For a list of approved offerings in other biologically-oriented departments, consult the Biology Department Office.

Concentration Courses: After consultation with their Biology Department faculty advisor, students take a variety of courses drawn from the approximately three dozen offered by the Biology Department or from other approved courses in life science. Consult the [Biology Department](#) ↻ for a listing.

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Minor in Biology

College: [Arts and Sciences](#)Department(s): [Biology](#)

Requirements

Biology 1, 2; three courses at the 100 level or higher chosen from courses acceptable for the Biology major, at least one of which must include a laboratory. One course may be taken from the advanced offerings of other biologically-oriented departments. Consult the Biology Department for a list of approved courses.

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Electrical Engineering: Biomedical Engineering Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Electrical and Computer Engineering](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Electrical and Computer Engineering](#)

Possible Curriculum

First Year

	Fall	Spring
CS 21, Comp Programming I	4	
English 1, Written Expression	3	
Chemistry 31, Intro Chemistry	4	
Math 21, Calculus I	4	
Engr 1, Intro to Engr	1	
Physical Education	1	1
Math 22, Calculus II	4	
Chem 42, Intro Organic Chem	4	
HSS Elective	6	
Engr 2, Graph Comm	2	
Total	17	17

Sophomore Year

	Fall	Spring
Math 121, Calculus III	4	
Physics 31 and 21, Intro Phys	5	

EE 3, Linear Circuit Analysis I	3	
EE 81, Sophomore Lab I	2	
HSS Elective	3	3
Physics 42 and 22, E&M & Mod Phys	5	
Math 271, Applied Math/Engineers	3	
EE 4, Linear Circuit Analysis II	3	
EE 82, Sophomore Lab II	2	
Total	17	16

Junior Year

	Fall	Spring
EE 120, Electronics I	3	
ANPS 19, Anatomy & Physiology	4	
EE 183, Junior Lab I	2	
EE 163, Solid St Phys Electronics I	4	
Stat 143/151	3	
EE 184, Junior Lab II		2
EE 134, Microprocessors or EE 227	4 (or 3)	
EE 121, Electronics II	3	
ME 114, Intro to Engr Mechanics	3	
ANPS 20, Anatomy & Physiology	4	
Total	16	16 (or 15)

Senior Year

	Fall	Spring
ME 207, Biomechanics I	3	
EE 171, Signals & Systems	4	
EE 141, EM Field Theory I ¹	3	
EE 185, Senior Lab I	1	
EE Design Elective ²	3	
HSS Elective	3	3
EE 142, EM Field Theory II		3
EE 174, Intro to Comm Systems		3
EE 134 or 227, Bio Meas Inst & Sys		4 (or 3)
EE 186, Senior Lab II		1
EE 187, Senior Project		3
Total	17	17 (or 16)

Total Credits: 131-133

Notes:

¹ No credit may be received for both EE 140 (offered in prior years) and the current EE 141.

² EE Design Elective: EE 131, 187, 221, 222, 224, 228, 231, 250, 275, 276.

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Mechanical Engineering: Biomedical Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Mechanical Engineering](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Mechanical Engineering](#)

Possible Curriculum

	First Year	
	Fall	Spring
ENG 1, Written Expression	3	
ENGR 2, Graphical Communication	2	
CHEM 31, Introductory Chemistry	4	
HSS Electives ¹	3	3
MATH 21 & 22, Calculus I & II	4	4
PEAC	1	1
ME 1, Design Exp		2
PHYS 31/21, Introductory Physics		5
Total	17	15
	Sophomore Year	
	Fall	Spring
CE 1, Statics		3
Math 121, Calculus III		4
HSS Elective ¹		3
PHYS 42/22, Electromagnetism & Modern Physics		5
ME 40, Thermodynamics		3

ME 42, Engineering Thermodynamics	3	
Math 271, Applied Math/Engineers	3	
ME 12, Dynamics	3	
ME 14, Mechanics of Solids	3	
ME 82, Mechanical Engineering Lab I	3	
MATH 124, Linear Algebra	3	
Total	18	19

Junior Year

		Fall	Spring
ME 101, Engineering Materials I	3		
ME 143, Fluid Mechanics	3		
EE 100 & 101, Electrical Engineering Concepts I & II	4	4	
ME 123 & 124, Lab II & III	2	2	
ANPS 19 & 20, Human Anatomy & Physiology	4	4	
ME 144, Heat Transfer	3		
ME 171, Design of Elements	3		
Total	16	16	

Senior Year

		Fall	Spring
ME 111, System Dynamics	3		
ME 183, Mechanical Engineering Lab IV	3		
ME 185, Senior Project	1		
ME 161, Manufacturing Engineering I	3		
STAT 143, Basic Statistics	3		
ME 207 & 20X, Biomechanics ²	3	3	
ME 186, Senior Project	2		
HSS Electives ¹	6		
ME Design Elective ³	3		
Total	16	14	

Total Credits: 130

Notes:

1. Students must select one HSS course from approved race and culture courses.
2. ME 208 or 209.
3. ME 162, 172, or ME 265.

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Biomedical Technologies General Undergraduate Requirements

College: [College of Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Concentrations: [Biomedical Technology](#), [Medical Laboratory Science](#), [Nuclear Medicine Technology](#), [Radiation Therapy](#)

Programs in the Department of Biomedical Technologies lead to Bachelor of Science degrees in Biomedical Technology, Medical Laboratory Science, Nuclear Medicine Technology, and Radiation Therapy. A core curriculum of approximately 40 credit hours serves students in all four programs. A cross-college minor in Molecular Diagnostics is available within the department. In addition to these undergraduate offerings, a Master of Science degree is offered by the department. The courses of study for each undergraduate degree program, the Accelerated Master's Program, and the Molecular Diagnostics minor are described below.

Graduates of all four programs are prepared for immediate employment, as well as to pursue post-baccalaureate education in the life sciences or professional education in medicine. Courses in the humanities and basic sciences are taken in the department and throughout the University, including the College of Medicine.

Requirements for admission are the same as the general University requirements, with the addition that applicants must have taken high school biology, mathematics through trigonometry, and chemistry; physics is highly recommended.

A minimum of 127 semester credit hours including two credit hours of physical education, an overall grade-point average of 2.0, and a 2.0 GPA in professional courses are required for the bachelor of science degree in all four areas of study.

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Minor in Molecular Diagnostics

College: [Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Requirements

The Department of Biomedical Technologies offers a cross-college minor in Molecular Diagnostics. The minor emphasizes the applications of molecular biology techniques to diagnostic testing. The program of study includes 15-16 credit hours of both didactic and laboratory experiences. Prerequisite courses include at least one semester each of general and organic chemistry and two semesters of biology, or anatomy and physiology. Acceptance into the program requires the completion of the prerequisite courses with a GPA of 2.5 or better. An application is required for admission and may be obtained in 302 Rowell Building.

Required Courses: Immunology (BMT 242), Immunology Laboratory (BMT 244), Molecular Applications (BMED 281), Research Concepts (BMED 293), Undergraduate Research (BMED 297); plus 3-4 credit hours from BMT 4, 34, 54, 123, MLS 222, 231, 255.

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Biomedical Technology (B. S.)

College: [Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Overview

This four-year curriculum leading to the baccalaureate degree prepares students for careers in biomedical research. All students pursuing this degree option are required to complete an approved cross-college minor, as well as a research internship. The student's major course of study blends basic science course work with intensive laboratory experiences. Special emphasis is placed on the application of molecular techniques to the health sciences industry.

- [Honors Program](#)

General Requirements

- [University](#)
- [Nursing and Health Sciences](#)
- [Biomedical Technologies](#)

Specific Requirements

Students in the Biomedical Technology degree program are required to complete a cross-college minor. Students should contact the department administering the minor program to determine requirements, and fill out the application. If accepted, the student will be assigned a "minor advisor" from that department who must approve all program plans and course selections. Students wishing to pursue a minor not listed must confer with their advisor. With permission, students may complete a concentration in clinical microbiology in place of a minor. The concentration requirements are available in the department. The following have been approved:

Accounting

Prerequisites are Economics 11, 12, Math. 19 or 21, Statistics 111 or 141.

Requirements are Business Administration 65 or 60, 61, plus 161, 162, 164, 168.

Business Administration

Prerequisites are Economics 11, 12, Math. 19 or 21, Statistics 111 or 141.

Requirements are Business Administration 65 or 60, 61, plus three courses from 120, 132, 141, 150, 173, 180.

Computer Science

Requirements are 18 hours in computer science to include at least nine hours at the 100 level or above. Note: Careful planning of prerequisite math courses will be required.

Consumer Economics

Requirements are Community Development and Applied Economics 58, 157, 158, 159, 127 or 155, plus one from 127, 128, 150, 151, 158, 291 or 296. Fifteen credit hours are required.

Microbiology

Requirements are MMG 101, 102, Botany 132 plus six hours from MMG 195, 201, 203, 211, 220, 222, 223, or 225.

Molecular Genetics

Requirements are MMG 101, 102, 211, Botany 132, plus three hours from MMG 195, 201, 203, 223, 225.

Possible Curriculum

First Year

	Fall	Spring
BMT 1, First Year Seminar	1	
BMT 3, Medical Terminology	1	
EDSS 11, Race and Culture	1	
English	3	
Math (13, 19, or higher)	3	
Chemistry 31-32	4	4
Electives	3	6-10
Physical Education	1	1
Computer Science		3
BMT 34, Human Blood Cells		3
Total	17	17

Sophomore Year

	Fall	Spring
BMT 4, Intro to Radiologic Science	3	
STAT 141		3
BMT 123, Intro to Clinical Chemistry	4	
Anatomy & Physiology 19-20	4	4
Chemistry 42 (or 141 and 142)	(4)	4
Electives	0-3	3

BMT 54, Principles of Microbiology	4
Total	17 15

Junior Year

	Fall	Spring
Biochemistry 201	3	
BMT 295, Prin of Education & Management	3	
Pathology 101	3	
BMED 284-285, Undergraduate Research I & II	3	3
Electives	3	6
Biochemistry 212		3
BMT 242, Immunology		4
BMED 293, Research Concepts		1
Total	15	17

Senior Year

	Fall	Spring
BMED 281, Molecular Applications	4	
BMT 296, Senior Seminar	2	
BMED 286, Undergraduate Research III	3	
MLS 231, Pathophysiology of Blood Cells	3	
Statistics 200 (or higher)	3	
BMED 298, Undergraduate Research Seminar		3
MLS 222, Advanced Clinical Chemistry (or Biology 101 or Botany 132)		3
Electives		7
Total	15	13

Total Credits: 127

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Chemistry: Biomolecular Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Chemistry](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Chemistry 35, 36 (or 31, 32; or 31, 36), 121, 131, 143, 144 (or 141, 142; or 141, 144), 162, 167, 201, 204, 282; Math. 21, 22; Physics 21, 22, 31, 42; Biology 1, 2 (or 11, 12), 103; and one of the following: Biochemistry 212, 320, 321 or Pharmacology 328.

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Botany (B. A.)

College: [Arts and Science](#)

Department(s): [Botany and Agricultural Biochemistry](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Math. 21, 22; or Math. 21 and Statistics 141 or 211; or Math. 19, 20 and Statistics 141 or 211; Physics 21, 22; and 11, 12 or preferably 31, 42; Chemistry 42 or preferably 141, 142; Biology 1, 2; Biology 101 or 132, 104, 107, 108, and 109 or 160; two additional semester courses in Botany, at least one at the 200 level. Six credits of modern foreign language are strongly recommended. Students may petition the department to substitute other courses for certain requirements in the planning of individual programs.

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Minor in Botany

College: [Agriculture and Life Sciences](#), [Arts and Sciences](#)

Department(s): [Botany](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Botany Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

At least 15 hours of course work to include Botany 4 or Biology 1 or 2; plus three additional courses in Botany, at least one at the 200 level.

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Botany: General Botany Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Botany](#)

Overview

This concentration offers broad training at all levels of plant biology ranging from molecular biology to plant communities. Students have the flexibility to study plants from many perspectives and to understand how the diverse areas are interrelated. Students, in consultation with a faculty advisor, can choose courses that meet their individual needs and interests. Students are encouraged to perform undergraduate research working directly with departmental faculty on laboratory or field projects in plant biology.

General Requirements

- [University](#)
- [College of Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)
- [Botany Core](#)

Specific Requirements

In addition to the basic course requirements for our departmental major, this concentration has the following requirements and electives:

Concentration Requirements (29 hours): Botany 108 or 109, 160. Chemistry 31, 32, 141, 142. Physics - one additional semester, with laboratory.

Concentration Electives (1-20 hours): Botany - 5 electives, at least two of which are at the 200 level.

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Minor in Business Administration

College/School: [School of Business Administration](#)

Requirements

Prerequisites:

Economics 11, Economics 12, Mathematics 19 or 21, Statistics 111 or 141. Students must have basic microcomputer literacy, including a working knowledge of word processing and spreadsheet software. Students lacking this basic knowledge are responsible for attaining it through course work, self study, tutorials, or workshops.

Accounting: BSAD 60 and 61 or BSAD 65. (A student may not receive credit for BSAD 65 after completion of BSAD 60 or BSAD 61.)

Other Business requirements: Three businessfield courses (numbered 100-299), at least one of which must be from the followinglist: BSAD 120, 132, 141, 150, 173, or 180.

One year MBA opportunity: A student minoring in Business Administration may complete an MBA at UVM in one year after earning a bachelor's degree if: (1) BSAD 60 and 61 are completed; (2) three of BSAD 120, 132, 150, 173, and 180 are selected to meet the minor requirement; (3) the other two courses on this list are taken as electives; and (4) the student applies and is admitted to the MBA program under regular criteria.

Students Majoring in Business

Students majoring in Business Administration are not required to have a minor to meet degree requirements; however, a business student may choose to have a minor outside of Business. The department issuing the minor sets the requirements and determines if the student is eligible to minor in their program. The student must contact the appropriate department to obtain more information.

Non-Business Students

Two different minors are available in the School of Business Administration for non-business majors: Business Administration or Accounting. An application is required and

may be obtained at the Student Services Office, 101 Kalkin Hall. Acceptance into the minor program requires completion of the prerequisite courses with a GPA of 2.0 or better in these courses. Admission may be more restrictive if applications exceed the capacity of the program.

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Business Administration (B. S.)

College: [School of Business Administration](#)

General Requirements

- [University](#)
- [School of Business Administration](#)

Specific Requirements

Basic Business Core (24-26 credit hours)

To be completed by the end of the sophomore year with a grade-point average of 2.0.

- Math 19 and 20; or Math 21
- Economics 11 and 12
- Statistics 141
- BSAD 40, 60, 61

Business Field Courses (24 credit hours)

To be completed beginning junior year, with a grade-point average of at least 2.0.

- Quantitative Methods, BSAD 120, 132, 141, 150, 173, 180, 191.
- Students must have junior status and have completed the Basic Business Core before taking Business Field courses.
- The Quantitative Methods course is selected from among BSAD 170, 174, 177, 178, 266, 270, 272, or Statistics 151, 195, 201, 221, 223, 224, 225, 231, 233, 237 or 253. BSAD 191 is taken in the senior year.

Business Discipline Concentration (at least 12 credits)

To be completed with a grade point average of at least 2.0.

The student must complete at least 12 hours in Business Administration courses

numbered 100 or above beyond those required for the Business Field courses. One approach is to concentrate these courses in one of the areas of Accounting, Entrepreneurship, Finance, Human Resource Management, Management and the Environment, Management Information Systems, Marketing, International Management, or Productions and Operations Management. Students may also complete a self-designed program.

The specific requirements for each Discipline Concentration are available from the Student Services Office in 101 Kalkin Hall. A faculty member teaching in the discipline of the concentration must approve any exception to these requirements.

General Education Requirements

The General Education Requirement framework is based on six field blocks. The Six Fields are:

1. Arts and Humanities – Art, Classics, Film, History, Music, Philosophy, Religion, Theatre
2. Writing and Speaking – Speech, English (writing, literature, and film courses)
3. Social Sciences – Anthropology, Environmental Studies, Geography, Political Science, Psychology, Sociology, Women's Studies
4. Natural Sciences and Mathematics – Astronomy, Biology, Botany, Chemistry, Environmental Science, Geology, Computer Science, Mathematics, Natural Resources, Statistics, Physics
5. Area and International Studies – African Studies, Asian Studies, Canadian Studies, European Studies, Latin American Studies, Middle East Studies, Russian/East European Studies
6. Language and Literature – Chinese, American Sign Language (in CMSI), French, German, Greek, Hebrew, Italian, Japanese, Latin, Literature classes, Russian, Spanish, World Literature

Basic General Education Core (at least 19 credit hours)

Six courses. Each requirement must be filled with a course worth at least 3 credits. One from each of the following:

1. United States or Global History from History 9, 10, 11, 12, 19, 25, 26, or 68
2. English course that emphasizes practice in writing from English 1, 50, 53, 120
3. Social Science from any discipline in field 3 above
4. Natural Science that includes a laboratory or field experience from Astronomy 5 and 23, 5 and 24; Biology 1, 2; Botany 4; Chemistry 20, 23, 31, 35; Geology 1, 4, 55; Natural Resources 1; Physics 11 and 21, 31 and 21
5. Area and International Studies from any discipline in field 5 above
6. Language or Literature from any discipline in field 6 above

Cross-listed courses may count for only one Basic General Education Core requirement.

General Education Field Concentration (at least 12 credit hours)

Students must complete at least 12 credits in any one of the six general fields listed above. They may take any combination of courses within the field. For example, in the Social Sciences field, two Political Science courses, a Sociology course and a Women's Studies course might make up the field concentration.

One course from the Basic General Education Core may be used as one of the General Education Field Concentration courses.

History of Science (HST 85, 86) can count toward General Education Field Concentrations in either field 1 or field 4.

General Education Discipline Concentration (at least 12 credit hours)

Students must accumulate 12 credits in a single discipline. The discipline may not be in the field chosen for the General Education Field Concentration. Community Development & Applied Economics and Economics, may not be chosen as the discipline concentration.

Disciplines are specific academic areas, not broad fields. For example, Religion is a discipline in field 1. If Religion is chosen, the student may not include Philosophy and Art classes, even though they are in the same field.

One course from the Basic General Education Core may be used as one of the General Education Discipline Concentration.

As a general rule, two discipline concentration courses must be numbered 100 or higher. Exceptions: (1) if a language is chosen, at least one course must be numbered 51 or higher; (2) if Mathematics or Computer Science is chosen, at least two courses must be numbered 21 or higher; (3) if a Natural Science is chosen, there is no restriction on course level.

Caution: In some disciplines, there may not be sufficient courses or space in courses for a discipline concentration to be an option. Currently these include, but may not be limited to, Speech, Studio Art, and American Sign Language. Check with the department if there are any questions.

Students may submit a petition to the Undergraduate Studies Committee to seek approval on an exception basis to pursue a self-designed General Education Discipline Concentration. The petition should provide a rationale for the combination of courses proposed. Submit petition in 101 Kalkin Hall.

Race Relations and Ethnic Diversity in the U.S. (3 credit hours)

One three-credit course that addresses the question of race relations and ethnic diversity in the U.S. Courses that fill this requirement are approved by the College of Arts and Sciences. The course selected to satisfy this requirement may also be used to fulfill another general education requirement. Otherwise, an elective course must be used to meet the requirement.

Physical Education (2 credit hours)

All students are required to complete two credits in Physical Education Activities. No more than two credits will count toward the 122 hours required for graduation. Students who enter the University at age 25 or older may waive the two credits of PEAC.

Electives

General Education Electives

Students will take additional courses in subjects so that at least half of their course work is outside of Business Administration an Upper-level (100 level or above) Economics.

Other Electives

Students take additional electives, either inside or outside of Business to achieve the total 122 credit hours required for their degree.

Restrictions on Electives

1. No credit will be granted for a course that is assumed prerequisite knowledge for a course previously completed.
2. No credit will be granted for a course that substantially duplicates material in courses offered in Business Administration or in other previously completed courses.
3. No credit will be granted for Physical Education credits beyond the two credits that are required.

Possible Curriculum

Here is *one* illustrative schedule for the program. (Numbers shown are credit hours.)

First Year		
	Fall	Spring
Math 19, 20	3	3
EC 11, 12	3	3
BSAD 40	3	
General Education Courses 6-7	9-10	
Total	15-16	15-16
Sophomore Year		
	Fall	Spring
BSAD 60, 61	4	4
STAT 141		3
General Education Courses 12-13	9-10	

Total	16-17 16-17	
Junior Year		
	Fall	Spring
Business Field Courses	12	9
General Education or Electives	3	6
Total	15	15

Senior Year		
	Fall	Spring
Business Discipline Concentration Courses	6	6
General Education or Electives	9	6
BSAD 191, Business Policy		3
Total	15	15

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Minor in Canadian Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Requirements

Eighteen hours to include International Studies 91 or History 66 (History 65 upon approval of advisor), and 15 hours to be chosen from the Canadian content list (see major listing for approved courses) of which at least 12 hours must be at the 100 level or above. Students will fulfill the language requirement with French.

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Biology: Cell and Molecular Biology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration serves students with interests in Cell, Molecular, and Developmental Biology.

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Bachelor of Arts in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional 200-level or other advanced courses approved by the department (including at least one course with laboratory). One course may be taken from outside the Department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the required advanced courses. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: Students may choose from: Biology 205, 212, 223, 231, 263, 265, 267, and Honors 208, 209. In addition, students may take approved courses offered by other biologically-oriented departments.

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Biology: Cell and Molecular Biology Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration serves students with interests in Cell, Molecular, and Developmental Biology.

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Bachelor of Science in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; Chemistry 141, 142; Physics 21, 22 in combination with 11, 12, or preferably 31, 42; Math. 19, 20 or 21, 22. Statistics 141 or 211. Forty-six hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, and 104. Of the remaining 23 hours in 200-level courses, no more than 11 hours may be taken outside the department from the list of approved courses. Up to six hours of Biochemistry 301, 302 and/or up to six hours for Biology 197, 198 or Honors 208, 209 will be accepted as credit toward the 23 hours in 200-level courses. For a list of approved offerings in other biologically-oriented departments, consult the Biology Department Office.

Concentration Courses: Students may choose from: Biology 205, 212, 223, 231, 263, 265, 267, and Honors 208, 209. In addition, students may take approved courses offered by other biologically-oriented departments.

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Chemistry (B. S.)

College: [Arts and Sciences](#)Department(s): [Chemistry](#)

Overview

Students pursuing a Bachelor of Science degree in Chemistry complete an extensive set of courses including research and biochemistry, providing them with a degree which is certified by the American Chemical Society. The B. S. degree is particularly good preparation for graduate school in Chemistry.

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Chemistry 35, 36 (or 31, 32; or 31, 36), 121, 131, 143, 144 (or 141, 142; or 141, 144), 146, 161, 162, 167, 201, 202, 204, 221, 282; six hours of advanced chemistry-related course work, which must include 3 hours of Chemistry 291 or equivalent; Math. 21, 22; Physics 21, 22, 31, 42.

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Minor in Chemistry

College: [Arts and Sciences](#)

Department(s): [Chemistry](#)

Requirements

Chemistry 31, 32 or 35, 36.

One of the two following sequences:

- Chemistry 141, 142* and one of the following: 121, 131, 160, 161, 162, 221 (with instructor permission).
- Chemistry 161, 162, and one of the following: 42, 141.

*143, 144 can be used in place of 141, 142.

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Chemistry: General Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Chemistry](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Chemistry 35, 36 (or 31, 32; or 31, 36), 121, 131, 143, 144 (or 141, 142; or 141, 144), 146, 161, 162, 167, 201, 202, 221, 282; Math. 21, 22; Physics 21, 22, 31, 42.

Biomolecular Concentration: Chemistry 35, 36 (or 31, 32; or 31, 36), 121, 131, 143, 144 (or 141, 142; or 141, 144), 162, 167, 201, 204, 282; Math. 21, 22; Physics 21, 22, 31, 42; Biology 1, 2 (or 11, 12), 103; and one of the following: Biochemistry 212, 320, 321 or Pharmacology 328.

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Minor in Chinese

College: [Arts and Sciences](#)

Department(s): [East Asian Languages Program](#)

Requirements

Fifteen credit hours of Chinese with at least eight of those hours at the 100 level, including 102 or its equivalent. Three credit hours at or above the 100 level in Chinese linguistics or literature may be substituted for three credits of language study beyond 102 or its equivalent.

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Engineering Management: Civil Engineering Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Engineering Management](#)

General Requirements

- [University](#)
- [College of Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Engineering Management](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
CE 1, Statics	3	
CE 10/12, Surveying	4	
EC 12, Principles of Microeconomics	3	
Math 121, Calculus III	4	
BSAD 60, Financial Acctng	4	
Math 271, Applied Math		3
BSAD 61, Managerial Acctng		4
CE 11, Computer-Based Tools for CE		4
ME 12, Dynamics		3
ME 14, Mechanics of Solids		3
Total	18	17

Junior Year

	Fall	Spring
BSAD 120, Mgmt & Organ Behav		3
PHYS 42/22, Electromagnetism & Modern Phys. (and lab)		5

CE 160, Hydraulics	4	
CE 140, Trans Engineering	3	
Stat 143, Stat for Engineers; or Stat 211, Stat Methods I	3	
CE 125, Engr Economics	3	
BSAD 141, Mgmt Info Systems	3	
CE 170, Structural Analysis	4	
BSAD 173, Prod & Oper Analy	3	
Total	15	16

Senior Year

	Fall	Spring
EE 100, Engr Concepts I	4	
CE 150, Environmental Engr	3	
EMGT 185, Senior Project	3	
HSS Elective	3	
BSAD 178, Quality Control; or Stat 224, Statistics for Qual & Prod	3	
BSAD 270, Quant Analysis; or BSAD 272, Discrete Simulation		3
HSS Elective		3
CE Conc Elective ¹		3-4
EMGT 175, Mgmt of Technology		3
Engr Mgmt Elective ²		3
Total	16	15-16

Total Credits: 131-132

Notes:

¹ CE Concentration electives: CE 141, 151, 161, 171, 172, 175, 180, 260, 261, and ME 40 with 44.

² Engineering Management electives: BSAD 143, 144, 145, 168, 170, 174, 177, 192; and Statistics 221, 224, 225, 229, 231, 233, 237, 253.

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Civil Engineering: General Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Civil and Environmental Engineering](#)

General Requirements

- [University](#)
- [College of Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Civil and Environmental Engineering](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
Math 121, Calculus III	4	
Physics 42 with 22, Electromag Modern Physics	5	
CE 1, Statics	3	
CE 10, Surveying	3	
CE 12, Surveying Lab		1
Satistics 143, Statistics for Engineering	3	
Math 271, Applied Math/Engineers		3
ME 12, Dynamics		3
Science Elective ¹		4
CE 11, Computer Tools		4
HSS Elective ²		3
Total	18	18

Junior Year

	Fall	Spring
CE 100, Mech of Materials	3	
CE 140, Transportation		3

CE 150, Environmental Engineering	3	
CE 160, Hydraulics	4	
CE 101, Materials Testing	2	
CE 151, Water/Wastewater	3	
CE 170, Struct Analysis I	4	
ME 40/44, Thermo/Heat Transfer	4	
HSS Elective	3	3
Total	16	16

Senior Year

	Fall	Spring
EE 100, Elect Principles	4	
CE 171, Struct Analysis II	3	
CE 172, Steel Design	3	
CE 180, Geotechnical Principles	4	
CE 125, Eng'g Econ/Decisions	3	
CE 173, Reinf Concrete Design	3	
Design Elective ³	3-4	
CE 176, Senior Design Seminar	1	
Professional Elective ⁴	3	
HSS Elective	3	
Total	14	16-17

Total Credits: 133

Notes:

¹ Science Electives are: BIOL 1A, BIOL 2A, CHEM 32, 42, 141; GEOL 1; NR 276; PSS 264.

² Required Humanities course: students must elect one from the list of approved cultural diversity courses.

³ Design Electives are CE 141, 142, 161, 175, 181, 230, 250, 251, 253, 255, 256, 258, 260, 261, 264, 265, 280, 283.

⁴ Professional Electives are all Design Electives plus CE 171, 191, 192, any CE 200 level course, Natural Resource 278.

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Classical Civilization (B. A.)

College: [Arts and Sciences](#)

Department(s): [Classical Civilization](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

36 hours consisting of 30 in the Major Discipline and 6 in Related Courses. Of these 36 hours, 12 must be at the 100-level or above. Major Discipline. All courses in Classics, Latin, Greek, Ancient History, and Ancient Art are applicable, of which 1 course in Ancient Art (Art 146, 148, or 149) and any 2 courses in Ancient History (Classics 21, 23, 121, 122, 149, 221, 222) are required. Related Courses: For a list of approved related courses in Fine Arts, Humanities, Social Sciences and Natural Sciences, students should consult with the Classics department. Foreign Language: Fulfillment of the language distribution requirement of the College of Arts and Sciences is required, preferably with Latin or Greek.

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Minor in Classical Civilization

College: [Arts and Sciences](#)

Department(s): [Classics](#)

Requirements

Eighteen hours, including six hours of Greek or six hours of Latin at the level of 51 or above, and 12 hours from the following (of which at least nine hours must be above 100): Classics 21, 23, 24, 33, 35, 37, 42, 121, 122, 149, 153, 154, 155, 156, 157, 158, 159; Art 146, 148, 149; all Classics, Latin, or Greek courses to include special topics courses (95, 96, 195, 196, 295, 296).

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Communication Sciences (B. A.)

College: [Arts and Sciences](#)

Department(s): [Communication Sciences](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Departmental Requirements: 80, 90, 94, 101, 160 or 162, 164, 208, 262, 271, 272, 281.

Additional Requirements: Biology 4; Psychology 1, 161; Statistics 111 or 141; and one physical science course with lab from Physics, Chemistry, Geology, or Astronomy.

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Minor in Communication Sciences

College: [Arts and Sciences](#)

Department(s): [Communication Sciences](#)

Requirements

This minor is not available to students pursuing degree programs not offered by the College of Arts and Sciences.

CMSI 80, 90, 94, 101, 164, 208.

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Minor in Community and International Development

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics Department](#)

Requirements

Any student interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

A total of 15 credit hours with nine from required courses CDAE 2, 61, and 171; and six hours from a list of restricted electives as follows: CDAE 166, 167, 196, 218, 237, 251, 255, 272, 273, or 296.

Arts and Sciences Majors: This minor is also available for Arts and Sciences students. Courses required are: a total of 15 credits with 12 from required courses CDAE 2, CDAE 61 or EC 12, CDAE 102, and either CDAE 171, 273, or 296; and three hours from a list of restricted electives as follows: CDAE 166, 167, 237, 251, 255, 272, EC 140.

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Electrical Engineering: Computer Engineering Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Electrical and Computer Engineering](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Electrical and Computer Engineering](#)

Possible Curriculum

First Year

	Fall	Spring
CS 21, Comp Programming I	4	
Math 21, Calculus I	4	
Chemistry 31, Intro Chemistry	4	
English 1, Written Expression	3	
Engr 1, Intro to Engr	1	
Physical Education	1	1
HSS Elective		3
Math 22, Calculus II		4
Physics 31 and 21, Intro Physics		5
Engr 2, Graph Comm		2
Total	17	15

Sophomore Year

	Fall	Spring
Math 121, Calculus III		4
Physics 42 and 22, Electromag Modern Physics		5

EE 3, Linear Circuit Analysis I	3	
EE 81, Sophomore Lab I	2	
HSS Elective	3	3
Math 271, Applied Math/Engineers	3	
CS 26, Computer Programming II	3	
EE 4, Linear Circuit Analysis II	3	
EE 82, Sophomore Lab II	2	
Statistics 143/151	3	
Total	17	17

Junior Year

	Fall	Spring
EE 120, Electronics I	3	
Math 54, Fund of Comp	3	
EE 163, Solid State I or EE 171	4	
EE 131, Digital Design	3	
HSS Elective	3	3
EE 121, Electronics II	3	
CS 104, Data Structures	3	
EE 134, Microprocessors	4	
Approved CS Elective ¹	3	
Total	16	16

Senior Year

	Fall	Spring
EE 171, Sig & Syst or EE 163	4	
EE 183, Junior Lab I	2	
EE 141, EM Field Theory ²	3	
EE/CS Elective ³	3	3
Approved EE Design Seq I and II ⁴	3	3
Approved CS Elective ¹	3	
EE 184, Junior Lab II	2	
Non-EE Engineering Sci Elective ⁵	3	
HSS Elective	3	
Total	15	17

Total Credits: 130

Notes:

¹ Any 100- or 200-level CS course approved by a Computer Engineering advisor.

² No credit may be received for both EE 140 (offered in prior years) and the current EE 141.

³ Any 100- or 200-level CS or EE course approved by a Computer Engineering advisor.

⁴ A 100- or 200-level EE course sequence approved by a Computer Engineering advisor.

⁵ Non-EE Engr. Science Electives: CE 1, 10, 150; ME 12, 40, 114.

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Computer Science (B. A.)

College: [Arts and Sciences](#)

Department(s): [Computer Science](#)

Overview

Students may select among three degree programs in Computer Science: the Bachelor of Arts degree, described below, is offered through the College of Arts and Sciences. Additionally, a Bachelor of Science is offered through the College of Engineering and Mathematics, with majors in either Computer Science or in Computer Science and Information Systems (students interested in the Bachelor of Science degree are referred to the descriptions under the College of Engineering and Mathematics).

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Computer Science 21, 26, 100, 101, 103, 104, 224 or 243, 292, and three additional computer science courses at the 200-level or above, for at least nine additional credits, not more than three credits of which may be independent study; Mathematics 19+20 or 21+22 (Math. 21+22 are recommended), 54; Statistics 151; the distribution requirement in natural science must be satisfied, and it is recommended that this requirement be fulfilled with a two-semester laboratory science sequence.

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Computer Science (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Computer Science](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)

Specific Requirements

Bachelor of Science, Computer Science Major: A minimum of 124 credits (122, if the student is exempt from PEAC) are required as follows:

- Computer Science: 21, 26, 100, 101, 103, 104, 201, 224 or 243, 292, plus fifteen additional credits (five courses) of 200-level courses (not more than three credits of which may be independent study)
- Mathematics: 21, 22, 54, two of (121, 124, 173, 271)
- Statistics: 141 or 211 (recommended), 151
- Four courses of laboratory science electives, selected from the following six:
 - Biology: 1, 2
 - Chemistry: 31, 32
 - Physics: 31 (with 21), 42 (with 22)


Note: Specific science courses are required for certain minors.
- English: 1
- Six credits (two courses) of Social Science Electives selected from ALANA, Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology, Women's Studies, or other advisor-approved electives
- Six credits (two courses) of Humanities and Fine Arts Electives selected from: Art, Classics, Drama, Film, Language, Literature, Music, Philosophy, Religion, Speech, or other advisor-approved electives
- 15 additional credits in advisor-approved electives in Humanities, Social Sciences, and Arts, to include either AH 95, AGRI 95, or one course approved by the College of Arts and Sciences as a course in non-European Cultures or Race Relations and Ethnicity, as specified under General Requirements in the College of Arts and

Sciences section of this catalogue

- 12 additional credits in advisor-approved free electives (excluding PEAC)
- Two credits of PEAC (see Academic and General Information for exceptions)
- Completion of a University-approved minor (excluding Computer Science); courses used to fulfill other requirements may be used to satisfy minor requirements

No grade below a C- in any computer science course will be accepted, except as free elective credit.

Possible Curriculum

A sample course sequence can be found on the Computer Science department [web site](#).


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Undergraduate Minor in Computer Science

College: [Arts and Sciences](#), [Engineering and Mathematics](#)

Department(s): [Computer Science](#)

Requirements

A Computer Science Minor consists of 18 credits in computer science to include 100 or 103, 104, and three additional credits at the 100 level or above. Some Computer Science courses require additional prerequisites.

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Computer Science and Information Systems (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Computer Science](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)

Specific Requirements

A minimum of 128 credits (126, if the student is exempt from PEAC) are required as follows:


- Computer Science: 14, 21, 26, 100, 101, 103, 104, 292, plus nine additional credits (three courses) of 200-level courses (not more than three credits of which may be independent study)
- Business Administration: 60, 61, 120, 132, 141, 143, 144, 150, 173, 180
- Economics: 11, 12
- Mathematics: 19 and 20, or 21 and 22 (recommended sequence), 54
- Statistics: 141
- One laboratory science sequence, selected from the following three:
 - Biology: 1, 2
 - Chemistry: 31, 32
 - Physics: 31 (with 21), 42 (with 22)
- English: 1
- Nine credits (three courses) of Social Science Electives selected from ALANA, Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology, Women's Studies, or other advisor-approved electives
- Nine credits (three courses) of Humanities and Fine Arts Electives selected from: Art, Classics, Drama, Film, Language, Literature, Music, Philosophy, Religion, Speech, or other advisor-approved electives
- 15 additional credits in advisor-approved free electives (excluding PEAC)
- Two credits of PEAC (see Academic and General Information for exceptions)
- All students must complete either AH 95, AGRI 95, or one course approved by the

College of Arts and Sciences as a course in non-European Cultures or Race Relations and Ethnicity, as specified under General Requirements in the College of Arts and Sciences section of this catalogue; a course used to fulfill other elective or distribution requirements may be used to fulfill this requirement.

No grade below a C- in any computer science or business administration course will be accepted, except as free elective credit.

Note: This program is intended to fulfill the course requirements for eligibility for advanced standing in the MBA program at UVM.

Possible Curriculum

A sample course sequence can be found on the Computer Science department [web site](#) .

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Minor in Consumer and Advertising

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics Department](#)

Requirements

Any student interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Fifteen credits including CDAE 15, 127, 128, 183, and an advisor-approved elective.

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Minor in Consumer Affairs

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics Department](#)

Requirements

Any student interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Fifteen credits including CDAE 127, 128, 157, 159; plus one of the following restricted electives: CDAE 102, 250, or 255. *Note: CDAE majors must take CDAE 250 as their "elective."*

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Biomedical Technologies: Medical Laboratory Science Concentration (B. S.)

College: [Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Overview

This four-year curriculum leading to the baccalaureate degree is accredited by the [National Accrediting Agency for Clinical Laboratory Sciences](#) .

The clinical laboratory scientist is involved in the development, performance, and evaluation of laboratory tests that lead to assessment of health status, diagnosis of disease, and monitoring of therapeutic treatment. The clinical laboratory experience is obtained at Fletcher Allen Health Care — Vermont's Academic Medical Center (FAHC) — and the Vermont State Health Department Laboratories.

On completion of the baccalaureate program, graduates are eligible for national certification.

- [Honors Program](#)
- [Cytotechnology Option](#)

General Requirements

- [University](#)
- [Nursing and Health Sciences](#)
- [Biomedical Technologies](#)

Specific Requirements

Upon consultation with an advisor, students may follow an individualized curriculum that can lead to certification in one of the clinical laboratory specialties (Microbiology, Chemistry, Hematology, or Immunology).

Possible Curriculum

First Year

	Fall Spring	
Chemistry 23 (or 31-32)	4	(4)
BMT 1, First Year Seminar	1	
BMT 3, Medical Terminology	1	
English	3	
Math (10 or 13 or 19 or higher)	3	
Computer Science	3	
BMT 34, Human Blood Cells	3	
Electives	3	6-9
Physical Education	1	1
EDSS 11, Race and Culture	1	
Total	17	16-17

Sophomore Year

	Fall	Spring
Anatomy & Physiology 19-20	4	4
BMT 54, Principals of Microbiology		4
BMT 123	4	
Statistics 111 or 141	3	
Chemistry 42 (or 141 and 142)	(4)	4
Electives	3-6	3
Total	17-18	15

Junior Year

	Fall	Spring
Biochemistry 201	3	
Biochemistry 202	1	
BMT 244, Immunology Lab	1	
BMT 295, Education & Management	3	
Pathology 101	3	
Allied Health 120	3	
Electives	3	3
BMT 293, Research Concepts		1
MLS 262, Advanced Immunohematology		4
Microbiology		4
Biochemistry 212 or AGBI 220 or 230		3
Total	17	15

Senior Year

Fall Spring

MLS 255, Advanced Clinical Microbiology	3	
MLS 231, Pathophys of Blood Cells	3	
BMT 296, Senior Seminar	2	
Electives	3	
MLS 201, 220, 230, 250, 256, 260, Clinical Practica	5-6	5-6
MLS 222, Adv Clinical Chemistry		3.5
BMT 242, Immunology		3
BMT 110-111, Phlebotomy	0.5	0.5
Total	16.5-17.5	12-13

Total Credits: 126.5

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Animal Science: Dairy Production / Farm Management Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Animal Science](#)

Overview

Designed for the student seeking an in-depth training in dairy herd management with strong links to agribusiness and an emphasis on experiential learning.

For students interested in dairy production, the UVM/VTC Dairy Farm Management 2 + 2 Program provides Vermont residents with scholarships and the opportunity to earn a B. S. after a two-year Associate's Degree in Dairy Farm Management from the [Vermont Technical College](#).

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Animal Science Requirements](#)

Possible Curriculum

First Year

Course	Hours
Foundations	6
Cultural Diversity	1-3
Introduction to Animal Science	4
Organic Chemistry	4
Inorganic Chemistry	4
Math	3
Intro A & R Entrepreneurship	3
Written English	3

Electives	3-6
Total	31-36

Sophomore Year

Course	Hours
Anatomy & Physiology of Domestic Animals	4
Animal Nutrition, Metabolism & Feeding	4
Fundamentals of Nutrition	3
CREAM	4
Biology	4-8
Financial Management	3
Statistics	3
Animals in Society / Animal Welfare	3
Career Seminar	1
Electives	3
Total	32-36

Junior Year

Course	Hours
CREAM	4
Dairy Cattle Judging	2
Advanced Feeds	2
Advanced Dairy Management	15
Accounting	3
Physical Education	1
Electives	6-9
Total	33-36

Senior Year

Course	Hours
Physiology of Reproduction	4
Decision Making	3
Lactation Physiology	3
Senior Project	4-8
Risk Analysis & Forecast Procedures	3
Physical Education	1
Marketing	3
Electives	6-9
Total	27-34

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Dental Hygiene (A.S.)

College: [Nursing and Health Sciences](#)Department(s): [Dental Hygiene](#)

Overview

The courses of study are designed to give the student a well-rounded foundation in basic sciences, specific knowledge in dental sciences, and an understanding of the humanities. Clinical experience is obtained in the Department's dental hygiene clinic where patients of all ages present with a variety of clinical problems. Dental hygiene students also have an opportunity to increase their communication skills through oral health education presentations in area schools.

The dental hygiene curriculum is highly structured, and semester course loads are heavy. Students who have the opportunity to complete liberal arts and/or basic science courses prior to entering the program are encouraged to do so. Further guidance can be obtained by calling or writing to the departmental office. First-year Dental Hygiene students should add approximately \$1,800 for an instrument kit and clinical attire.

NOTE: The University of Vermont's Dental Hygiene program is in the process of transitioning from The University of Vermont (UVM) to [Vermont Technical College](#) (VTC). The last UVM Dental Hygiene class will be admitted in Fall 2003 and will transfer to VTC in Fall 2004 from which they will receive their degrees. Students admitted to UVM in Fall 2003 will not graduate from UVM.

General Requirements

- [University](#)
- [Nursing and Health Sciences](#)

Specific Requirements

A minimum of 71 approved credit hours, including one hour of physical education, and a minimum grade-point average of 2.0 are required for the Associate in Science degree in this curriculum. A grade of C or better is required for all professional courses.

Possible Curriculum

First Year

	Fall	Spring
Dental Hygiene 1, 2	4	2
Dental Hygiene 11, 12	3	3
Dental Hygiene 61		2
Nutritional Science 43	3	
Anatomy and Physiology 19-20	4	4
Chemistry 23		4
English 1	3	
Psychology 1		3
Physical Education	1	
Total	18	18

Sophomore Year

	Fall	Spring
Dental Hygiene 62		3
Dental Hygiene 91	2	
Dental Hygiene 141	3	
Dental Hygiene 143	3	
Dental Hygiene 146		2
Dental Hygiene 181-182	4	4
Microbiology BMT 54 or MMG 65	4	
Social Anthropology		3
Speech 11		3
Elective		3
EDSS 11, Race and Culture		3
Total	17	18

Total Credits: 71

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Nutrition and Food Sciences: Dietetics Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Nutrition and Food Sciences](#)

Overview

Dietetics is a profession concerned with the science and art of human nutritional care, an essential component of human health science. The Didactic Program in Dietetics is currently granted developmental accreditation by the Commission on Accreditation for Dietetics Education of the American Dietetic Association, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, 312/899-0040 ext. 5400. This program prepares students for careers as Registered Dietitians by providing the undergraduate requirements needed to apply to dietetic internships.

To become a Registered Dietitian, students must complete our Didactic Program in Dietetics; complete a CADE accredited approved supervised practice/internship program and pass the National Registration Examination for Dietitians. Dietetics majors are also double majors in Nutrition and Food Sciences. This prepares graduates to counsel people about the preventive and therapeutic role of nutrition in the maintenance of health and fitness.

General Requirements

- [University](#)
- [College of Agriculture and Life Sciences Core Curriculum](#)
- [Nutrition and Food Sciences Core](#)

Specific Requirements

Dietetics Required Courses (28 hours): Nutrition and Food Sciences (NFS) 150, 250, 260, 261, 262, 263, 272; Business Administration (BSAD) 120; EDFC 123; BMT 3; Electives (19-41 hours).

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Education: Teacher Education/Early Childhood Education (Grades PreK-3) (B. S.)

College: [Education and Social Services](#)

Department(s): [Integrated Professional Studies](#)

Overview

The Early Childhood Education Program is designed to provide students with the perspectives and skills necessary to work with young children from birth through grade three in inclusionary, developmentally appropriate settings. These include the abilities to:

- a. Facilitate children's development of literacy, quantification, and inquiry skills.
- b. Offer instruction in an integrated day format.
- c. Assess educational progress from a portfolio perspective.
- d. Use educational materials in an open-ended fashion.
- e. And recognize and respect the diversity of family structures within our society.

The program involves a large field-based component and makes significant use of the UVM Campus Children's Center and elementary schools as practicum sites. Graduates of the program who successfully complete all requirements are eligible for licensure from the State of Vermont.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#)
- [Teacher Education](#)

Specific Requirements

The PreK-3 Professional Preparation Sequence involves three components. The first is a course in Child Development and a course in Family Relations. The child development course introduces students to the concepts that form the practical and theoretical foundation of the program's educational approach. The family relations course provides

students a foundation in family dynamics and parent-child relationships and serves to emphasize the important links between children's home and school experiences. These two courses are taken prior to formal admission into the PreK-3 program.

The second component is a three-part professional practices sequence. This sequence provides students a first exposure to the rationale, practices, and procedures used in the provision of developmentally appropriate educational experiences for young children. The sequence includes opportunities for observation and hands-on work with children, opportunities to assist teachers in the provision of developmentally appropriate educational experiences and to discuss with teachers and other professionals the issues surrounding the provision of developmentally appropriate educational experiences.

The professional practices sequence is structured as three course blocks, taken sequentially. The first block course deals with techniques for observing and documenting children's development; the second deals with developmentally appropriate educational practices for children through age six (preschool/kindergarten); and the third for children between the ages of six and eight years (grades one through three). A significant portion of this professional practices sequence takes place in one or more preschools and elementary schools.

The third component is a two-semester student teaching sequence across the birth to eight-year age (preschool through grade three) range. This student teaching experience provides the opportunity to develop, implement, and assess (both in a cooperative and an independent fashion) developmentally appropriate educational practices. One experience would be in the Campus Children's Center and the other would be in a child centered, inclusionary grade K-3 setting.

The course of study consists of 128 credits which are divided into eight categories:

- Major concentration in a liberal arts and sciences discipline
- General Education courses
- Professional Preparation Sequence
- Health and Physical Education modules
- Race and Culture course
- CESS multicultural requirement
- Physical Education activities
- Electives*

* The number of electives depends on the degree of course overlap in the General Education, major concentration, and the multicultural requirements.

Possible Curriculum

First Year

	Fall	Spring
EDEC 63, Child Development	3	
Physical Education Elective		1

Major Concentration	3	3
General Education Electives	9	6
EDEC 1, Infant/Toddler Curr Block		4
HDFS 60, Family Context of Development		3
Race & Culture		1
Total	16	17

Sophomore Year

	Fall	Spring
EDEC 100, Preschool Curriculum Block	10	
Gen Education Electives	3	
EDPE 197, Issues in Health Education (or PEAC 21, Walking for Fitness)	1	
Major Concentration	3	3
EDEC 189, Early Childhood Practices		12
Physical Education Elective		1
Total	17	16

Junior Year

	Fall	Spring
EDSP 5, Issues Affecting Persons with Disabilities	3	
Major Concentration	6	3
General Education Electives	6	3
EDEL 156, Teaching Math for Meaning		3
EDEL 176, Language Arts & Literacy Skills		3
EDEL 177, Children's Lit & Literacy		2
EDEC 296, Field Experience (Literacy)		3
Total	15	17

Senior Year

	Fall	Spring
Major Concentration	9	
Gen Education Electives	6	
EDEC 187, Field Practicum		12
EDEL 187, Planning Adapting and Delivering Reading Instructions		3
Total	15	15

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Botany: Ecology and Evolutionary Biology of Plants Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Botany](#)

Overview

This concentration offers broad training in organismal biology, with emphasis on population and physiological ecology, community structure and function, and plant evolution and diversity. Students choose from a menu of options in fulfilling most requirements; this flexible curriculum enables students to select from a wide range of courses while achieving proficiency in ecology and evolution of plants. Students are encouraged to initiate an independent research project with one of our faculty.

General Requirements

- [University](#)
- [College of Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)
- [Botany Core](#)

Specific Requirements

In addition to the basic course requirements for our departmental major, this concentration has the following requirements and electives:

Concentration Requirements (28 hours): Botany 108, 109, 160. Chemistry 31, 32, 141, 142.

Concentration Electives (12-24 hours): At least six courses from the following, at least two of which must be 200-level Botany courses: Agricultural Biochemistry 201, 202. Biology 102, 203, 238, 254, 264, 270. Botany 117, 205, 209, 213, 223, 232, 234, 241, 260, 261. Environmental Science 101, 201. Forestry 21, 120, 121, 122, 225, 228, 234. Geography 81. Geology 1, 55, 151, 101. MMG 220. Natural Resources 220, 224, 260. Plant and Soil Science 151, 161, 215.

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Economics (B. A.)

College: [Arts and Sciences](#)

Department(s): [Economics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-three hours in Economics and three hours in Mathematics as follows: Economics 11, 12; Math. 19; three courses numbered Economics 20-160 or 194-196, two of which must be numbered 110 or higher; the methods and theory courses in Economics numbered 170, 171, 172; and three Economics courses numbered 200 or higher. No more than three credits from Economics 218, 219, 291, 292, 297, 298 may be applied towards the major. Students are urged to take Math. 19 early in the program.

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Minor in Economics

College: [Arts and Sciences](#)

Department(s): [Economics](#)

Requirements

Eighteen hours including Economics 11, 12; and four courses numbered 20-196, three of which must be numbered 110-196.

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Electrical and Computer Engineering Undergraduate Requirements

Colleges: [Engineering and Mathematics](#)

Department(s): [Electrical and Computer Engineering](#)

Concentrations: [Biomedical Engineering](#), [Computer Engineering](#), [Electrical Engineering](#), [Premedical Engineering](#)

The curriculum in Electrical Engineering leading to the degree of Bachelor of Science in Electrical Engineering offers instruction in electrical and electronic circuits, electromagnetics, semiconductor devices, signal and system analysis, communications, digital systems, well as in physical and life sciences, humanities, and social sciences.

There are four options leading to an ABET accredited degree of Bachelor of Science in Electrical Engineering: General Electrical Engineering, Computer Engineering, Biomedical Engineering, and Premedical Engineering. The degree requires a minimum of 130 semester hours for Option 1, 128 semester hours for Option 2, 130 for Option 3, and 130 credit hours for Option 4. In addition, two credits of physical education activities are required.

All students must elect one course from the list of approved cultural diversity courses as one of their required humanities and social science courses.

Students may pursue a cross-college or departmental minor provided that they fulfill all Electrical Engineering degree requirements.

Engineering design is developed and integrated in each student's program and culminates in a required major design experience which draws upon prior course work and which focuses on the issues and expectations of professional practice.

No more than three grades of D, D+, or D- will be acceptable in all required courses in engineering, basic science, and computer science including all technical electives as stated in the catalogue for the junior and senior years.

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Undergraduate Minor in Electrical Engineering

College: [Engineering and Mathematics](#)

Department(s): [Electrical and Computer Engineering](#)

Requirements

A minor in Electrical Engineering consists of at least 19 credit hours in Electrical Engineering courses distributed as follows: 3, 81, 4, 82, plus at least nine credit hours numbered above 101. Prerequisite courses for the minor are Math. 21, 22, 121, 271 (or 230) as well as Physics 31, 21, 42, and 22. Each student in the minor program will be assigned an Electrical and Computer Engineering faculty advisor who will assist the student in developing an individualized plan of study. The plan of study of the minor must be approved by the Electrical and Computer Engineering faculty advisor.

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Engineering Management: Electrical Engineering Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Engineering Management](#)

General Requirements

- [University](#)
- [College of Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Engineering Management](#)

Possible Curriculum

Sophomore Year

	Fall Spring	
Economics 11, Prin of Economics	3	
Math 121, Calculus III	4	
BSAD 60, Financial Acctng	4	
Physical Education	1	
EE 3 & 4, Linear Circuit Analysis I & II	3	3
EE 81 & 82, Sophomore Lab I & II	2	2
Math 271, Applied Math	3	
BSAD 61, Managerial Acctng	4	
Physics 42 with 22, EM & Mod Phys	5	
Total	17	17

Junior Year

	Fall Spring	
Stat 143, Stat for Engineers; or Stat 211, Stat Methods I	3	
Economics 12, Prin of Economics	3	

EE 131, Digital Design	3	
BSAD 141, Mgmt Info Systems	3	
Physical Education	1	
EE 120 & 121, Electronics I & II	3	3
CE 125, Engr Economics	3	
EE 134, Microcomputer Based Systems	4	
BSAD 173, Prod & Oper Analy	3	
HSS Elective	3	
Total	16	16

Senior Year

	Fall	Spring
BSAD 120, Mgmt & Organ Behav	3	
EMGT 185, Senior Project	3	
BSAD 178, Quality Control; or Stat 224, Statistics for Qual & Prod	3	
HSS Elective	3	
EE 163, Solid State Phys Elect; or EE 171, Signals & Systems	4	
EE 231, Dgtl Comp Design	3	
BSAD 270, Quant Analysis; or BSAD 272, Discrete Simulation	3	
EE Conc Elective ¹	3-4	
EMGT 175, Mgmt of Technology	3	
Engr Mgmt Elective ²	3	
Total	16	15-16

Total Credits: 130-131

Notes:

¹ EE Conc. Electives: EE 113, 141, 163 (if not used to fulfill another requirement), 164 (163 is prerequisite), 171 (if not used to fulfill another requirement), 174 (171 is prerequisite), EE 183-184 (both courses are needed to meet this requirement), 210, 228, 250, 251, and 295.

² Engineering Management electives: BSAD 143, 144, 145, 168, 170, 174, 177, 192; and Statistics 221, 224, 225, 229, 231, 233, 237, 253.

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Electrical Engineering: General Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Electrical and Computer Engineering](#)

General Requirements

- [University](#)
- [College of Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Electrical and Computer Engineering](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
Math 121, Calculus III	4	
EE 3, Linear Circuit Analysis I	3	
EE 81, Sophomore Lab I	2	
EE 131, Fund of Digital Design	3	
Physics 42 and 22, Electromag Modern Physics	5	
Math 271, Applied Math/Engineers		3
HSS Elective		6
EE 82, Sophomore II		2
EE 4, Linear Circuit Analysis II		3
Statistics 143/151		3
Total	17	17

Junior Year

	Fall	Spring
EE 120, Electronics I	3	
EE 141, EM Field Theory I ¹	3	
EE 163, Solid State Electronics I ¹	4	

EE 171, Signals & systems ¹	4	
EE 183, Junior Lab I	2	
HSS Elective	3	3
EE 121, Electronics II		3
EE 142, EM Field Theory II ¹		3
EE 164, Solid State Electronics II ¹		3
EE 174, Intro to Comm Sys ¹		3
EE 184, Junior Lab II		2
Phys Ed		1
EE 134, Microprocessors ¹	4	
Total	15-16	15-16

Senior Year

	Fall	Spring
Non-EE Eng Sci Elective ^{2, 3}	3	
EE 185, Senior Lab	1	
Tech Elective ⁵	3	
Remaining EE Sequence	3-4	6-7
EE Engr Science Elective ⁴	3	3
Approved EE Design Sequence I and II ⁶	3	3
EE Tech Elective		3
EE 186, Senior Lab II		1
Total	16-17	16-17

Total Credits: 133

Notes:

¹ Pick two of the first 3 or 4 EE sequence; take remainder in fourth year.

² Non-EE Eng. Sci. Elect. and an elective from spring semester can be exchanged.

³ Non-EE Engr. Science Electives: CE 1, 10, 150; ME 12, 40, 114.

⁴ EE Engr. Science. Elective: 113, 210, 241, 242, 245, 246, 261, 266, 274.

⁵ Tech. Electives: EE 113, 164, 210, 221, 222, 224, 227, 228, 231, 241, 245, 246, 250, 251, 261, 266, 274, 275, 276, 295; CS 26, 100, 101, 103, 104, 201, 222; PHYS 128; ME 14, 40, 114, 150; CE 125; CHEM 161; MATH 54, 124, 173; STAT 143, 151. All 200-level Math. and Statistics courses except for practicum, seminar, and special topics.

⁶ A 100- or 200-level EE design course sequence approved by an Electrical Engineering faculty advisor.

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Education: Teacher Education/Elementary Education (Grades K-6)(B. S.)

College: [Education and Social Services](#)

Departments: [Education](#)

Overview

The Elementary Education Program prepares teachers for assignments in grades kindergarten through six. The Bachelor of Science in Education is awarded upon satisfactory completion of the approved program which includes a planned sequence of professional courses, field experiences, and a full-semester internship experience.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#)
- [Teacher Education](#)

Specific Requirements

The Elementary Education Program is a designed sequence of professional course work that achieves coherence from its theme "teaching all children strategically in diverse communities." Embedded in a state known for its progressive schooling traditions, Elementary Education students have ample opportunity to learn about and practice the art and science of teaching. Through a web of unique relationships with area schools, Elementary Education majors build friendships with a diverse variety of children by the second year of their professional program.

Several features distinguish the program:

Blocked Professional Course Work: Grounded in a theoretical orientation that seeks to limit the necessity for piecemeal education, faculty of the program have designed course work that fits together in naturally occurring curricular blocks: literacy (reading/writing, children's literature, mathematics), inquiry (social education, science, visual and

performing arts), and the professional internship (student teaching, classroom management, and portfolio development).

Integrated Fieldwork: Professed theory about teaching is constantly exposed to the reality of public school practice. Each curriculum block has field experience attached to it. Students are thus placed in situations where theory and practice reside in reciprocal tension.

Authentic Assessment The State of Vermont requires a results-oriented demonstration of teaching competence to qualify for the teaching license. The Elementary faculty have built in portfolio driven authentic assessments at every step of the professional program. Interns thus learn the portfolio process from the inside out and are able to apply it to themselves while learning to apply it within their public school classes.

Full Inclusion: The State of Vermont has the highest rate of inclusion of learners with special challenges in the regular classroom setting. Being educated at UVM means elementary education students learn about and practice the application of instructional adaptations for learners of exceptional need.

Elementary Education Curriculum: The elementary education curriculum includes a general education component of 60 credits from the academic areas outlined earlier. Included in the 60 hours must be two semester hours of physical education activities. Students are required to complete an approved major concentration, consisting of at least 30 hours of study in a liberal arts and sciences discipline. Specific information may be obtained from advisors or from the Office of Student Services, 528 Waterman. In addition to the major concentration and professional education requirements, certain courses are recommended to meet specific state and national requirements in elementary education.

Full-time students enroll in 12 to 18 credits. Elementary education students enroll in the required education courses each semester, along with several additional required courses.

Possible Curriculum

First Year

	Fall	Spring
EDEL 010-Intro to Teaching & Learning	1	1
EDEL 011-Computers in El. Ed. Classroom	3	or 3
EDEL 024-Learners and Learning Process	3	or 3
Major Concentration	3	6
PEAC	1	or 1
Diversity	1-3	or 1-3
Gen. Ed.; Electives	6	6
Total	12-18	12-18

Sophomore Year

	Fall	Spring
¹ EDEL 056-Teachers & the Teaching Process	3	or 3
¹ EDEL 178-Meeting Indiv. Needs: Assessment and Instruction	2	or 2
EDSP 005-Issues Affecting Persons With Disabilities	3	or 3
EDPE 197-Issues in Health Education	1	or 1
EDPE 100-Integrating Movement Across the Elementary School Curriculum	2	or 2
Major Concentration	3	6
PEAC	1	or 1
Gen. Ed.; Electives	6	6
Total	12-18	12-18

During the sophomore year, students must complete an Application to Teacher Education form available in 533 Waterman Building. Students will follow requirements specified in the Application to Teacher Education. Students will not be permitted to enroll in advanced education courses until they have been accepted to teacher education. The advanced courses include:

Junior Year

	Fall	Spring
² EDEL 155-Lab Experience in Inquiry	3	or 3
² EDEL 157-Social Ed. & Social Studies	2	or 2
² EDEL 158-Teaching Science for Meaning	2	or 2
² EDEL 159-Visual & Performing Arts, K-6	2	or 2
³ EDEL 156-Teaching Math for Meaning	3	or 3
³ EDEL 175-Lab Experience in Literacy	3	or 3
³ EDEL 176-Language Arts & Literacy Skills	3	or 3
³ EDEL 177-Children's Literature and Literacy	2	or 2
⁴ EDEL 187-Planning, Adapting and Delivering Reading Instructions	3	or 3
Major Concentration	3	3
Gen. Ed.; Electives	3	3
Total	12-18	12-18

Students are required to complete a student teaching internship application in their junior year before being assigned a placement as seniors. Students will be notified by the Professional Education Office of a general meeting and are expected to attend to initiate this process. Students will follow requirements specified in the Application to Student Teaching. The course work for this stage of the program follows.

Senior Year

	Fall	Spring
⁵ EDEL 185-Student Teaching Internship	12	or 12
⁵ EDEL 188-Principles of Classroom Management	2	or 2
⁵ EDEL 189-Portfolio Development & Reflective Practice	1	or 1
EDFS 203-Social, Hist. & Phil. Foundations of Education	3	or 3
Major Concentration	6	or 6
Gen. Ed.; Electives	6	or 6
Total	12-18	12-18

A minimum of 127 approved credit hours is required for the degree.

Notes:

¹ Courses taken concurrently

² Courses taken concurrently

³ Courses taken concurrently

⁴ EDEL 187 must be taken after completing the Literacy Block and before student teaching.

⁵ Courses taken concurrently

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English (B. A.)

College: [Arts and Sciences](#)

Department(s): [English](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements:

Thirty-three hours at the level of 11 or above, including 86 (85 is recommended for first-year students planning to major in English); at least twenty-one hours at or above the 100 level, at least three of which must be from courses numbered 201-282 (Senior Seminars). A total of nine hours of Film may be counted toward the major. Of the credit hours above 100: (a) at least three hours must be in writing or in critical theory or in study of the English language (listed in Departmental offerings as Category A; usually courses numbered 101-120 and 201-212, but courses with other numbers may also fulfill Category A; check Departmental offerings for each term); (b) at least six hours must be in literature before 1800 (listed in Departmental offerings as Category B; usually courses numbered 121-134 and 221-222, but courses with other numbers may also fulfill Category B; check Departmental offerings for each term); and (c) at least three hours must be in 19th-century literature (listed in Departmental offerings as Category C; usually courses numbered 141-147 and 241-242, but courses with other numbers may also fulfill Category C; check Departmental offerings for each term). One Humanities course approved by the English Department or one World Literature course may count toward the major. No more than nine hours of English 117, 118, 119 and/or 120 will count toward the fulfillment of major requirements.

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Minor in English

College: [Arts and Sciences](#)

Department(s): [English](#)

Requirements

Available only to students majoring in a program in the College of Arts and Sciences.

Eighteen hours including six hours taken from one of the following sequences: 21-22, 23-24, 25-26, 27-28, or 85-86; and a minimum of nine credits at the 100 level or above.

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Biology: Environmental Biology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration is appropriate for students with interests in Ecology, Evolution, Conservation Biology, or Animal Behavior.

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Bachelor of Arts in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional 200-level or other advanced courses approved by the department (including at least one course with laboratory). One course may be taken from outside the Department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the required advanced courses. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: Biology 102 is required of all Biology majors. Other recommended courses in this concentration include, but are not restricted to: Biology 203, 206, 208, 217, 238, 246, 254, 255, 264, 270, 295.

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Biology: Environmental Biology Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration is appropriate for students with interests in Ecology, Evolution, Conservation Biology, or Animal Behavior.

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Bachelor of Science in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; Chemistry 141, 142; Physics 21, 22 in combination with 11, 12, or preferably 31, 42; Math. 19, 20 or 21, 22. Statistics 141 or 211. Forty-six hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, and 104. Of the remaining 23 hours in 200-level courses, no more than 11 hours may be taken outside the department from the list of approved courses. Up to six hours of Biochemistry 301, 302 and/or up to six hours for Biology 197, 198 or Honors 208, 209 will be accepted as credit toward the 23 hours in 200-level courses. For a list of approved offerings in other biologically-oriented departments, consult the Biology Department Office.

Concentration Courses: Biology 102 is required of all Biology majors. Other recommended courses in this concentration include, but are not restricted to: Biology 203, 206, 208, 217, 238, 246, 254, 255, 264, 270, 295.

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Minor in Environmental Sciences: Biology

College: [Arts and Sciences](#)

Department(s): [Environmental Science](#)

Requirements

Biology 1, 2 or 11, 12; 102, and two additional upper-division non-biology courses chosen in consultation with co-advisor.

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Chemistry: Environmental Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Chemistry](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Chemistry 35, 36 (or 31, 32; or 31, 36), 121, 131, 143, 144 (or 141, 142; or 141, 144), 161 or 162, 167, 201, 221, 282; Math. 21, 22; Physics 21, 22, 31, 42; and two courses from the following, at least one of which must be Civil and Environmental Engineering 252 or 253: Civil and Environmental Engineering 150, 252, 253, Geology 233, 234, 235, or 255.

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Minor in Environmental Sciences: Chemistry

College: [Arts and Sciences](#)

Department(s): [Environmental Science](#)

Requirements

Chemistry 31, 32; 121 or 42; and two additional upper-division non-chemistry courses chosen in consultation with co-advisor.

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Civil Engineering: Environmental Engineering Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Civil and Environmental Engineering](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Civil and Environmental Engineering](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
Math 121, Calculus III	4	
Physics 42 with 22, Electromag Modern Physics	5	
CE 1, Statics	3	
CE 10, Surveying	3	
CE 12, Surveying Lab		1
Satistics 143, Statistics for Engineering	3	
Math 271, Applied Math/Engineers		3
ME 12, Dynamics		3
Chemistry 32 or Biology 2		4
CE 11, Computer Tools		4
HSS Elective ¹		3
Total	18	18

Junior Year

	Fall	Spring
CE 100, Mech of Materials		3

CE 150, Environmental Engineering	3	
CE 160, Hydraulics	4	
ME 40/44, Thermodynamics	4	
CE 101, Materials Testing	2	
CE 151, Water/Wastewater	3	
CE 154, Environ Analysis	2	
CE 170, Struct Analysis I	4	
HSS Elective ¹	3	3
Total	17	14

Senior Year

	Fall	Spring
EE 100, EE Principles	4	
CE 140, Transportation	3	
CE 180, Soil Mechanics	4	
Professional Elective ²	3	
CE 172, Steel Design		
or	(3)	(3)
CE 173, Reinforced Concrete		
CE 125, Enggr Econ/Planning		3
Design Electives ³		6
HSS Elective		3
CE 176, Senior Design Seminar		1
Total	14-17	13-16

¹ Required Humanities course: students must elect one from the list of approved cultural diversity courses.

² Professional Electives are all Design Electives plus CE 171, 191, 192, any CE 200 level course, Natural Resource 278.

³ Design Electives are CE 141, 142, 161, 175, 181, 230, 250, 251, 253, 255, 256, 258, 260, 261, 264, 265, 280, 283.

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Geology: Environmental Geology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Geology](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Upper level electives should be chosen from the following lists:

- Solid earth: 112, 131, 230, 240, 241, 245, 273, 195, 196
- Surface Processes: 151, 153, 155, 255, 195, 196
- Geochemistry/Earth Systems: 210, 233, 234, 235, 195, 196

One Geology course below 100 level, 101, 102, 260. At least three credits of field experience are highly advisable (Geology 197, 198, 201, field camp or field-based thesis). Three Surface Process courses, one Solid Earth course, one Geochemistry/Earth Systems course. Two courses in Geology or approved science, mathematics, engineering, or statistics courses at the 100 level or above selected in consultation with Geology advisor, Math. 19, 20, or 21, 22; Chemistry 31 and 32 (or 35 and 36); Physics 11, 21 (12, 22 also strongly recommended).

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Geology: Environmental Geology Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Geology](#)

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Upper level electives should be chosen from the following lists:

- Solid earth: 112, 131, 230, 240, 241, 245, 273, 195, 196
- Surface Processes: 151, 153, 155, 255, 195, 196
- Geochemistry/Earth Systems: 210, 233, 234, 235, 195, 196

One Geology course below 100 level, 101, 102, 260. At least three credits of field experience are required (Geology 197, 198, 201, field camp or field-based thesis). Four Surface Process courses, two Solid Earth course, one Geochemistry/Earth Systems course. Two additional courses in Geology or approved science, mathematics, engineering, or statistics courses at the 100 level or above selected in consultation with Geology advisor, Math. 21, 22 or 19, 20, 22; Chemistry 31 and 32 (or 35 and 36); Physics 21, 31 and 22, 42 or 21, 31 and 125; Statistics 141.

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Minor in Environmental Sciences: Geology

College: [Arts and Sciences](#)

Department(s): [Environmental Science](#)

Requirements

Geology 55, 101, 155, and two additional upper-division non-geology courses chosen in consultation with co-advisor.

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Environmental Sciences (B. S.)

College: [Arts and Sciences](#)

Department(s): [Environmental Sciences](#)

Overview

The basic Environmental Sciences major in the College of Arts and Sciences provides students with a modern environmental science degree in the context of a liberal arts college. It is tailored for students who want an interdisciplinary science degree that is centered around environmental issues. It emphasizes basic approaches to understanding the environment and environmental problems. Students completing this major will have the scientific background necessary to compete in the job market for environmental science, or to continue with advanced studies in a graduate degree program. This major emphasizes flexible course choices at the upper level, guided by co-advisors from different departments who work with each student individually.

During the first two years, the major draws on a core curriculum of basic science courses in biology, chemistry, and mathematics. This core is designed so that students can easily flow between other science majors, such as Biology, Geology, and Chemistry. At the upper division level, students work closely with faculty advisors to develop a set of science courses that will meet their particular needs and career goals.

Learning through experience and advising are integral parts of this major. To experience environmental research first hand, an independent research project or honor thesis is completed in the senior year. Co-advisors help with research and also with choices of courses and career plans.

At the upper division level, students can be general in their choice of courses or three areas of concentration allow students to specialize their training.

Environmental Biology - ecological and molecular analysis of endangered populations, conservation biology, conservation genetics, and ecology.

Environmental Geology - earth science, geomorphology, and the analysis of ground water.

Environmental Chemistry - analytical methods for measuring and monitoring air, ground, and water pollutants.

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted); Chemistry 31,32 (or 35, 36); Math 19, 20 (or 21); Chemistry 42*, 141, or 143; Environmental Studies 1 or 2; one course among the list of technology-based courses (Statistics 141 or 211; Chemistry 121 or 221; Biology 205 or 267; Geology 255; Civil and Environmental Engineering 150); 12-15 credits in a broad selection or in a concentration chosen with co-advisors to include at least one semester of research or honors. Concentrations include ***Environmental Biology, Environmental Geology, Environmental Chemistry.***

Notes:

* Chemistry 42 is not allowed for either the Chemistry or Biology concentration.

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Minor in Environmental Studies

College: [Studying the Environment](#)

Department(s): [Environmental Studies](#)

Requirements:

For students in several colleges and schools, this program combines the basic interdisciplinary skills and perspectives necessary for the understanding of environmental issues with the curriculum of a traditional disciplinary major.

In addition to two introductory Environmental Studies courses and at least three intermediate or advanced ENVS courses, students complete a major in a related discipline or professional field.

Students in the College of Arts and Sciences may elect this minor to fulfill the minor requirements in that college. Minor programs are available on an elective basis in most other schools and colleges.

Consult the appropriate college or school for the exact requirements.

- [Environmental Studies Minor in the College of Agriculture and Life Sciences](#)
- [Environmental Studies Minor in the College of Arts and Sciences](#)
- [Environmental Studies Minor in the Rubenstein School of Environment and Natural Resources](#)
- [Environmental Studies Minor \(Secondary Education Majors\) in the College of Education and Social Services](#)

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Plant and Soil Science: Environmental Soil Science Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Overview

In the Environmental Soil Science concentration students learn how the soil affects the transport and remediation of environmental contaminants in both natural and agricultural ecosystems.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)
- [Plant and Soil Science Core](#)

Specific Requirements

Faculty help students develop individualized courses of study to match their interests and career goals.

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Environmental Studies (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Environmental Studies](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Environmental Studies Degree Requirements and Curriculum](#)

Specific Requirements

The Major in Environmental Studies is an interdisciplinary program available to qualified students upon approval of the Director of the [Environmental Program](#).

Environmental Studies students majoring through the College of Agriculture and Life Sciences must complete a minimum of 122 credit hours, including ENVS 1, 2, 151, 201, and 202: 30 credit hours of approved environmentally-related courses at the 100 level or above, including three hours at the 200 level, with at least one course in each of the following areas — natural sciences, humanities, social sciences, and international studies (may be fulfilled with study abroad experience).

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Environmental Studies (B. A.)

College: [Arts and Sciences](#)

Department(s): [Environmental Studies](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-eight hours including Environmental Studies 1, 2, 151, 201, and six hours of 202 and/or 203; plus an Individually-Designed Program containing 18 hours of approved environmentally-related courses at 100 or higher level, including three hours at the 200 level, six hours of Environmental Studies courses, with at least one course in each of these areas* ❖ natural sciences, humanities, social sciences, and international studies (may be fulfilled by study abroad experience). The courses of the Individually-Designed Program combine, along with the senior project and thesis, to provide a coherent major for the student.

*Students are cautioned that courses approved in these areas by Environmental Studies might not fulfill the distribution requirements in the College of Arts and Sciences.

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Environmental Studies (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Environmental Studies](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

A total of 122 credits are required for the degree.

Required courses: ENVS 1, 2, 151, 201, 202; 30 hours of approved environmentally-related courses* at the 100 or 200 level, including three hours at the 200 level, with at least one course in each of four areas - natural sciences, humanities, social sciences, and international studies (may be fulfilled by a study abroad experience).

*These courses are in addition to the ENVNR core and general education requirements.

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Animal Science: Equine Science Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Animal Science](#)

Overview

Specialized courses are offered on the care, management, breeding, training, and health of horses. Students declaring an Equine Concentration can specialize in either a teaching/training track or a management track.

The world-famous Morgan Horse Farm at Middlebury, about 45 minutes from campus, is also part of the Department and offers opportunities for study and research. Students may also enroll in equine courses at the Miner Agricultural Research Institute in Chazy, New York.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Animal Science Requirements](#)

Specific Requirements

- ASCI 115 Introduction to Equine Studies
- ASCI 177 Horse, Health and Disease
- ASCI 298 Equine Industry Issues
- One of the following courses
 - ASCI 195/196 Field Experience
 - ASCI 197/198 Undergraduate Research
 - ASCI 298 Special Topics
- Two of three courses in the following tracks:
 - Teaching/Training Track
 - ASCI 119 Equine Training Techniques
 - ASCI 125 Equine Instructing Techniques
 - ASCI 298 Equine Enterprise Management

- Management Track
 - ASCI 205 Equine Reproduction & Management
 - ASCI 121 EQUUS
 - ASCI 298 Equine Enterprise Management

Possible Curriculum

First Year

Course	Hours
Foundations	6
Cultural Diversity	1
Introduction to Animal Science	4
Inorganic Chemistry	4
Written English	3
Biology 1	4
Organic Chemistry	4
Math	3
Introduction to Equine Studies	4
Electives	0-3
Total	33-36

Sophomore Year

Course	Hours
Anatomy & Physiology of Domestic Animals	4
Fundamentals of Nutrition	3
Horse, Health, & Disease	3
Emergency First Aid	2
Animal Nutrition, Metabolism, & Feeding	4
Financial Management	3
Intro A & R Entrepreneurship	3
Physical Education	1
Electives	3-6
Total	26-29

Junior Year

Course	Hours
Physiology of Reproduction	4
Microbiology	4
Introduction to Plant Science	3
Equine Training Techniques or EQUUS	3 or 4
Speech	3
Animals in Society / Animal Welfare	3

Statistics	3
Equine Enterprise Management	2
Career Seminar	1
Marketing	3
Electives	3-6
Total	32-36

Senior Year

Course	Hours
Equine Reproduction & Management or Equine Instructing Techniques	3
Practical Equine Management	3
Forage Crops	3
Equine Industry Issues	3
Genetics	3
Equine Internship	3-6
Specialized Topic	1-3
Decision Making	3
Physical Education	1
Electives	6-8
Total	29-36

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Area and International Studies: European Studies (B. A.)

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

[European Studies Course Offerings](#)

A total of 33 hours in approved European Studies courses to include nine hours at the 200 level. No more than 12 hours may be taken from any one discipline. Only 15 hours of transfer credit may be applied toward the major. Students must consult closely with their European Studies advisor in the development of a coherent program of courses.

- European Studies seminar: Senior research project: All seniors must complete a research project for at least three credits on a subject focused on northern, western, or Mediterranean Europe and approved by the European Studies subcommittee. This requirement can be fulfilled by International Studies 291 (European Studies Seminar); International Studies 234 and 235 (Honors/International Studies); International Studies 297 or 298 (Advanced Readings and Research). Students should expect to use their competency in a European language (other than English) in this research project where relevant. Upon request, the European Studies subcommittee may approve a research project done in conjunction with a 200-level seminar offered by one of the college's departments.
- European culture and thought: Twelve hours from the approved list to include six hours at the 100 level or above. Art: 5, 6, 148, 149, 155, 158, 161, 164, 165, 170, 172, 174, 177, and 179 or 282 (when the content is European); Classics: 24, 33, 35, 37, 42, 153-159; English: 21, 22, 25-28, 85, 86, 102, 103, 121, 122, 124, 125, 127, 128, 129, 130, 133, 134, 141, 142, 146, 152, 153, 154, 221, 222, 241, 242; Film: 5, 6, 107, 161; French: 111, 112, 225, 226, 235, 245, 246, 247, 255, 256,

265, 266, 275, 276, 290, 291, 292; German: 104, 121, 122, 155, 156, 201, 213, 214, 225, 226, 237, 238, 247, 248, 251, 252, 263, 264, 271, 273, 275, 276, 278, 279, 281, 282; Greek: all courses above 100 level; Italian: 121, 122, 157, 158; Latin: all courses above 100 level; Music: 11, 12, 111-114; Philosophy: 101, 102, 105, 107, 133, 140, 151, 160, 260; Political Science: 141, 142, 146; Religion: 22, 111, 116, 122, 124, 173, 224, 226, 228, 280; Spanish: 141, 235, 236, 237, 245, 246, 265, 276, 277, 291, 292; Theatre: 136, 137, 138, World Literature 11, 14, 17, 18, 24, 35, 87, 95, 96, 111, 114, 117, 118, 122, 153-156.

- C. European history and society: Twelve hours from the approved list to include six hours at the 100 level or above. BSAD: 236; Economics: 113; Geography: 55, 155; History: 13, 14, 19, 21-27, 85, 86, 120-136, 139, 185, 186, 190, 191, 221, 222, 224-228, 285; Political Science: 171, 257, 276, 287.
- D. European language: Six hours of a European language other than English at or above the 100 level. Students who fulfill nine or more hours of their "Culture and Thought" requirement through the study of any one such language must fulfill this requirement in a second European language other than English.

Note: Other equivalent courses within each area may be accepted with permission of the Director of European Studies.

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Minor in European Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies](#)

Requirements

Eighteen hours to include three hours at the 200 level from both European culture and thought and European history and society areas; and six hours at the 100 level or above from the European language area.

Note: See the [European Studies major](#) requirements for list of approved courses.

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Education: Teacher Education/Family and Consumer Sciences Education (Grades 7-12) (B. S.)

College: [Education and Social Services](#)

Department(s): [Integrated Professional Studies](#)

Overview

The Family and Consumer Sciences Education Program is an interdisciplinary program that includes a sequence of courses in family, personal, and consumer issues: food and nutrition, consumer management, human development, and housing. The variety of courses taken for the major expands career possibilities.

Because of the interdisciplinary and comprehensive scope of Family and Consumer Sciences Education, graduates with this major have a variety of career alternatives in business, social agencies, and different types of educational programs for youth and adults. Graduates are licensed to teach in public schools in Family and Consumer Sciences fields such as family studies, child development, consumer education, food and nutrition, housing and interiors, and resource management found in middle, junior, and high school programs.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#)
- [Teacher Education](#)

Possible Curriculum

First Year

	Fall	Spring
PEAC		1
HDFS 5, Human Development		3
NFS 43, Fundamentals of Nutrition		3

General Education Electives	9	6
HDFS 60, Family Context of Development		3
Race and Culture		1
NFS 53/54, Basic Concepts of Food		4
Major Concentration		3
Total	16	17

Sophomore Year

		Fall	Spring
CDAE Elective		3	
EDFC 123, Methods in Nutrition Education		3	
NFS 143, Nutrition in the Life Cycle		3	
EDSP 5, Issues Affecting Persons with Disabilities		3	
PEAC		1	
General Education Electives	3	6	
CDAE 15, Design Strategies		3	
HDFS Elective		3	
Major Concentration		3	
Total	16	15	

Junior Year

		Fall	Spring
EDSC 215, Reading in Secondary Schools	3		
EDFC 220, Observ & Part in Public Schools	3		
Housing Requirement	3		
Major Concentration	6	9	
EDFC 221, Management of School Youth Org.	2		
General Education Electives		6	
Total	15	17	

Senior Year

		Fall	Spring
EDFC 222, Curr. Dev. in Human Sciences	3		
EDFC 224, Eval Tech in Human Sciences	3		
Major Concentration		9	
EDFC 225, Teaching Practicum	12		
Total	12	15	

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Minor in Film Studies

College: [Arts and Sciences](#)

Department(s): [English](#)

Requirements

Available only to students majoring in a program in the College of Arts and Sciences.

Eighteen hours, including Art 140; Film 5 or 6; six credits from Film courses at the 100 level to include 107; three credits from English 110, 152, 163, Psychology 163, Sociology 43, Theatre 50; three credits from Film courses at the 200 level.

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Wildlife and Fisheries Biology: Fisheries Biology Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Wildlife and Fisheries Biology](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)
- [Wildlife and Fisheries Biology Core Requirements](#)

Specific Requirement

Required courses: PHYS 11/21 or 12/22 or PHYS 96, Green Mountain Physics; WFB232; NR 250; NR 260/WFB 272; NR 270 or WFB 279; six additional hours selected from NR 270, NR 280, BIOL 264, BOT 234, WFB 271, WFB 279, WFB 286.

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Biology: Forensic Biology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration is appropriate for students wishing to explore the fast growing discipline of criminal forensics and prepares students for government positions and for entry into graduate programs.

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Bachelor of Arts in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional 200 level or other advanced courses approved by the department (including at least one course with laboratory). One course may be taken from outside the Department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the required advanced courses. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: Biology 288 (a one-credit Forensic Biology seminar) and Chemistry 121. Students should also take 3 courses from Pharmacology 272, Biology 205, 209, 212, 254, 268, 296 (Self-Designed Genetics Laboratory).

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Forestry (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Forestry](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

Students supplement a core of required Forestry and related courses with a student-proposed, faculty-approved area of concentration¹ such as forest ecosystem health, forest ecology, consulting forestry, public forest administration, or international development. The concentration represents at least 12 credit hours and may be self-designed², an appropriate University minor, or a natural resource-oriented study abroad experience.

A total of 126 credits are required for the degree.

Required courses: BOT 4; CHEM 23; MATH 18³; NR 25, 140³, 224; PSS 161; FOR 21, 73, 81⁴, 121, 122⁵, 158, 182, 223, 272; a course in forest health⁶; 12 additional credits in area of concentration.

¹ Must be endorsed by the student's advisor and approved by the Forestry faculty prior to the last four semesters of study.

² At least 9 credits are to be at the 100-level or higher.

³ Also fulfills SNR general education requirement.

⁴ Transfer students with 45 or more credit hours are exempt from FOR 81.

⁵ Field intensive course offered only during the summer session.

⁶ Currently can be fulfilled with either FOR 234-Forest Pathology or PSS 107-Forest

Entomology

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Minor in Forestry

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Forestry Program](#)

Requirements

The Bachelor of Science degree in Natural Resources does not require completion of a minor. However, many students in The Rubenstein School do complete minors, either within the School or in other departments across campus. Interested students should contact the chair of the minor program or department.

Applications for the minor must be filed no later than June 1 of the year preceding graduation. A minimum of 16 credit hours is required, with at least nine at the 100-level or higher.

Required courses: FOR 1* or 73; FOR 21; additional FOR courses to total 16 credits.

* Students in the The Rubenstein School may not count FOR 1 towards completion of a Forestry minor.

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French (B. A.)

College: [Arts and Sciences](#)

Department(s): [Romance Languages](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-three credits in French numbered 100 or above of which fifteen credits must be at the 200-level. Required courses: French 101 and French 111 or 112. Literature requirement: twelve credits (including 111 or 112). Culture requirements: three credits (104, 105 or 292).

Note: Only three credits of Readings and Research (197, 198) and Advanced Readings and Research (297, 298) may be counted toward the major.

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Minor in French

College: [Arts and Sciences](#)

Department(s): [Romance Languages](#)

Requirements

Eighteen hours in French numbered 100 or above. Required courses: French 101; and three of the following four: 104, 105, 111, 112. Six of the 18 credits must be in courses at the 200-level. Readings and Research (197, 198) or Advanced Readings and Research (297, 298) may not be counted toward a minor.

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Geography (B. A.)

College: [Arts and Sciences](#)

Department(s): [Geography](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Ten courses (thirty hours), which must include: 2 or 43; 60 or 73; 81; any one regional course (from 51, 52, 55, 56, 57, 90, 92, 151, 154, 155, 162, 190 or 192); any three courses at the 100-level; any one course at the 200-level.

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Minor in Geology

College: [Arts and Sciences](#)

Department(s): [Geology](#)

Requirements

One Geology course below 100 level, 101, 102; plus six additional hours at the 100 level or above.

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German (B. A.)

College: [Arts and Sciences](#)

Department(s): [German and Russian](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours of German courses at the 100 level or above, including 155, 156; 281 or 282; two courses of world literature or English; and two courses of European or German history.

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Minor in German

College: [Arts and Sciences](#)

Department(s): [German and Russian](#)

Requirements

Five courses at the 100 or 200 level, one of which must be 155 or 156.

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Minor in Gerontology

College: [Arts and Sciences](#)

Department(s): [Sociology](#)

Requirements

The minor in Gerontology consists of 18 hours. Required courses (12 hours): Sociology 20, 120, 220, and 222. Electives (six hours): Anthropology 189; Human Development and Family Studies 266, 283; Nursing 100; Sociology 154, 254.

Courses used to meet the requirements of the minor should constitute a coherent program and will be selected in consultation with the student's minor advisor. A list of current course offerings suitable for the minor, including special topics courses in individual departments, is available from the Department of Sociology or the Center for the Study of Aging.

Note: The Minor in Gerontology is not available to students majoring in Sociology. Sociology majors interested in Gerontology should, instead, take the Social Gerontology Concentration to fulfill the concentration requirement for the Sociology major.

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Greek (B. A.)

College: [Arts and Sciences](#)

Department(s): [Greek](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours in courses above 50, among which 111, 112, and Classics 121 are required and one course in literature in translation above 100 and one course in Latin above 100 are applicable; a second foreign language, at least through the intermediate level, is recommended.

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Minor in Greek Language and Literature

College: [Arts and Sciences](#)

Department(s): [Classics](#)

Requirements

Fifteen hours of Greek at 51 or above, to which three hours from the following are applicable: Classics 121, 153, 154, 155, 156, 157, 158.

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History (B. A.)

College: [Arts and Sciences](#)

Department(s): [History](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-three hours including six hours of any approved sequence of courses at the introductory level (00), nine hours at the intermediate level (100), and three hours at the advanced level (200). They must also include 15 hours of concentration in one of the Department's three areas of study (Western Hemisphere; Europe; Africa/Asia/Latin America) and six hours in each of the others. The 15-hour concentration must include one course at the intermediate level and one seminar at the advanced level. (The Western Hemisphere concentration must include three hours in Canadian or Latin American history.)

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Minor in History

College: [Arts and Sciences](#)

Department(s): [History](#)

Requirements

Eighteen hours of history including three hours in any course at the introductory level (00), plus nine hours at the intermediate level (100) or advanced level (200). These must also include six hours in each of two of the department's areas of study (Western Hemisphere; Europe; Africa/Asia/Latin America).

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Minor in Holocaust Studies

College: [Arts and Sciences](#)

Department(s): [Holocaust Studies](#)

Prerequisites

History 26; 2 semesters of German (another European language may be substituted after consultation with the director).

Requirements

18 hours of relevant course work, at least 9 of which must be at the 100 level or above, and must include History 139 and History 190.

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Plant and Soil Science: Horticulture Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Overview

The Horticulture concentration provides students with the knowledge and skills needed for challenging careers in "green" industry and in the production of fruits and vegetables.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)
- [Plant and Soil Science Core](#)

Specific Requirements

Faculty help students develop individualized courses of study to match their interests and career goals.

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Education: Human Development and Family Studies (B. S.)

College: [Education and Social Services](#)

Department(s): [Integrated Professional Studies](#)

Overview

The Human Development and Family Studies program examines the ways people grow and develop, form relationships and families, and learn to cope with the common and uncommon events of life.

Students learn basic and applied concepts of human development and acquire skills in working with individuals and families of different ages and backgrounds in a variety of settings. Field experience is required of all students.

Human Development and Family Studies is available as a major concentration for students in the Early Childhood, Elementary, Family and Consumer Sciences, and Physical Education licensure programs, and as a minor primarily for students outside of the College of Education and Social Services.

General Requirements

- [University](#)
- [Education and Social Services](#)

Specific Requirements

Students in Human Development and Family Studies complete General Education requirements in Behavioral and Social Sciences, Communication Skills, Humanities, Physical and Biological Sciences and Multicultural Electives. They also enroll in a sequence of courses and field experiences designed to provide a comprehensive understanding of individual and family development across the life span. These courses are arranged in two blocks: the introductory core and the advanced core.

The introductory core in Human Development and Family Studies involves three components. The first, Introduction to Human Development and Family Studies and Academic Service – Learning, provides students an introduction to the topics pursued in

the major, how they relate to everyday life settings, how knowledge in the discipline is gained, and the types of skills necessary to both acquire and use this knowledge. The second component in the introductory core is a course covering individual development across the entire life span. Students learn what is typical of individuals at different points in their lives and the various factors, such as gender and social class, that influence development. The third component in the introductory core is a two-semester course dealing with the impact of families and other social institutions such as the school system on individual development. A course on Human Relations and Sexuality completes the introductory core.

The advanced core in Human Development and Family Studies consists of a series of advanced seminars and a field experience. All majors take seminars in Developmental Theory and Family Ecosystems. Four additional advanced seminars must be selected in consultation with an advisor. The field experience requires 15 to 20 hours per week. Students choose a placement from a variety of public and private local agencies. Field placement sites have included museums, the court system, battered women's shelters, centers for abused and neglected children, city and state government agencies, group homes, rehabilitation centers, local business and industry, childcare settings, hospitals, senior-citizen centers, and other human service agencies.

Possible Curriculum

First Year

	Fall Spring	
HDFS 1, Intro to HDFS and Academic Service – Learning	3	
HDFS 5, Human Development	3	
General Education Electives	9	12
HDFS 60, Family Context of Development	3	
Race & Culture	1	
Total	15	16

Sophomore Year

	Fall Spring	
HDFS 65, Human Relationships & Sexuality	3	
HDFS 161, Social Context of Development	3	
Physical Education Electives	1	1
General Education Electives	9	15
Total	16	16

Junior Year

	Fall Spring	
HDFS 266, Seminar: Theory	3	
HDFS Adv Seminar	3	3
General Education Electives	9	12

Total 15 15

Senior Year

Fall Spring

HDFS 296, Field Experience 6

HDFS Adv Seminar 3

General Education Electives 3 12

HDFS 260, Family Ecosystem 3

Total 12 15

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Minor in Human Development and Family Studies

College: [Education and Social Services](#)

Department(s): [Integrated Professional Studies](#)

Overview

The minor in Human Development and Family Studies affords students a foundation in the processes of development across the life span, focusing on individual development, family relationships, and major influences on both.

This minor cannot be the sole minor for sociology or psychology majors but is acceptable as a second minor, especially for persons interested in careers involving work with families and youth. For other majors, it can be the sole minor.

Requirements

Eighteen hours including HDFS 5, 60, 65; three 100 or 200 level HDFS courses except [291, 296]. This minor cannot be the sole minor for sociology or psychology majors but is acceptable as a second minor, especially for persons interested in careers involving work with families and youth.

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Individual Design Major (B. A.)

College: [Arts and Sciences](#)

Overview

The IDM is a nondepartmental, interdisciplinary major for those Bachelor of Arts candidates whose academic interests are not met by the major programs currently offered by the College. An IDM may not be a program of narrow professional training. Rather, it must lead to an intensive investigation of some broad area of human knowledge which is not covered by a single departmental discipline. During the senior year, IDM majors engage in a three-credit tutorial for which they complete a paper or an equivalent project which demonstrates the essential coherence of the major. A College Honors project (six credits) may be substituted for the tutorial requirement. Application to pursue an IDM should be approved by the Committee on Honors and Individual Studies before the end of the candidate's junior year. No more than 18 hours of the proposed major may be completed at the time of application. Additional information about the IDM program is available in the Office of the Dean.

General Requirements

- [University](#)

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Self Designed Major (B. S.)

College: [Agriculture and Life Sciences](#)

Overview

Undergraduate students have the opportunity to define a personalized program of study when their personal education objectives fall outside curricula defined by the departments and programs of the College. The requirements for a Self-Designed Major are specified in a "Guide for Proposal Development and Submission," available through the Student Services Deans Office in 108 Maori Hall. Each student is asked to formulate their own program of study by working in association with a faculty advisor and the committee of faculty which oversees the major. Designing a major requires examination of personal goals and acquiring information about formal courses and other possible learning experiences (e.g. internships, independent research). The information is then formulated into a package of proposed course work and other learning experiences.

The objective is to design a coherent and unique plan of study to meet the specific learning needs of the student and by which the student will achieve an advanced state of skills, knowledge, and values in their chose field. The student must justify the designed package in two ways (1) value to the student; (2) uniqueness and deviation from curricula already available. The Self-Designed Major usually comprises about 60+ credits of study in the junior and senior years (after the College core requirements have been fulfilled).

General Requirements

- [University](#)
- [College of Agriculture and Life Sciences Core Curriculum](#)

Specific Requirements

The design of the Major is itself an intensive learning experience: therefore, students should plan to spend some time each week over the course of one semester while designing the Major.

APPLY

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Education and Social Services Individually Designed Program (B. S., Education)

College: [Education and Social Services](#)

Overview

Students enrolled in the College of Education and Social Services who are interested in an area of study, which isn't offered as one of the current options, may propose an individually designed program of study. Specific criteria and degree requirement information are available in 528 Waterman.

General Requirements

- [University](#)
- [Education and Social Services](#)

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Individual Design Minor

College: [Arts and Sciences](#)

Requirements

The ID Minor must consist of at least 18 hours of course work, of which at least nine hours must be at the 100 level or above. No more than nine hours completed prior to application for the ID Minor may be applied to the 18 hours required for the proposed minor. No courses in the student's major department may be applied to the 18 hours required for the minor. An application must be submitted to the Committee on Honors and Individual Studies for approval. Applications may be found in the Dean's Office, College of Arts and Sciences.

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Minor in Italian

College: [Arts and Sciences](#)

Department(s): [Romance Languages](#)

Requirements

Eighteen hours in courses taught in the Italian language and numbered 100 or above. Readings and Research (197, 198) or Advanced Readings and Research (297, 298) may not be counted toward a minor.

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Minor in Italian Studies

College: [Arts and Sciences](#)

Department(s): [Romance Languages](#)

Requirements

Eighteen credit hours as chosen from among the following categories:

- Italian content (classes taught in the Italian language numbered 100 or above)
- significant Italian content (Art History 149, 161, 164, 282 [when the topic is Italian]; Classics 122; English 122; World Literature 13, 113; Geography 158; History 124, 125; Latin 51, 52, 101, 102, 111, 112, 155, 156; all 200-level courses in Latin literature; Music 11)
- partial Italian content (Art History 5, 6, and the following where the content is partially Italian: 155, 165; Classics 23, 155, 156, 159; English 125; Film 107, 161; Geography 55, 155; History 24, 25, 26; Political Science 141, 142; Music 12).

At least six hours must be taken from category (a) and no more than six credit hours from category (b) may be applied from any one discipline. No more than three credit hours from category (c) may be applied to this minor.

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Minor in Japanese

College: [Arts and Sciences](#)

Department(s): [East Asian Languages](#)

Requirements

Fifteen credit hours of Japanese with at least eight of those hours at 100 level, including 102 or its equivalent. Three credit hours at or above 100 level in Japanese linguistics or literature may be substituted for three credits of language study beyond 102 or its equivalent.

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Latin (B. A.)

College: [Arts and Sciences](#)

Department(s): [Latin](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours in courses above 100, among which 111, 112, and Classics 122 are required and one course in literature in translation above 100 and one course in Greek above 100 are applicable; a second foreign language, at least through the intermediate level, is recommended.

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Minor in Latin Language and Literature

College: [Arts and Sciences](#)

Department(s): [Classics](#)

Requirements

Fifteen hours of Latin at 51 or above, to which three hours from the following are applicable: Classics 122, 153, 154, 155, 156, 158, 159.

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Area and International Studies: Latin American Studies (B. A.)

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Latin American Studies Course Offerings

- Twelve hours selected from the following five courses: Anthropology 161; History 62, 63; Geography 56; Political Science 174. □
Two additional semester courses selected from Area and International Studies, 193, 194, 195, 196, 197, 198; History 161, 163, 164, 262; or from courses recommended by the Program of Latin American Studies. □
- Plus six hours of advanced Spanish (Spanish 142, 279, 281, 286, 287, 293, 294).
- An additional 12 hours from related courses chosen in consultation with advisor.

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Minor in Latin American Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Requirements

- A. Students who are not Spanish majors: 18 hours (six courses)
 1. Completion of Spanish 52 or above (three hours).
 2. Completion of five of the following courses: Anthropology 161; History 62 or 63, 161, 163, 164 or 262; Geography 56; Political Science 174; Spanish 142, 279, 281, 286, 287, 293, or 294; International Studies 195 or 196.
- B. Students who are Spanish majors: 18 hours (six courses)
 1. Completion of one of the following courses: Spanish 279, 281, 286, 287, 293, or 294.
 2. Completion of five of the following courses: Anthropology 161; History 62 or 63, 161, 163, 164 or 262; Geography 56; Political Science 174; International Studies 195 or 196.

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Mathematics (B. A.)

College: [Arts and Sciences](#)

Department(s): [Mathematics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Math. 21, 22, 121, 52, and 124, plus 18 additional credits in Math./Statistics courses at 100 level or above, with at least 12 hours numbered 200 or higher.

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Mathematics (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Mathematics and Statistics](#)

Overview

The mathematics curriculum is quite flexible. It is designed to provide a sound basic training in mathematics that allows a student to experience the broad sweep of mathematical ideas and techniques, to utilize the computer in mathematics, and to develop an area of special interest in the mathematical sciences.

In addition to the Bachelor of Science degree described here, the Department of Mathematics and Statistics also offers a Bachelor of Arts degree in the College of Arts and Sciences. A faculty advisor from Mathematics will assist students in determining which degree program best suits their individual needs and plans. Some of the career plans for which a well-designed major in mathematics can provide ideal preparation are highlighted below.

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Mathematics and Statistics](#)

Recommendations for Major Courses

In consultation with their advisor, students should choose an area of interest within the mathematics major and plan a coherent program that addresses their interests in mathematics and its applications. This area might be one of those listed below, or it might be another area suggested by the student. As a guide, students interested in one of the areas would typically take at least three courses in that area, including all of the courses marked with an asterisk (*). In addition, students should take courses from at least two other areas. Because of its centrality in mathematics, students should make sure that they take at least one course listed under Classical Mathematics. In following these recommendations, a course listed in more than one area is meant to be counted

only once.

1. **Classical Mathematics**

Classical mathematics encompasses those areas having their roots in the great traditions of mathematical thought, such as geometry and topology, mathematical analysis, algebra and number theory, and discrete mathematics. Courses in this area include the following: Math. 141, 151, 173, 236, 240, 241*, 242, 251*, 252, 255, 257, 260, 264, 273, 331, 353.

2. **Applied Mathematics**

Applied Mathematics involves the use of mathematical methods to investigate problems originating in the physical, biological, and social sciences, and engineering. Mathematical modeling, coupled with the development of mathematical and computational solution techniques, illuminates mechanisms which govern the problem and allows predictions to be made about the actual physical situation. Current research interests of the faculty include biomedical mathematics, fluid mechanics and hydrodynamic stability, asymptotics, and singular perturbation theory. Courses in this area include the following: Math. 230*, 236, 237*, 238, 240, 272, 273, 274.

3. **Computational Mathematics**

Computational mathematics involves both the development of new computational techniques and the innovative modification and application of existing computational strategies to new contexts where they have not been previously employed. Intensive computation is central to the solution of many problems in areas such as applied mathematics, number theory, engineering, and the physical, biological and natural sciences. Computational mathematics is often interdisciplinary in nature, with algorithm development and implementation forming a bridge between underlying mathematical results and solution of the physical problem of interest. Courses in this area include the following: Math. 173, 230, 237*, 238, 274, Statistics 201.

4. **Theory of Computing**

The mathematical theory of computing deals with the mathematical underpinnings allowing effective use of the computer as a tool in problem solving. Aspects of the theory of computing include: designing parallel computing strategies (graph theory), analyzing strengths and effectiveness of competing algorithms (analysis of algorithms), examining conditions which ensure that a problem can be solved by computational means (automata theory and computability), and rigorous analysis of run times (complexity theory). Courses in this area include the following: Math. 173, 223, 224*, 243, 273, 325, Computer Science 346, 353.

5. **Mathematics of Management**

Mathematics of Management involves the quantitative description and study of problems particularly concerned with the making of decisions in an organization.

Problems are usually encountered in business, government, service industries, etc., and typically involve the allocation of resources, inventory control, product transportation, traffic control, assignment of personnel, and investment diversification. Courses in this area include the following: Math. 173, 221*, 222, 230, 236, 273, Statistics 141 or 211, Statistics 151 or Math. 207, Statistics 224, 241, 253.

6. **Actuarial Mathematics**

Actuaries use quantitative skills to address a variety of problems within business environments, and especially within the life insurance industry. Two professional organizations sponsor qualifying examinations and grant recognition to actuaries in the U.S. and Canada. A unique feature of the actuarial profession is that formal training is typically completed after graduation "on-the-job." Students planning an actuarial career can prepare for and complete some actuarial examinations prior to graduation. Several departmental courses serve as preparation for the examinations: Math. 21, 22, 121, and 124 for the first examination; Statistics 141 or 211, {Statistics 151 or Math. 207}* , and {Statistics 241 or 261}* for the second examination; Statistics 221 or 231, 225, and 253 for the third examination; Math. 221, 222, and Statistics 252b for the fourth examination: and Math. 237 for the fifth examination.

7. **Probability and Statistical Theory**

Probabilistic reasoning is often a critical component of practical mathematical analysis or risk analysis and can usefully extend classical deterministic analysis to provide stochastic models. It also provides a basis for statistical theory, which is concerned with how inference can be drawn from real data in any of the social or physical sciences. Courses in this area include the following: Math. 222, 241, 242, (Statistics 151 or Math. 207)*, Statistics 241*, 252a, 252b, 261, 262, 270.

Recommendations for Allied Field Courses

Students who select the Applied and Interdisciplinary Mathematics option are required to consult with their advisor in setting up their concentration in an Allied Field, as described under requirements B. Students who select the General Mathematics option should also discuss Allied Field courses with their advisor and choose ones which complement their mathematical interests. Students with certain mathematical interests are advised to emphasize an appropriate Allied Field as indicated below and take at least six hours in courses numbered 100 or above in that field.

Applied Mathematics:

See Allied Fields under Mathematics and Statistics degree requirements.

Computational Mathematics:

Allied Field (4) or (5).

Mathematics of Management:

Allied Field (7). Students interested in Mathematics of Management are advised to include Economics 11 and 12 in their choice of Humanities and Social Sciences courses, and to include Business Administration 60 and 61 in their choice of Allied Field courses. Those wishing to minor in Business Administration should contact the School of Business Administration and also take Business Administration 173 and two other courses chosen from Business Administration 168, 170, 174, 177, 178, and 272.

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Mechanical Engineering: General Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Mechanical Engineering](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Mechanical Engineering](#)

Possible Curriculum

First Year

	Fall Spring	
Chem 31, Intro	4	
Eng 1, Writ Exp	3	
Engr 1, Intro to Engr	1 ¹	
Math 21 & 22, Cal I & II	4	4
Phys Ed	1	1
HSS Electives ²	3	3
Engr 2, Graph Comm	2	
Phys 31/31, Intro Phys	5	
Total	16	15

Sophomore Year

	Fall	Spring
CE 1, Statics	3	
Math 121, Calculus III	4	
Physics 42 with 22, Electromag Modern Physics	5	
ME 40, Thermo	3	
ME 42, Eng Thermo		3

Math 271, Applied Math/Engineers	3
ME 12, Dynamics	3
ME 14, Mech Solids	3
ME 82, Mech Eng Lab I	3
HSS Elective ²	3
Total	15 18

Junior Year

	Fall	Spring
ME 101, Materials	3	
ME 111, System Dyn	3	
ME 143, Fluid Mech	3	
MATH 124, Linear Algebra	3	
EE 100 & 101, Elec Engr Con I & II	4	4
ME 123 & 124, Lab II & III	2	2
ME 144, Heat Trans		3
ME 171, Des of Elem		3
STAT 143, Basic Statistics		3
Total	18	15

Senior Year

	Fall	Spring
ME 161, Manufacturing Engr I	3	
ME 183, Mech Eng Lab IV	3	
ME 185, Senior Project	1	
ME Electives ³	3	3
Tech Elective ⁴	3	3
HSS Electives ²	3	3
ME Elective ⁵		3
ME 186, Senior Project		2
Total	16	14

Total Credits: 127

Notes:

¹ Recommended, not required.

² One HSS course from the Arts and Sciences non-European or Race, Relations, and Ethnicity list.

³ ME course 200-level or higher.

⁴ Any 100-level or higher courses in EM and BSAD (except STAT 111, and ME 114); or CS 14, CS 16, or CS 26; or Natural Sciences with approval of advisor.

⁵ ME 162 and 164 or ME 265 and 164.

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Engineering Management: Mechanical Engineering Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Engineering Management](#)

General Requirements

- [University](#)
- [College of Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Engineering Management](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
Physical Education	1	
ME 40, Thermodyn and Heat Transfer		3
Economics 11, Prin of Economics	3	
Math 121, Calculus III	4	
BSAD 60, Financial Acctng	4	
Math 271, Applied Math		3
BSAD 61, Managerial Acctng	4	
PHYS 42/22, EM & Mod Phys	5	
ME 114, Intro Engineering Mechanics	3	
ME 2, Mech Engineering Lab I	3	
Total	15	18

Junior Year

	Fall	Spring
ME 161, Manufacturing Engineering I	3	
EE 100, Elect Engr Concepts I	4	

Economics 12, Prin of Economics	3	
MATH 124, Linear Algebra	3	
BSAD 141, Mgmt Info Systems	3	
Stat 143, Stat for Engineers; or Stat 211, Stat Methods I		3
CE 125, Engr Economics	3	
ME 171, Design of Elements	3	
ME 162, Manufacturing Engineering II	3	
BSAD 173, Prod & Oper Analy	3	
Total	16	15

Senior Year

	Fall	Spring
BSAD 120, Mgmt & Organ Behav	3	
ME 101, Engineering Materials I	3	
EMGT 185, Senior Project	3	
BSAD 178, Quality Control; or Stat 224, Statistics for Qual & Prod		3
HSS Elective	3	3
BSAD 270, Quant Analysis; or BSAD 272, Discrete Simulation		3
ME Elective ¹		3
EMGT 175, Mgmt of Technology		3
Engr Mgmt Elective ²		3
Total	15	15

Total Credits: 130-132

Notes:

¹ ME electives: ME 200-level or higher.

² Engineering Management electives: BSAD 143, 144, 145, 168, 170, 174, 177, 192; and Statistics 221, 224, 225, 229, 231, 233, 237, 253.

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Microbiology (B. S.) and Molecular Genetics (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Microbiology and Molecular Genetics](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)

Specific Requirements

The Microbiology and Molecular Genetics core courses total 55 credits. The courses comprising the core are: biology, biochemistry, genetics, inorganic and organic chemistry, mathematics, general microbiology, molecular genetics, physics, and statistics. In addition to the core requirements departmental majors take a minimum of 15 credit hours from an array of approved elective courses including undergraduate research.

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Minor in Microbiology

College: [Agriculture and Life Sciences](#)

Department(s): [Microbiology and Molecular Genetics](#)

Requirements

Core requirements are MMG 101 and 102, Botany 132, plus an additional six credit hours of MMG courses chosen from MMG 195/196, 201, 203, 211, 220, 222, 223, 225, 295/296 depending on student needs.

Agriculture and Life Sciences Majors: Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Microbiology and Molecular Genetics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Arts and Sciences Majors: A student may minor in Microbiology and Molecular Genetics upon permission of the departmental Undergraduate Affairs Committee and assignment of a minor advisor within the department who will direct the student's program plan and course selection.

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Minor in Middle East Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Requirements

Eighteen hours (six courses) to include: Completion of the College language distribution option or the transfer of equivalent credits. Familiarity with an appropriate Middle East language, e.g. Hebrew, Arabic, Turkish, Farsi, etc., is strongly recommended; History 45; four courses taken from the following groupings, but no more than one course from Group B and no more than one course below the 100 level:

- Group A: Anthropology 166, 170; Art 146, 188; Economics 180; Geography 158; History 123, 149; Religion 114, 116; Political Science 157, 259, 279 (when the topic is Middle East).
- Group B: English 172; Geography 51; History 40, 140; Math. 161.

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Education: Teacher Education/Middle Level Education (Grades 5-8)(B. S.)

College: [Education and Social Services](#)

Departments: [Education](#)

Overview

The organizing theme of the Program is "Education for High Achievement and Personal Efficacy." The Program provides a minimum of four supervised internships whereby university students participate in the most highly successful middle level school programs that are within reasonable commuting distance.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#) (IDIMC Required)
- [Teacher Education](#)

Specific Requirements

Students who satisfactorily complete the program earn a minimum of 127 credit hours of study across three areas: General Education, Academic Concentration, and Professional Studies. This design ensures that each student achieves a balance of academic and professional preparation to meet the expectations and challenges associated with teaching at any level. During the students' first year they enroll in a required two semester advising course, EDML 10 "Introduction to Teaching," where faculty guide them in devising an eight semester plan that is balanced across three areas of study. Those three areas are briefly described below.

General Education: Students earn at least 39 credits in liberal arts and sciences from an array of disciplines such as: English, Mathematics, Social Science, History, Political Science, Humanities, Diversity, Art and Physical Education. Six credits are designated as Electives. Most of these courses are generally completed during the first three to four semesters, and since students sometimes transfer from one program to another, these

credits easily transfer to other degree programs in the College of Education and Social Services as well as other colleges within the University.

Academic Concentration: Every Teacher Education student is required to complete an academic major referred to as a "major concentration." Students enrolled in the Middle Level Program organize their concentration around two disciplines in order to accomplish the middle level licensure requirement for two teaching areas. This design is referred to as an IDIMC (Individually Designed Interdisciplinary Major Concentration), and it consists of 18 credits in each of two disciplines for a total of 36 credits. For example, one student might choose to combine Science and English while another decides on Mathematics and Social Studies. These academic combinations enable a student to teach in multiple areas as a member of a middle level team consisting of two to five or more teachers. Program advisors and students work closely together, especially over the first two years, to design an IDIMC that accommodates the student's interests and fits the needs of middle level teachers.

Professional Studies: Courses that concentrate on the professional work of teaching, span all four years. These studies are grounded in theory, research and policies associated with the very best practices in middle level education. Studies of young adolescent learning and development, teachers and teaching, literature for young adult readers, special education and technology are taken in the first two years as Pre-Professional Requirements. These courses include a minimum of one field placement with a middle level team of teachers. More heavily field-linked courses in curriculum, pedagogy, assessment, team organization, literacy, mathematics, and evaluation and assessment are taken the last two years. Required professional courses over four years total of 52 credits.

Fieldwork: The faculty is committed to providing students as much field experience as possible and practical. Four courses (EDML 56, 171, 261, 285) are primarily field-based, and while taking these courses students will enjoy working with teachers on four different teaching teams. Emphasis is placed on high levels of integration between campus-based learning and field experience to insure that students are sufficiently oriented and prepared for the real work of exemplary middle level schools.

Cohort: Cooperation and collaboration among teachers is a hallmark of middle level teaching teams. That same spirit is given emphasis through building a cohort of middle level teacher education students who receive group advising, who take courses together, and who participate in professional activities such as school events and professional conferences. Additionally, the Middle Level Teacher Education Program includes a Teacher Advisory Committee composed of exemplary middle level teachers from area schools who consult with students and faculty about the Program, field placements, job searches and other issues related to advancing one's professional development and beginning career.

Professional Portfolio: In the aforementioned EDML 10 course, students are introduced to the process of documenting and preserving samples of their professional work and development. These samples are maintained in individual portfolios that grow cumulatively semester by semester. A final Professional Portfolio is assembled during the student

teaching semester to more fully define the professional background and aspirations of the novice teacher. These final portfolios constitute completion of the Program, and they are valuable to seniors reflecting on their preparation and accomplishments as well as beginning a job search. These full portfolios are drawn upon to create a more succinct "presentation portfolio" for use in interviews. Seniors also receive faculty guidance in creating resumes and applying and interviewing for teaching positions. The demand for teachers well prepared for teaching middle level schools is such that the portfolio is an excellent and comprehensive way to present one's candidacy.

Possible Curriculum

First Year

	Fall Spring	
EDEL 11, Computers in El. Ed. Classroom	3	
Diversity	1	
EDML 10, Introduction to Teaching	1	1
Physical Education Elective	1	1
General Education Electives	9	6
EDML 24, Learners, Development & Learning		3
IDIMC		6
Total	15	17

Sophomore Year

	Fall Spring	
EDML 56, Teachers & the Teaching Process	3	
EDSP 5, Issues Affecting Persons with Disabilities	3	
EDEL 177, Children's Lit. & Literacy	2	
IDMIC	6	6
General Education Electives	3	9
Total	17	15

Junior Year

	Fall Spring	
EDML 260, Teaching Young Adolescents	6	
EDML 261, Teaching Practicum I	3	
IDIMC	6	6
General Education Electives	3	3
EDML 270, Middle School Organization and Pedagogy		6
EDML 171, Teaching Practicum II		3
Total	18	18

Senior Year

	Fall Spring	
IDIMC	6	

General Education Electives	3	
EDML 287, Literacy & Mathematics	3	
EDFS 203, Soc Hist & Phil Found of Ed	3	
EDML 285, Student Teaching Internship	12	
EDML 286, Internship Support Seminar	1	
Total	15	13

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Minor in Molecular Genetics

College: [Agriculture and Life Sciences](#)

Department(s): [Microbiology and Molecular Genetics](#)

Requirements

Core requirements are MMG 101, 102, 211, Botany 132; plus an additional six credit hours of MMG courses chosen from MMG 195/196, 201, 203, 223, 225, 295/296 depending on students needs.

Agriculture and Life Sciences Majors: Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Microbiology and Molecular Genetics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Arts and Sciences Majors: A student may minor in Microbiology and Molecular Genetics upon permission of the departmental Undergraduate Affairs Committee and assignment of a minor advisor within the department who will direct the student's program plan and course selection.

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Music (B. A.)

College: [Arts and Sciences](#)Department(s): [Music](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Forty hours in Music. Majors will take the following core courses: 11, 12 (history); 31, 32, 131, 132 (theory); and 133, 134 (theory lab); plus eight hours of performance study and ensemble in any combination (excluding Music 5-8).

All students will elect nine additional hours - at least three at the 200 level - in one of the following three categories, plus three hours in a category different from that of the chief concentration.

- Theory: 231-235
- History: 111-114, 211-214
- Performance: 251-253, 256

A mixture of categories may be possible in consultation with a departmental advisor. Music majors with a concentration in categories (a) or (b) must attain intermediate level on a single instrument chosen from the department's offerings.

Concentration in category (c) requires an appearance each semester in departmental recitals, passing a junior standing examination at the end of the sophomore year, and a solo recital in the senior year. Majors must have, or acquire, piano skills sufficient to pass the piano proficiency examination, in addition to the eight hours of performance and ensemble study.

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Minor in Music

College: [Arts and Sciences](#)

Department(s): [Music](#)

Requirements

Twenty hours including six in Music History (11, 12), six in Basic Musicianship (31, 32), two in Performance Study (151, 152) or Ensemble (161-165, 171-179) in any combination, plus six in History, Theory, or Performance/Ensemble at the 100 level or above.

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Education: Teacher Education/Music Education (Grades K-12) (B. S.)

College: [Education and Social Services](#)

Department(s): [Education](#), [Music](#)

Overview

The College works cooperatively with the [Music Department](#) in the [College of Arts and Sciences](#) to offer a program in Music Education which leads to both degree and licensure for grades K-12.

The curriculum in music education leading to the degree of Bachelor of Science in Music Education is recommended to students who have sufficient training and natural musical ability to justify a career in music. Prospective students must audition before entering the program. Those admitted as first-year students or sophomores to the Music Education program are considered Candidates in the program. Admission as a Major is made at the beginning of the junior year following formal review procedures during the second semester of the sophomore year. Graduates are qualified for positions as instructors and supervisors of music in public schools.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Teacher Education](#)

Specific Requirements

A minimum of 128 approved semester hours is required for the degree including three semester hours of teaching reading for teaching licensure. Students must pass the piano proficiency examination prior to student teaching. Students are responsible for obtaining information regarding teaching licensure and degree requirements from the College of Education and Social Services' Office of Student Services, 528 Waterman.

Pedagogy classes are taken as available.

Possible Curriculum

First Year

	Fall Spring	
HDFS 5, Human Dev. or EDEC 63, Child Dev.	3	
MUS 5, Piano Lab I	1	
MUS 31, Basic Musicianship	3	
MUS 151, Private Lessons	2	
MUS Pedagogy	1	1
Ensemble	1	1
PEAC	1	1
General Education Electives	3	3
MUS 6, Piano Lab II		1
MUS 32, Basic Musicianship		3
MUS 152, Private Lessons		2
EDSP 5, Issues Affecting Persons with Disabilities		3
Race & Culture		1
Total	15	16

Sophomore Year

	Fall Spring	
MUS 7, Piano Lab III	1	
MUS 11, Survey of Western Music	3	
MUS 131, Intermed. Theory: Music of Tonal Era	3	
MUS 133, Intermediate Theory Lab	1	
MUS 281, Elem. Music Ed. Methods	3	
MUS 153, Private Lessons	2	
Ensemble	1	1
MUS Pedagogy	1	1
MUS 8, Piano Lab IV		1
MUS 12, Survey of Western Music		3
MUS 132, Intermediate Theory: Music of Tonal Era		3
MUS 134, Intermediate Theory Lab		1
MUS 154, Private Lessons		2
MUS 259, Conducting		3
Total	15	15

Students apply to the Music Education major during the second semester of their sophomore year.

Junior Year

Fall Spring

MUS 231, Adv Theory: 20th Century Music	3	
MUS 233, Arranging	3	
MUS 251, Private Lessons	2	
MUS Pedagogy	2	2
Ensemble	1	1
General Education Electives	6	6
MUS 252, Private Lessons		2
MUS 282, Sec Music Ed Methods		3
EDSC 215, Reading in Secondary Schools		3
Total	17	17

Students are required to complete a student teaching internship application before being assigned a placement

Senior Year

Fall Spring

Ensemble	1	
MUS 256-Perform Study: Senior Recital	2	
EDFS 203, Soc Hist& Phil Found of Ed	3	
MUS Pedagogy	1	
General Education Electives	9	
MUS 041, Basic Electronic Music		3
EDSC 226, Teaching Internship		12
MUS 253, Private Lessons		2
Total	16	17

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Music Performance (B. M.)

College: [Arts and Sciences](#)

Department(s): [Music](#)

Overview

This degree is the initial preprofessional collegiate music degree, designed for highly talented students who wish to pursue a career in music as performers, scholars, or private teachers. To earn the degree, they must demonstrate not only technical competence but also a broad knowledge of music and musical literature, sensitivity to musical style, and an insight into the role of music in society. Candidates with a strong sense of commitment ordinarily continue their studies through postgraduate work before they are fully qualified as professionals. Admission as a Candidate in the Performance major program requires an audition with the Music Department. Acceptance as a Major requires passing the junior standing examination. The final graduation requirement is a senior recital.

General Requirements

- [University](#)
- [Bachelor of Music Requirements](#)

Specific Requirements

Performance Major Hours

- Major instrument, 151, 152, 153, 154, 251, 252, 253, 256 28
- Theory, 31, 32, 131, 132, 133, 134, 231, 232, 233 26
- History, 11, 12 6
- Ensemble 14
- Keyboard, 5, 6, 7, 8 (if necessary) 4
- Music electives 9
- Nonmusic electives 36
- Physical education 2, 125

For Music Education see [College of Education and Social Services](#).

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Music Theory (B.M.)

College: [Arts and Sciences](#)

Department(s): [Music](#)

Overview

This degree is the initial preprofessional collegiate music degree, designed for highly talented students who wish to pursue a career in music as performers, scholars, or private teachers. To earn the degree, they must demonstrate not only technical competence but also a broad knowledge of music and musical literature, sensitivity to musical style, and an insight into the role of music in society. Candidates with a strong sense of commitment ordinarily continue their studies through postgraduate work before they are fully qualified as professionals. Admission to the Theory major requires successful completion of a comprehensive theory examination at the end of the sophomore year. Transfer students with advanced standing must also pass this examination before they can be accepted as Theory majors.

General Requirements

- [University](#)
- [Bachelor of Music Requirements](#)

Specific Requirements

Theory Major Hours

- Major instrument, 151, 152, 153, 154, 251, 252, 253 12
- Theory, 31, 32, 131, 132, 133, 134, 231, 232, 233, 234, 235, 237, 238, 240, 241 43
- History, 11, 12 6
- Ensemble 6
- Keyboard 5, 6, 7, 8 (if necessary) 4
- Instrumental choirs 4
- Music genre electives 9
- Nonmusic electives 36

- Physical education 2, 122

For Music Education see [College of Education and Social Services](#).

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Natural Resources: Integrated Natural Resources Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Natural Resources](#)

Overview

Integrated Natural Resources (INR) is a self-designed major. INR is the right choice for students who have strong interests in natural resources and the environment, clear academic direction, and the motivation to develop a well-focused, personally meaningful course of study. Working closely with a faculty advisor, the student builds on a solid foundation of natural resources courses to create an individualized program that combines course work from disciplines within and outside the School.

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

A total of 122 credits are required for the degree.

Required courses (minimum nine credits): Students elect from a list of approved courses at least one course in each of three areas - biology/ecology; NR courses in social sciences and communications; and quantitative and analytical methods. These courses are in addition to those taken to fulfill ENVNR general education requirements.

Individualized Program of Study Option (minimum 39 credits)

The student develops an individualized Program of Study composed primarily of intermediate-level School of Environment and Natural Resources courses (ENVS, ENSC, FOR, NR, RM or WFB prefix). This may include no more than 15 credits outside the School and no more than 6 credits below the 100-level. With careful selection of courses, students develop concentrations such as Environmental Education, Resource

Management, Resource Conservation, International Resource Issues, and Spatial Analysis of Natural Resources. All programs of study must be endorsed by the advisor, then approved by the faculty. If not approved, the student may not continue in the INR option and must seek another major. The program of study is to be completed by the end of the sophomore year (60 credits). Transfer students with more than 60 credits must have a program of study approved as part of the transfer application. It is expected that transfer students will be active in the program for at least two years (four semesters) after transferring into the INR option. Any course substitution request must be approved prior to the end of the add/drop period for the semester in which the student enrolls in the substitute course.

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Natural Resources: Resource Ecology Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Natural Resources](#)

Overview

The Resource Ecology curriculum explores the biology and ecology of plants and animals in both aquatic and terrestrial systems and allows students to select courses around specific individual interests.

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

A total of 122 credits are required for the degree.

Required courses: BIOL 1,2; GEOL 1 or PSS 161; *MATH 13 or 19; *NR 140; CHEM 23 or CHEM 31,32; CHEM 26 or CHEM 42 or CHEM 141,142; NR 25; NR 143 or FOR 146; PHYS 11 or 31; 24 additional credits in Option Electives to be chosen from approved list in consultation with student's academic advisor. Any course substitution request must be approved prior the end of the add/drop period for the semester in which the student enrolls in the substitute course.

* Also fulfills ENVNR general education requirement.

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Natural Resources: Resource Planning Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Natural Resources](#)

Overview

The Resource Planning curriculum explores interactions among individuals, communities, and society with nature, resources, and the environment. It allows students to select courses around specific individual interests such as natural resource planning and community, policy and economic dimensions of resource planning, and international dimensions of resource planning.

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

A total of 122 credits are required for the degree.

Required courses: PSYC 1; CDAE 2; POLS 21 or 41; SOC 1 or 11; PHIL 4 or CDAE 156; ANTH 21 or GEOG 1; EC 12 or CDAE 61. 27 additional credits in Option Electives to be chosen from approved list in consultation with student's academic advisor. Any course substitution request must be approved prior to the end of the add/drop period for the semester in which the student enrolls in the substitute course.

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Biology: Neurobiology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration focuses on molecular and cellular aspects of the nervous system. Funding from the Howard Hughes Medical Institute allows students to take courses offered by faculty of three departments. Three courses are the core: Biology 261 and 295 (Neurobiology Lecture and Neurobiology Laboratory) and PSYC 221 (Physiological Psychology). Students may also take ANNB 202, PSYC 121, 220, 223, PHRM 290 as well as other advanced courses in cell and molecular biology.

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Bachelor of Arts in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional 200-level or other advanced courses approved by the department (including at least one course with laboratory). One course may be taken from outside the Department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the required advanced courses. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: Three courses are the core, Biology 261 and 295 (Neurobiology Lecture and Neurobiology Laboratory) and PSYC 221 (Physiological Psychology). Students may also take ANNB 202, PSYC 121, 220, 223, PHRM 290 as well as other

advanced courses in cell and molecular biology.

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Biology: Neurobiology Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration focuses on molecular and cellular aspects of the nervous system. Funding from Howard Hughes Medical Institute allows students to take courses offered by faculty of three departments. Three courses are the core: Biology 261 and 295 (Neurobiology Lecture and Neurobiology Laboratory) and PSYC 221 (Physiological Psychology). Students may also take ANNB 202, PSYC 121, 220, 223, PHRM 290 as well as other advanced courses in cell and molecular biology.

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Bachelor of Science in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional courses (including at least one course with laboratory) in one of several concentrations. One course may be taken from outside the department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the major. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: Three courses are the core, Biology 261 and 295 (Neurobiology Lecture and Neurobiology Laboratory) and PSYC 221 (Physiological Psychology). Students may also take ANNB 202, PSYC 121, 220, 223, PHRM 290 as well as other

advanced courses in cell and molecular biology.

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Biomedical Technologies: Nuclear Medicine Technology Concentration (B. S.)

College: [Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Overview

This four-year curriculum leading to the baccalaureate degree is accredited by the [Joint Review Committee on Educational Programs in Nuclear Medicine Technology](#) .

Nuclear medicine technology is the medical specialty concerned with the use of small amounts of radioactive materials for diagnosis, therapy, and research. Nuclear medicine provides information about both the structure and function of virtually every major organ system.

- [Honors Program](#)

General Requirements

- [University](#)
- [Nursing and Health Sciences](#)
- [Biomedical Technologies](#)

Specific Requirements

Clinical education takes place at one of our clinical affiliations. The initial experience is obtained at the Fletcher Allen Health Care (FAHC). At least one experience will be at an affiliation outside Burlington which will require additional room, meals and transportation expenses.

Students who already have the Associate in Science degree in Nuclear Medicine Technology may apply for transfer into the baccalaureate program.

Clinical Affiliations

- Lahey Clinic, Burlington, MA

- Maine Medical Center, Portland, ME
- Mercy Hospital, Portland, ME
- Dartmouth-Hitchcock Medical Center, Hanover, NH
- Fletcher Allen Health Care, Burlington, VT
- Pharmalogic, LTD, Williston, VT
- Winchester Memorial Hospital, Winchester, MA

Note: The above list of clinical affiliations is subject to change.

Possible Curriculum

First Year

	Fall	Spring
BMT 1, First Year Seminar	1	
BMT 3, Medical Terminology	1	
English	3	
Math (10 or higher)	3	
Race and Culture	1	
Chemistry 23 (or 31-32)	4	(4)
Electives	3	3-6
Physical Education	1	1
Computer Science		3
BMT 34, Human Blood Cells		3
Psychology 1		3
Total	17	16-17

Sophomore Year

	Fall	Spring
NMT 51, Principals of Nuclear Med Tech	3	
NMT 175, Medical Imaging Techniques	2	
BMT 4, Intro Radiologic Science	3	
Anatomy & Physiology 19-20	4	4
Chemistry 42 (or 141 and 142)	(4)	4
Electives	0-3	3
NMT 52, Nuclear Medicine Radiopharmacy		3
Statistics 111 or 141		3
Total	15-16	17

Junior Year

	Fall	Spring
Biochemistry 201	3	
Biochemistry 202	1	
Pathology 101	3	

BMT 295, Prin Ed & Manangement	3	
NMT 153, Nuclear Med Clin Procedures I	3	
NMT 155, Instrumentation I	3	
NMT 163, Nuclear Med Clin Practicum I	1	
BMT 242, Immunology		4
NMT 154, Nuclear Med Clin Procedures II	3	
NMT 156, Instrumentation II		3
NMT 164, Nuclear Med Clin Practicum II	2	
BMED 293, Research Concepts	1	
Electives		3
Total	17	16

Senior Year

		Fall	Spring
BMT 110, Phlebotomy	0.5		
BMT 120	3		
BMT 296, Senior Seminar	2		
NMT 263, Adv Nuclear Med Clin Pract III	3		
Electives	6		
NMT 264, Nuclear Medicine Internship		15	
Total	14.5	15	

Total Credits: 127.5

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Nursing Science (B. S.)

College: [Nursing and Health Sciences](#)

Department(s): [Nursing](#)

Requirements:

General Requirements

- [University](#)
- [Nursing and Health Sciences](#)

Specific Requirements

The Nursing department offers an undergraduate educational program to prepare qualified individuals for the practice of professional nursing and a graduate program for advanced nursing practice. This program leads to the Bachelor of Science degree and is approved by the Vermont State Board of Nursing and the [National League for Nursing Accreditation Commission](#), 800-664-1656 Ext 153, 61 Broadway 33rd floor New York, NY 10006. Graduates of the nursing program are eligible to apply for registered nurse licensure.

Applicants must meet the general admission requirements for the University. Financial Aid is available in the form of scholarships, loans, awards, and employment (see section on Financial Aid). A minimum of 128 approved semester hours is required for the Bachelor of Science degree. A grade of C is required in selected cognate nursing prerequisite courses (see Student Handbook for details). A grade of C or better is required in all nursing major courses. A minimum 2.0 overall grade-point average is required for graduation. Full-time and part-time plans of studies are available. Students are encouraged to purchase a personal computer. Specifications for hardware and software requirements may be found in the Nursing Department's Handbook for Undergraduate Students.

The curriculum, conducted in four academic years, provides balance in general and professional education. Courses in the sciences — biological, physical, social, and humanities — serve as a foundation for the nursing courses.

The required courses in the humanities and sciences complement the preparation for nursing as well as contribute to a well-rounded education. Graduates are eligible to apply for licensure as registered nurses and have the foundation for continued formal study in nursing at the master's and doctoral levels.

Transfer to Nursing:

Individuals planning to seek admission are urged to call the Nursing Department for more detailed information and to arrange for a personal interview prior to applying for admission.

Possible Curriculum

First Year

	Fall	Spring
PRNU 50, Intro to the Profession of Nursing 1		
Environmental Studies ²	3-4	
English	3	
Psychology 1	3	
Human Development 5	3	
Chemistry 23, 26	4	4
Physical Education		1
Philosophy, Religion, or Ethics		3
Abnormal Psychology 152		3
Sociology 1 ¹		3
Elective		3
Total	17-18	17

Sophomore Year

	Fall	Spring
Elective	3	
Microbiology 65	4	
Nutrition 43, Fundamentals	3	
Statistics 111 or 141	3	
Anatomy & Physiology 19-20	4	4
Professional Nursing 110	3	
Professional Nursing 111	3	
Professional Nursing 113	4	
Physical Education	1	
Total	17	15

Junior Year

Fall Spring

NURS 120, Pathophysiology	3	
Professional Nursing 127	3	
Professional Nursing 128	4	
Professional Nursing 129	4	
Professional Nursing 130	2	
Professional Nursing 131	3	
Professional Nursing 132	5	
Professional Nursing 134	5	
Elective	3	
Total	16	16

Senior Year

	Fall	Spring
Professional Nursing 231	3	
Professional Nursing 234	5	
Professional Nursing 235	5	
Elective	3	
Professional Nursing 240		3
Professional Nursing 241		3
Professional Nursing 242		5
PRNU 244, Senior Practicum		3
Total	16	14

Total Credits: 128

Notes:

¹ Any sociology course under 100

² One of the following: ENVS 1, 2, or 7; ENSC 1 or 130; NR 2.

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Nutrition and Food Sciences (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Nutrition and Food Sciences](#)

Overview

This customized major is designed to provide a strong background in preventive nutrition, food science, and basic science. Students have an opportunity to integrate course work in medical, biochemical, biological, physiological, psychological, and sociological sciences or business. This option can prepare students for careers in the commercial food processing industry or in professions where knowledge of food and beverage, nutrient content of foods, eating behavior, and the role of food in society is critical. The demand for qualified professionals with education and training in the food science arena greatly exceeds the number of graduates available thus making this option highly desirable for the career motivated student.

Students may elect to fill the academic and practical application requirements needed to become an Athletic Trainer. Upon graduation, students selected for the athletic training option will be prepared to take the National Athletic Trainers Association certification examination (see description of Athletic Training concentration). Alternately, students may choose the Nutrition and Food Science Masters in Physical Therapy (MPT) Program called the 3+3 program. In the 3+3, all NFS requirements must be completed in three years and the student must apply for matriculation into the MPT.

General Requirements

- [University](#)
- [College of Agriculture and Life Sciences Core Curriculum](#)
- [Nutrition and Food Sciences Core](#)

Specific Requirements

Nutritional and Food Sciences (12 hours): In consultation with the student's academic advisor, select four additional courses, at least two of which must be at the 200 level. Electives (33-55 hours). For Athletic Training add EDPE 23, 46, 157, 158, 166, 167, 185,

186, 187, 188, 200, PEAC 28.

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Minor in Nutrition and Food Science

College: [Agriculture and Life Sciences](#)

Department(s): [Nutrition and Food Science](#)

Requirements

A total of fifteen credit hours in Nutrition and Food Sciences, 9 credit hours consisting of 43, 53, 143, and six credits of NFS courses from the following: 63, 123, 150, 153, 165 or any 200-level course approved by the student's minor advisor that will define a particular focus. Independent study, field experience and undergraduate research cannot be counted in this total.

Agriculture and Life Sciences Majors: Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Nutrition and Food Science Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Arts and Sciences Majors: Arts and Sciences students must select at least eight credits of NFS course work at or above the 100 level.

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Philosophy (B. A.)

College: [Arts and Sciences](#)

Department(s): [Philosophy](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours including: (a) 101 and 102; (b) a total of at least four 200-level courses in Philosophy. Students considering graduate work are urged to take Philosophy 13 and to study a foreign language.

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Minor in Philosophy

College: [Arts and Sciences](#)

Department(s): [Philosophy](#)

Requirements

One course from 101, 102, 140; one course from 201, 202, 240; and 12 additional hours in Philosophy, at least three of which must be at the 100 level or above.

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Education: Teacher Education/Physical Education (Grades K-12) (B. S.)

College: [Education and Social Services](#)

Department(s): [Education](#)

Overview

The Physical Education Program qualifies candidates for licensure to teach in grades K-12. Course work around the program theme, Moving and Learning, includes a series of courses designed to provide a background to the field of physical education. Specialty courses assist the student in the development of physical education program content and teaching skills important in providing developmentally appropriate programs of physical education to children and youth in today's schools. Laboratory experiences in schools throughout the program aid students in recognizing the relationship between theory and practice.

An [Athletic Training Concentration](#) also is offered.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#)
- [Teacher Education](#)

Specific Requirements

Courses in general education and professional education as well as a liberal arts and sciences major/major concentration are required. A major concentration in Exercise and Sport Science is available to students in the Physical Education program.

Possible Curriculum

First Year

Fall Spring

EDPE 21, Foundations of Phys. Ed.	3	
EDHE 46, Personal Health	3	
PEAC 50, Individual Sports	1	
PEAC 125, Team Sports 1	1	
Major Concentration	3	6
General Education Electives	6	6
PEAC 70, Racquet Sports		1
PEAC 126, Team Sports 2		1
EDPE 157, Care & Prevent. Athletic Injury	3	
Total	17	17

Sophomore Year

		Fall	Spring
EDPE 23, ARC Emergency Response*	3		
HDFS 5, Human Development	3		
ANPS 19, Hum Anatomy & Physiology	4		
PEAC 16, Gymnastics	1		
PEAC 28, Conditioning	1		
Major Concentration	6	6	
ANPS 20, Hum Anatomy & Physiology		4	
PEAC 190, Dance		1	
PEAC 105, Outdoor Recreation		1	
EDPE 104, Phys Ed Teaching Experience	5		
Diversity		1	
Total	18	18	

* or evidence of American Red Cross Basic Emergency Response certification.

Junior Year

		Fall	Spring
EDPE 105, Phys. Ed. Teaching Exper.	5		
EDPE 167, Exercise Physiology	4		
EDPE 220, Sport in Society	3		
EDPE 260, Adapted Physical Activity	3		
General Education Electives	3	3	
EDPE 155, Phys Ed in Secondary Schools		3	
EDPE 166, Kinesiology		3	
EDPE 240, Motor Skills Learning & Control		3	
Major Concentration		3	
Total	18	15	

Students are required to complete a student teaching application before being assigned a placement.

Senior Year

	Fall	Spring
EDSC 215, Reading in Secondary Schools	3	
EDFS 203, Soc Hist & Phil Found of Ed or EDFS Elective	3	
Major Concentration	6	
General Education Electives	3	
EDPE 181, Student Teaching		12
EDPE 182, Student Teacher Seminar		2
Total	15	14

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Physics (B. A.)

College: [Arts and Sciences](#)

Department(s): [Physics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-two hours in Physics, including 31 with 21, 42 with 22, 128 with 130, 201 or 202, 211, 213, 273; mathematics through 121 and three hours of approved mathematics electives; Computer Science 21. An additional laboratory science is strongly recommended.

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Physics (B. S.)

College: [Arts and Sciences](#)

Department(s): [Physics](#)

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

All courses in core and all courses in one of the listed options. Core: Physics 31 with 21, 42 with 22, 128 with 130, 211, 213, 214 and 273; Math 21, 22, 121, 271 and 272 or 124 and 130; Chemistry 31 and 32; Computer Science 21.

Options:

- Pure Physics: Physics 201, 202, 265, twelve hours of approved physics electives.
- Mechanical Engineering: ME 12, 14, 40 with 44, 42, 101, 111, and 143; CE 1; EE 100.
- Civil & Environmental Engineering: CE 1, 10, 100, 150, 170 and 173; ME 12, 40 with 44; EE 100.
- Electrical Engineering (Signals and Systems): EE 3, 4, 81, 82, 120, 121, 171, 174, 275 and one course from 276, 277, 295; recommended elective Statistics 270.
- Electrical Engineering (Circuits and Devices), EE 3, 4, 81, 82, 120, 121, 131, 163, 183, 184, 221.

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Minor in Physics

College: [Arts and Sciences](#)

Department(s): [Physics](#)

Requirements

Seventeen hours including 31 with 21, 42 with 22, 128 with 130, and three additional hours at the 200 level excluding 201 and 202. Note: Mathematics through 121 is needed for 128.

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Minor in Plant and Soil Science

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Plant and Soil Science Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Sixteen credits including Plant and Soil Science 10 or 11, 161, plus an additional 9 credits in Plant and Soil Science courses at the 100 level or above.

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Botany: Plant Molecular Biology Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Botany](#)

Overview

This concentration focuses on the inner workings of plants at the molecular, cellular, and organismal level. Although the basic cellular functions of plants are the same as those of animals, plants face unique challenges and have evolved interesting solutions. To understand the unique biology of plants within a context of what is known about other organisms, courses examining the biochemistry and molecular biology are supplemented by courses on the molecular functions and development of other organisms. In addition to coursework, students are encouraged to get hands-on laboratory experience by taking advantage of the many opportunities to participate in independent research with department faculty.

General Requirements

- [University](#)
- [College of Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)
- [Botany Core](#)

Specific Requirements

In addition to the basic course requirements for our departmental major (listed above), this concentration has the following requirements and electives:

Concentration Requirements (40 hours): Agricultural Biochemistry 201, 202, 220. Botany 261. Chemistry 31, 31 or 35,36; 141, 142. MMG 101, 102. Physics - an additional semester with lab (31/42 or 11/12)

Concentration Electives (8-15): At least four courses from the following list: Agricultural Biochemistry 191, 221, 230, 250. Animal Science 230. Botany 109, 117, 205, 256, 257. Biology 263, 265. MMG 220, 225, 240. Nutrition 243. Pharmacology 272, 290.

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Political Science (B. A.)

College: [Arts and Sciences](#)

Department(s): [Political Science](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours in Political Science:

- Four (12 hours) core courses (21, 41, 51, 71).
- Eighteen hours at the advanced (100 or 200) level, three hours of which must be at the 200 level, subject to the following restrictions:
 - Students must complete at least one advanced (100 or 200) course in three different subfields.
 - Of these 18 hours at the advanced (100 or 200) level, students must complete at least 12 of those hours, including three hours at the 200 level, in regular UVM political science courses (e.g., excluding study abroad, transfer credit, readings and research).

Note: Internships will not count toward the 30 hours required for the major.

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Minor in Political Science

College: [Arts and Sciences](#)

Department(s): [Political Science](#)

Requirements

Eighteen hours in political science, including nine hours from the "core" courses (21, 41, 51, 71), and nine hours at the level of 100 or above. Of the nine hours at the 100 level or above, students must complete at least six hours in regular UVM political science courses (e.g., excluding study abroad, transfer credit, readings and research). Internships will not count toward the eighteen hours required for the minor.

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Electrical Engineering: Premedical Engineering Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Electrical and Computer Engineering](#)

General Requirements

- [University](#)
- [College of Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Electrical and Computer Engineering](#)

Possible Curriculum

First Year

	Fall	Spring
CS 21, Comp Programming I	4	
English 1, Written Expression	3	
Chemistry 31, Intro Chemistry	4	
Math 21, Calculus I	4	
Engr 1, Intro to Engr	1	
Physical Education	1	1
Math 22, Calculus II	4	
Chem 32, Intro Chem	4	
HSS Elective	6	
Engr 2, Graph Comm	2	
Total	17	17

Sophomore Year

	Fall	Spring
Math 121, Calculus III	4	
Physics 31 and 21, Intro Phys	5	

EE 3, Linear Circuit Analysis I	3	
EE 81, Sophomore Lab I	2	
HSS Elective	3	3
Physics 42 and 22, E&M & Mod Phys	5	
Math 271, Applied Math/Engineers	3	
EE 4, Linear Circuit Analysis II	3	
EE 82, Sophomore Lab II	2	
Total	17	16

Junior Year

Fall Spring

Biology 1, Prin of Biology	4	
Non-EE Engr Sci Elective ¹	3	
Chem 141, Organic Chem	4	
Stat 143/151	3	
HSS Elective	3	3
Biology 2, Prin of Biology	4	
EE 134, Microprocessors	4	
Chem 142, Organic Chem	4	
Total	17	15

Senior Year

Fall Spring

EE 141, EM Field Theory I ²	3	
EE 120, Electronics I	3	
EE 183, Junior Lab I	2	
EE 171, Signals & Sys	4	
EE 163, Solid St Phys Electronics I	4	
EE 174, Intro Comm Sys	3	
EE 121, Electronics II	3	
EE 142, EM Field Theory II	3	
EE 184, Junior Lab II	2	
EE 187, Senior Project	3	
EE Engr Science Elective ³	3	
Total	16	17

Total Credits: 132

Notes:

¹ Non-EE Engr. Science Electives: CE 1, 10, 150; ME 12, 40, 114.

² No credit may be received for both EE 140 (offered in prior years) and the current EE 141.

³ EE Engr. Science. Elective: 113, 210, 241, 242, 245, 246, 261, 266, 274.

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Mechanical Engineering: Premedical Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Mechanical Engineering](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Mechanical Engineering](#)

Possible Curriculum

	First Year	
	Fall	Spring
ENG 1, Written Expression	3	
ENGR 2, Graphical Communication	2	
PEAC	1	
CHEM 31 & 32, Introductory Chemistry	4	4
MATH 21 & 22, Calculus I & II	4	4
HSS Electives ¹	3	3
ME 1, Design Exp		2
PHYS 31/21, Introductory Physics		5
Total	17	18

	Sophomore Year	
	Fall	Spring
CE 1, Statics		3
HSS Elective ¹		3
MATH 121, Calculus III		4
PHYS 42/22, Electromagnetism & Modern Physics		5
ME 40, Thermodynamics		3

MATH 124, Linear Algebra	3
MATH 271, Applied Math/Engineers	3
ME 12, Dynamics	3
ME 14, Mechanics of Solids	3
ME 82, Mechanical Engineering Lab I	3
ME 42, Engineering Thermodynamics	3
Total	18 18

Junior Year

Fall Spring

ME 101, Engineering Materials I	3
ME 143, Fluid Mechanics	3
ME 123 & 124, Mechanical Engineering Lab II & III	2 2
CHEM 141 & 142, Organic Chemistry	4 4
BIOL 1 & 2, Principles of Biology	4 4
ME 144, Heat Transfer	3
ME 171, Design of Elements	3
PEAC	3
Total	16 17

Senior Year

Fall Spring

ME 111, System Dynamics	3
ME 161, Manufacturing Engineering I	3
ME 183, Mechanical Engineering Lab IV	2
STAT 143, Engineering Statistics	1
ME 185 & 186, Senior Project	2 1
EE 100 & 101, Electrical Engineering Concepts I & II	4 4
HSS Electives ¹	6
ME Design Elective ²	3
Total	16 15

Total Credits: 134

Notes:

1. Students must select one HSS course from approved race and culture courses.
2. ME 162, 172, or ME 265.

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Animal Science: Preveterinary/Preprofessional Science Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Animal Science](#)

Overview

This is the option for students most interested in the basic sciences who intend to enter veterinary, professional, or graduate school. It provides the necessary background in science as well as the opportunity for advanced study related to production and companion animals.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Animal Science Requirements](#)

Possible Curriculum

First Year

Course	Hours
Foundations	6
Cultural Diversity	1
Inorganic Chemistry	8
Math through Calculus	6
Introduction to Animal Science	4
Biology	8
Electives	3
Total	36

Sophomore Year

Course	Hours
Organic Chemistry	8

Animal Nutrition, Metabolism, & Feeding	4
Statistics	3
Anatomy & Physiology of Domestic Animals	4
Fundamentals of Nutrition	3
Written English	3
Electives	3-9
Total	28-34

Junior Year

Course	Hours
Animals in Society / Animal Welfare	3
Horse, Health, & Disease	3
Microbiology	4
Physics	10
English Composition	3
Career Seminar	1
Electives	3-12
Total	27-36

Senior Year

Course	Hours
Clinical Veterinary Medicine	3
Animal Health	3
Physiology of Reproduction	4
Biochemistry	4
Endocrinology	3
Genetics	3
Dog Behavior & Training	3
Electives	6-12
Total	29-35

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Recreation Management: Private Outdoor Recreation and Tourism Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [RecreationManagement](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)
- [Recreation Management Core Courses](#)

Specific Requirements

Required courses: RM 1, 50, 157, 158, 191, 230, 258; three courses selected from RM 138, 153, 235, 240, 255; and nine additional credits of professional electives to be chosen in consultation with an advisor.

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Biology: Professional Biology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration is appropriate for students with interests in the medical, veterinary, dental, and allied health fields

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Bachelor of Arts in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional 200-level or other advanced courses approved by the department (including at least one course with laboratory). One course may be taken from outside the Department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the required advanced courses. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: Biology 205, 212, 217, 219, 223, 246, 254, 265, 295, and Honors 208, 209. In addition, students may take approved courses offered by other biologically-oriented departments.

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Biology: Professional Biology Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration is appropriate for students with interests in the medical, veterinary, dental, and allied health fields

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Bachelor of Science in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; Chemistry 141, 142; Physics 21, 22 in combination with 11, 12, or preferably 31, 42; Math. 19, 20 or 21, 22. Statistics 141 or 211. Forty-six hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, and 104. Of the remaining 23 hours in 200-level courses, no more than 11 hours may be taken outside the department from the list of approved courses. Up to six hours of Biochemistry 301, 302 and/or up to six hours for Biology 197, 198 or Honors 208, 209 will be accepted as credit toward the 23 hours in 200-level courses. For a list of approved offerings in other biologically-oriented departments, consult the Biology Department Office.

Concentration Courses: Biology 205, 212, 217, 219, 223, 246, 254, 265, 295, and Honors 208, 209. In addition, students may take approved courses offered by other biologically-oriented departments.

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Recreation Management: Public Outdoor Recreation Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [RecreationManagement](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)
- [Recreation Management Core Courses](#)

Public Outdoor Recreation Option

Required courses: RM 1, 138, 153, 191, 235, 240, 255; three courses selected from RM 50, 157, 158, 230, 258; and nine additional credits of professional electives to be chosen in consultation with an advisor.

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Psychology (B. A.)

College: [Arts and Sciences](#)

Department(s): [Psychology](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-five hours including:

- 1, 109, 110, 119
- three of the following: 121, 130, 152, 161;
- one course from each of the following categories A, B, and C:
 - 205, 206, 207, 208, 215, 220, 221, 222, 223;
 - 230, 231, 233, 234, 236, 237, 239, 240, 241, 254*, 257*, 261, 262, 263*, 265, 266, 268;
 - 250, 251, 252, 253, 254*, 255, 257*, 259, 263*; (4) one additional course at/above 100 level.

*Category B or C, but not both.

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Minor in Psychology

College: [Arts and Sciences](#)

Department(s): [Psychology](#)

Requirements

This minor is not available to students pursuing degree programs not offered by the College of Arts and Sciences.

Nineteen hours including 1, 109, plus 12 hours at the 100 level or above, including at least three hours at the 200 level.

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Psychology: Biobehavioral Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Psychology](#)

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Forty-four hours of psychology including 1, 109, 110, 119, 121, 130, 152, 161, and upper division psychology courses as described below; Math 13, 14, or 19, 20 or 21, 22; biology courses as indicated below; and at least three additional hours in an approved science or statistics. For a list of approved offerings in science and statistics, contact the psychology department office. Students opting for a bachelor of science degree in psychology must also complete the College of Arts and Sciences distribution requirements for a B.S. degree and they may not use psychology courses to fulfill the social sciences category.

Students who are interested in behavioral neuroscience and related medical fields, including premedicine preparation, should select this concentration. Required courses include: Biology 1B, 2B; three category A courses, one from each of the following subcategories (i) 221 or 222, (ii) 205 or 220, (iii) 206 or 223; and one course from 207, 208, 215, 230, 231, 233, 234, 236, 237, 239, 240, 241, 250, 251, 252, 253, 254, 255, 257, 259, 261, 262, 263, 265, 266, 268. The remaining hours must be psychology courses at or above the 100 level. Independent research is encouraged and these hours may be counted towards the total 44 hours required. A science minor is strongly recommended.

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Psychology: Traditional Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Psychology](#)

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Forty-four hours of psychology including 1, 109, 110, 119, 121, 130, 152, 161, and upper division psychology courses as described below; Math 13, 14, or 19, 20 or 21, 22; biology courses as indicated below; and at least three additional hours in an approved science or statistics. For a list of approved offerings in science and statistics, contact the psychology department office. Students opting for a bachelor of science degree in psychology must also complete the College of Arts and Sciences distribution requirements for a B.S. degree and they may not use psychology courses to fulfill the social sciences category.

This concentration is most appropriate for students wishing a broader training in psychology, often in preparation for graduate school. Required courses include: Biology 1, 2; one course from each of the following categories A, B, and C: (A) 205, 206, 207, 208, 215, 220, 221, 222, 223; (B) 230, 231, 233, 234, 236, 237, 239, 240, 241, 254*, 257*, 261, 262, 263*, 265, 266, 268; (C) 250, 251, 252, 253, 254*, 255, 257*, 259, 263*. The remaining hours must be psychology courses at or above the 100 level. Independent research is encouraged and these hours may be counted towards the total 44 hours required. A minor in mathematics, statistics, or biology is strongly recommended.

*Category B or C, but not both.

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Minor in Pure Mathematics

College: [Arts and Sciences](#), [Engineering and Mathematics](#)

Department(s): [Mathematics and Statistics](#)

Requirements

Math 21 (or equivalent), 22, 52 or 121, and nine additional credits in Mathematics courses numbered 100 or above. Computer Science or Computer Engineering majors may substitute Math 54 for 52. The course plan for a mathematics minor must be approved by a mathematics faculty advisor.

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Biomedical Technologies: Radiation Therapy Concentration (B. S.)

College: [Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Overview

Radiation Therapy is the medical specialty that uses high energy radiations (x-rays, gamma rays, electron beams, etc.) in the treatment of disease. Radiation therapists are responsible for daily treatments, providing support for patients as they cope with their disease, and contributing as vital members of the medical team responsible for the patient's treatment plan.

- [Honors Program](#)

General Requirements

- [University](#)
- [Nursing and Health Sciences](#)
- [Biomedical Technologies](#)

Specific Requirements

Clinical education takes place at one of our clinical affiliations. The initial experience is obtained at the Fletcher Allen Health Care (FAHC). At least one experience will be an affiliation outside Burlington which will require additional room, meals, and transportation expenses.

Clinical Affiliations

- Dartmouth-Hitchcock Medical Center, Hanover, NH
- Elliot Hospital, Manchester, NH
- Fletcher Allen Health Care, Burlington, VT
- Massachusetts General Hospital, Boston, MA

Note: The above list of clinical affiliations is subject to change.

Students who already have the Associate in Science degree in Radiation Therapy may apply for transfer into the baccalaureate program. Requirements are a total of 127 credit hours for graduation including approved transfer credits from their Associate degree. Additional required courses for the baccalaureate degree are Chemistry 23 (or 31 and 32), Physics 11 and 12, BMT 120, Pathology 101, Biomedical Technology 293, Biomedical Technologies 295, and 12 credit hours of special topics (Biomedical Technologies 299) in the concentration areas of dosimetry, topographical anatomy, patient care, treatment planning, and quality assurance. These independent studies will be coordinated by the student's advisor.

Possible Curriculum

First Year

	Fall	Spring
BMT 1, First Year Seminar	1	
BMT 3, Medical Terminology	1	
English	3	
Math (10 or higher)	3	
EDSS 11, Race and Culture	1	
Physical Education	1	1
Chemistry 23 (or 31-32)	4	(4)
Electives	3	3-6
BMT 34, Human Blood Cells	3	
Computer Science	3	
Psychology 1	3	
Total	17	16-17

Sophomore Year

	Fall	Spring
Nutrition 43	3	
BMT 4, Intro Radiologic Science	3	
RADT 175, Medical Imaging	2	
Anatomy & Physiology 19-20	4	4
Electives	3	3
Sociology	3	
Statistics 111 (or 141)	3	
RADT 52, Principles Radiation Therapy	2	
Total	15	15

Junior Year

Fall Spring

RADT 173, Clinical Lab Rad Therapy	2	
BMT 295, Princ Ed Management	3	
Pathology 101	3	
Physics 11, 12	4	4
Electives	5	6
RADT 144, Seminar Patient Issues	1	
RADT 174, Clinical Practicum	1	
RADT 176, Clinical Radiation Oncology	3	
BMED 293, Research Concepts	1	
Total	17	16

Senior Year

		Fall	Spring
BMT 120			3
BMT 296, Senior Seminar			2
RADT 223, Clinical Practicum			3
RADT 275, Dosimetry			2
RADT 277, Techniques Radiation Therapy			4
RADT 274, Clinical Internship			14
RADT 280, Quality Assurance & Treatment Plan			3
Total		14	17

Total Credits: 127

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Recreation Management Core Courses

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Recreation Management](#)

Options: [PublicOutdoor Recreation](#), [Private OutdoorRecreation and Tourism](#)

A total of 126 credits are required for the degree.

Courses required for all Recreation Management majors:

- One course in humanities (History, Philosophy, Religion, Classics)
- One course in communications (Art, Music, Theater, Art History, foreign language, English literature)
- One course in social sciences (Anthropology, Economics, Geography, Political Science, Psychology, Sociology)
- One laboratory course in natural sciences (Biology, Physics, Chemistry, Botany, Zoology, Geology)

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Minor in Recreation Management

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Recreation Management](#)

Requirements

The Bachelor of Science degree in The Rubenstein School of Environment and Natural Resources does not require completion of a minor. However, many students in the Rubenstein School do complete minors, either within the School or in other departments across campus. Interested students should contact the chair of the minor program or department.

The minor requires a planned course of study which will provide a substantive introduction into the field of recreation management. Interested students should contact the Program Chair. A total of 15 credit hours are required. A minimum of nine credits are to be selected from RM 1, 50, 138, 153, 157, 158. A minimum of six credits are to be selected from RM 230, 235, 240, 255, 258.

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Religion (B. A.)

College: [Arts and Sciences](#)

Department(s): [Religion](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-three hours in Religion, including 100 and 201; one course chosen from the 20-27 range; one course from the 101-109 range (comparative); one course from the 110-130 range (Biblical traditions); one course from the 130-149 range (Asian traditions); an additional course at the 200 level. Religion 130 may count for either the Biblical or Asian traditions requirement, but not for both. Three hours in related, non-departmental courses may count toward the thirty-three hour requirement. A list of approved courses is available from the Religion Department.

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Minor in Religion

College: [Arts and Sciences](#)

Department(s): [Religion](#)

Requirements

Eighteen hours in Religion including: one introductory course from the 20-27 range; 100; one course from 101-109 range; one intermediate level course on a particular religious tradition (from 110-149); one course at the 200 level; an additional Religion course.

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Russian (B. A.)

College: [Arts and Sciences](#)

Department(s): [Russian](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours of courses in Russian at the 100 level or above among which at least one course must be Russian literature in translation (WLIT 118); one additional course in English literature or world literature; one Russian history course; and two additional courses chosen from among the listings of the Russian and East European Area Studies Program. All course work to be chosen in consultation with the student's major advisor.

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Minor in Russian

College: [Arts and Sciences](#)

Department(s): [Russian](#)

Requirements

Russian 51, 52; four courses in Russian at the 100 or 200 level.

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Area and International Studies: Russian/East European Studies (B. A.)

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Russian/East European Studies Course Offerings

1. 30 hours of required courses to include the following: Two courses from HIST 27, 137, 138; ECON 116; POLS 172; WLIT 118; two courses at the 100 level or above in Russian; three additional courses in the major, chosen in consultation with an advisor in the major.
2. Recommended courses: Area and Int'l Studies 91.

The program also offers an interdisciplinary Individual Design Major in Russian/East European Studies and Business. The program of study must be planned with a member of the Russian/East European Studies faculty.

Required courses (35 hours): Two courses in Russian at the intermediate level; four courses in Economics including 116; one Russian/East European Area Studies course other than those in Economics; two courses in Business Administration; two approved electives at the 100 level or above.

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Minor in Russian/East European Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Requirements

Twenty hours to include: Russian 51, 52 or its equivalent and four courses from the following: Economics 116; World Literature 118; History 27, 137, 138; Political Science 172.

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Secondary Education Licensure for Students Outside of the College of Education and Social Services

College: [Education and Social Services](#)

Department(s): [Education](#)

Overview

Students enrolled in appropriate programs in other colleges at the University of Vermont may apply to complete teacher licensure requirements for Secondary Education while they remain in their home college. Information and applications for admission to the Teacher Education program are available in the Secondary Education Office, 405A Waterman. This requires full completion of the program and not simply the courses in the Professional Education category.

General Requirements

- [Teacher Education](#)

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Education: Teacher Education/Secondary Education (Grades 7-12) (B. S.)

College: [Education and Social Services](#)

Department(s): [Education](#)

Overview

The Secondary Education Program prepares teachers to work with students with diverse needs in public school classrooms in grades 7-12. The curriculum includes general education; a major, a minor, or a broadfield major; a professional education component; and electives.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#)
- [Teacher Education](#)

Specific Requirements

A minimum of 124 approved semester hours is required for the degree. Specific requirements, including PRAXIS information, as approved by the State Department of Education, may be obtained from the Office of Student Services, 528 Waterman. Program information is also available from the Secondary Education Program, 405A Waterman or on the [Web](#).

During the first two years, students enroll in a CESS course each semester, concentrating on completing their general education, major, and minor requirements while also taking selected coursework in education. The majority of professional education coursework is completed in the junior and senior years.

General Education Component (Minimum of 27 credits): The general education courses must include the following courses. Two semester hours of physical education activities must be included.

English Composition and English Literature
Science
Mathematics
U.S. History
American Government
Psychology 1
Humanities (Philosophy, Religion, Foreign Language)
Physical Education activities
Race and Culture

Academic Major and Minor Components (major minimum of 30 credits, minor minimum of 18 credits or broadfield major of 48-52 credits): Students who successfully complete their Teacher Education programs are recommended for licensure with a first endorsement in their major, and may apply directly to the State Department of Education for an endorsement to also teach their minor. Students are therefore encouraged to select a minor which is also a licensure area. (Approved majors and minors are listed in the Academic Majors box appearing earlier in this section.)

Professional Education Component (45 credits): By the time students begin the professional education component of their program as juniors, they should have completed most of their general education requirements, have taken 12 credits of professional education coursework, and be well into their academic major (15-18 credits completed) and their academic minor (six-12 credits completed). Students must complete the remainder of their requirements as they complete the following phases of the professional education component:

I. Exploring Learners' Needs in the Context of Schools: EDFS 203, EDSC207, 209.

Following completion of this first phase, students must submit their Initial Portfolio and their application to the Teacher Education Program. The Initial Portfolio documents learning, professional knowledge, collegiality, advocacy and accountability. Provided the Initial Portfolio is assessed as satisfactory, the student has achieved passing scores on PRAXIS I, and has a minimum 2.5 GPA overall, 2.5 in his or her major, and was successful in EDFS 203, EDSC207 and 209 (3.0 or better), the student is accepted into Teacher Education and may begin work on the second phase of the program.

II. Designing and Adapting Instruction: EDSC 215, 216 and subject methods.

Subject methods for major: EDSC 225 (Social Studies), EDSC 227 (Science), EDSC 240 (English), EDSC 257 (Mathematics), or EDSC 259 (Foreign Languages).

During this phase of the program, prior to student teaching, students must achieve passing scores on PRAXIS II. Students must also have an overall GPA of 3.0 and a minimum GPA of 2.75 in their major. Following a successful faculty review of a student's records, he or she is nominated for a placement. Students must complete the interview process for placement by the school in order to be confirmed for

student teaching. Students complete a semester of full-time student teaching as the third phase of the program. (In some cases, students must arrange to live off-campus during the student teaching semester.)

III. Achieving Results in Schools: EDSC 226, 230.

As students complete their degree program, they must submit their Licensure Portfolios which document Learning, Professional Knowledge, Collegueship, Advocacy and Accountability. Recommendation for licensure is based on successful completion of student teaching, an overall grade-point average of 3.0, as well as on submission of a satisfactory Licensure Portfolio, and meeting state accreditation standards.

Student's Responsibility: Information about application and assignment procedures for the Secondary Education Program may be obtained from 405A Waterman Building. Students are responsible for obtaining information regarding the process and requirements, and for notifying the office as to changes in their status, address, or intentions for completion of their program.

Language Proficiency: A Language Proficiency Test is required for the Secondary Education Foreign Language majors.

Speech/Theatre: All students must demonstrate competence in the area of speaking by taking a speech or theatre course or by submitting evidence of competence (go to 405A Waterman Building for more information).

Possible Curriculum

First Year

	Fall Spring	
EDSC 50, Exploring Education	3	
Minor	3	
Race & Culture	1	
Major	3	6
General Education Electives	6	6
Physical Education Elective		1
EDSP 5, Issues Affecting Persons with Disabilities		3
Total	16	16

Sophomore Year

	Fall	Spring
Physical Education Elective		1
EDSC 11, Educational Technology in the Secondary Education Classroom	3	
Major	3	6
General Education Electives	9	3

Minor	6
EDSC 197 (or other field-based elective)	3
Total	16 18

Junior Year

Fall Spring

EDSC 207, Adolescent Learning from a Behavioral & Cognitive Perspective	3
EDSC 209, Practicum in Teaching	3
EDFS 203, Soc Hist & Phil Found of Ed	3
Major	6 6
EDSC 215, Reading in Secondary Schools	3
EDSC 216, General Methods for Sec Teachers	3
Special Methods	3
Minor	3
Total	15 18

Senior Year

	Fall	Spring
EDSC 226, Teaching Internship	12	or 12
EDSC 230, Teaching for Results	3	or 3
Minor	6	or 6
General Education Electives	4	or 4
Total	12-18	12-18

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Minor in Social Anthropology

College: [Arts and Sciences](#)

Department(s): [Anthropology](#)

Requirements

This minor is not available to students pursuing degree programs not offered by the College of Arts and Sciences.

21; two topical courses plus one "peoples" course, or one topical and two "peoples" courses; and any 200-level course, except 200, 210, 297, 298.

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Social Work (B. S.)

College: [Education and Social Services](#)

Department(s): [Social Work](#)

Overview

The principal educational objective of the Social Work Program is to prepare students for beginning social work practice with individuals, families, small groups, organizations, and communities.

The program provides education for social work practice based on a liberal arts education in the social sciences and humanities. The program is fully accredited by the Council on Social Work Education. Throughout the program of study, students gain the values, knowledge, and skills necessary to provide social services and to effect social change in institutions and communities.

General Requirements

- [University](#)
- [Education and Social Services](#)

Specific Requirements

The Bachelor of Science degree in Social Work requires a minimum of 122 approved credit hours, 27 credits of which are general education components from the six approved academic areas (Arts and Letters, Mathematics, Science, Social Sciences, Humanities, Health and Physical Education), including two credits for physical education activities and one credit for Race and Culture Studies. Additionally, students are required to take at least one course that focuses substantially on issues concerned with Africa, Asia, the Middle East, or countries known as the Third World.

The student in consultation with his/her advisor, selects elective courses which will provide the opportunity to develop individual interests. Additional courses in computer science, economics, education, history, philosophy, political science, psychology, sociology, statistics, special education, and women's studies are recommended. Students who intend to pursue a Master of Social Work (MSW) degree are strongly advised to take a course in

statistics.

A committee of Social Work faculty may review students' progress periodically throughout the four years. Students may be asked to participate in that process if the faculty deems necessary.

Students must complete the required liberal arts courses with a minimum grade of C-; completion of the initial Social Work courses (SWSS 2, 3, 5, 47, 48, 167) with a minimum grade of C; completion of the upper level Social Work courses (SWSS 164, 165, 166, 168, 169, 171, 172, 173, 174) with a minimum grade of B and an overall GPA in all courses of 2.0.

Possible Curriculum

First Year

	Fall Spring	
SWSS 2, Foundations of Social Work	3	
Race & Culture	1	
Third World Elective	3	
SOC 1	3	
Humanities	3	
Electives	3	3
BIOL 3 or SWSS 5, Biosociopolitical Issues	3	
POLS 21	3	
PSYC 1	3	
SWSS 3, Human Needs & Social Services	3	
Total	16	15

Sophomore Year

	Fall Spring	
SWSS 47, Human Behavior in the Soc. Env. I	3	
EC 11	3	
PSYC 152	3	
ENG 50	3	
Physical Education Elective	1	
Electives	3	12
SWSS 48, Human Behavior in the Soc. Env II	3	
SWSS 167, Racism & Contemporary Issues	3	
Total	16	18

Junior Year

	Fall Spring	
SWSS 164, Intro Social Work Research	3	
SWSS 165, Issues & Policy in Soc. Welfare I	3	

Physical Education Elective	1	
Electives	9	15
SWSS 166, Issues & Policy in Soc Welfare II	3	
Total	16	18

Typically students apply for SWSS 173 Field Experience in the spring of Junior year. Application for the Field requires consultation with the student's advisor to determine that all introductory and intermediate professional and required courses have been successfully completed. The process includes a written statement that describes the student's interests and qualifications. The advisor and student also review professional readiness issues, including strengths, conduct, maturity, and areas to strengthen. When there are concerns about a student's field readiness, these concerns will be reviewed by the Undergraduate Program Committee, and recommendations will be made.

In the senior year, students spend approx. 15 hours/wk. over two semesters (450 total hours) as interns in a public or private social service agency. Within the same year, students must take SWSS 168, 169, 171, 172, 173, and 174.

Senior Year

	Fall	Spring
SWSS 168, Social Work Intervention I	3	
SWSS 171, Field Experience Seminar I	3	
SWSS 173, Field Experience	6	
SWSS 169, Social Work Intervention II	3	
SWSS 172, Field Experience Seminar II	3	
SWSS 174, Field Experience II	6	
Total	12	12

Students must complete one elective (advisor approved) related to issues of Third World countries.

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Minor in Sociolinguistics

College: [Arts and Sciences](#)

Department(s): [Anthropology](#)

Requirements

Sociolinguistics: 28; 178; two "peoples" courses from 160, 161, 162, 163, 165, or 166; 284 or Psychology 237.

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Sociology (B. A.)

College: [Arts and Sciences](#)

Department(s): [Sociology](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-four hours in Sociology including Sociology 1; 100 and 101; three hours in each of three different areas at the 100-level (total nine hours); and three hours in each of the three different areas at the 200 level (total nine hours). It is recommended that 1, 100, and 101 be completed before the start of the junior year. 1 and 100, or 1 and 101, or instructor's permission is a prerequisite for enrollment in any 200-level course. Students planning to concentrate in a particular area of study are strongly encouraged to take an additional 200-level course in that area. Students planning postgraduate training in Sociology or related areas are strongly encouraged to take at least two courses from the advanced Theory/Methods area (274, 275, 279). Areas and their approved courses are: Crime, Law, and Deviance: 115, 118, 214, 216, 217, 255, 258; Social Inequality: 119, 122, 132, 219, 232, 240, 254; Social Change and Development: 102, 103, 105, 171, 203, 205, 206, 207, 211, 213, 272; Culture, Institutions, and the Individual: 109, 150, 151, 161, 209, 225, 243, 250, 252, 288, 289; The Life Course: 120, 154, 161, 222, 223, 229; Theory and Methods: 274, 275, 279.

*Courses numbered 195, 196, 281, 282, 295, or 296 may qualify to fulfill area requirements with approval of the student's advisor.

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Minor in Sociology

College: [Arts and Sciences](#)

Department(s): [Sociology](#)

Requirements

Eighteen hours in sociology including Sociology 1; either 100 or 101; three hours in each of two different areas at the 100-level (total six hours); three hours at the 200-level (total three hours). (See Sociology major requirements for list of approved area options.) It is recommended that 1 and 100 or 1 and 101 be completed before the start of the junior year, 1 and 100, or 1 and 101, or instructor's permission, is a prerequisite for enrollment in any 200-level course.

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Geology: Solid Earth Concentration (B. A.)

College: [Arts and Sciences](#)Department(s): [Geology](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Upper level electives should be chosen from the following lists:

- Solid earth: 112, 131, 230, 240, 241, 245, 273, 195, 196
- Surface Processes: 151, 153, 155, 255, 195, 196
- Geochemistry/Earth Systems: 210, 233, 234, 235, 195, 196

One Geology course below 100 level, 101, 102, 260. At least three credits of field experience are highly advisable (Geology 197, 198, 201, field camp or field-based thesis). Three Solid Earth courses, one Surface Process course, one Geochemistry/Earth Systems course. Two courses in Geology or approved science, mathematics, engineering, or statistics courses at the 100 level or above selected in consultation with Geology advisor, Math. 19, 20, or 21, 22; Chemistry 31 and 32 (or 35 and 36); Physics 11, 21 (12, 22 also strongly recommended).

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Geology: Solid Earth Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Geology](#)

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Upper level electives should be chosen from the following lists:

- Solid earth: 112, 131, 230, 240, 241, 245, 273, 195, 196
- Surface Processes: 151, 153, 155, 255, 195, 196
- Geochemistry/Earth Systems: 210, 233, 234, 235, 195, 196

One Geology course below 100 level, 101, 102, 260. At least three credits of field experience are required (Geology 197, 198, 201, field camp or field-based thesis). Four Solid Earth courses, two Surface Process courses, one Geochemistry/Earth Systems course. Two additional courses in Geology or approved science, mathematics, engineering, or statistics courses at the 100 level or above selected in consultation with Geology advisor, Math. 21, 22 or 19, 20, 22; Chemistry 31 and 32 (or 35 and 36); Physics 21, 31 and 22, 42 or 21, 31 and 125; Statistics 141.

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Spanish (B. A.)

College: [Arts and Sciences](#)

Department(s): [Romance Languages](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

A minimum of thirty-three hours of courses numbered above 100*, of which: twelve must be in literature and eighteen must be in courses numbered above 200*. Required courses among those thirty-three hours: Spanish 140; one 3-credit course in Spanish American literature (142, 279, 281, 286, 287 or Topics); one 3-credit course in Spanish Peninsular Literature (141, 235, 236, 237, 245, 246, 250, 251, 252, 255, 256, 257 or Topics); one 3-credit course in culture and civilization (290, 291, 292, 293, 294 or 299). At least one of the literature courses taken must be devoted specifically to literature written before 1800 (Examples are 235, 236, 237, 245, 246, 287 or Topics on pre-1800 literature).

*Only three credits of Readings and Research (197, 198) and Advanced Readings and Research (297, 298) may be counted toward the major.

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Minor in Spanish

College: [Arts and Sciences](#)

Department(s): [Romance Languages](#)

Requirements

Eighteen hours in Spanish above 100, including: Language: six credits from 101, 201, 202; Literature: six credits (3 of those credits must be in Spanish 140); Electives: six additional credits from courses numbered above 202. Readings and Research (197, 198) or Advanced Readings and Research (297, 298) may not be counted toward a minor.

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Minor in Speech

College: [Arts and Sciences](#)

Department(s): [Theatre](#)

Requirements

Eighteen hours to include 12 hours from Speech 11, 111, 112, 283-4 or Theatre 5; and six hours from Speech 214 or 283-4, or Sociology 141.

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Minor in Special Education

College: [Education and Social Services](#)

Departments: [Education](#)

Overview

The minor in special education is for students wishing to learn about and work with students with disabilities and to obtain an understanding of special education. Students apply to the minor through contacting the Special Education Program in the Department of Education.

Requirements

A total of 18 hours (6 courses) of coursework is required, at least 9 hours of which must be at the 100 level or above. Course offerings cover the areas of foundations of special education, assessment practices, and methods for supporting students with disabilities in general education classrooms. Students may apply their coursework to becoming certified in special education.

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Mathematics: Statistics Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Mathematics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Computer Science 21. Thirty-three hours of Mathematics/Statistics courses numbered 21 or higher, including Math. 121 and 124, and Statistics 141 or 143 or 211, 151 or 251, 201, 221 or 227, 241 or 261, and 281 or 293. At least 12 hours must be at the 200 level or higher.

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Mathematics: Statistics Major (B. S.)

 College: [Engineering and Mathematics](#)

 Department(s): [Mathematics and Statistics](#)

Overview

Students receiving the B. S. in Mathematics may elect Statistics as their major. In addition, students receiving a B. A. degree in Arts and Sciences may concentrate in Statistics as a part of their Mathematics major. Statistics is a mathematical science extensively used in a wide variety of fields. Indeed, every discipline which gathers and interprets data uses statistical concepts and procedures to understand the information implicit in their data base. Statisticians become involved in efforts to solve real world problems by designing surveys and experimental plans, constructing and interpreting descriptive statistics, developing and applying statistical inference procedures, and developing and investigating stochastic models or computer simulations. To investigate new statistical procedures requires a knowledge of mathematics and computing as well as statistical theory. To apply concepts and procedures effectively also calls for an understanding of the field of application.

The curriculum is designed for students who plan to enter business, industry, or government as statisticians; to become professional actuaries; or to continue on to graduate school in statistics/biostatistics or another field where a quantitative ability can prove valuable (business, operations research, medicine, public health, demography, psychology, etc.). The courses and curricula are administered through the Statistics Program Steering Committee which includes faculty from Statistics, College of Medicine Biometry Facility, Natural Resources, and the Agricultural Experiment Station. Students are encouraged to undertake special projects to gain experience in data analysis, design, and statistical computing. Also, experience can be gained with local industry and other organizations for those interested in quality control, industrial statistics, survey and market research or forecasting, for example.

Statistics majors may also minor in Mathematics by completing MATH 21, 22, 52 or 121, and 9 more credits in mathematics at the 100+ level. Since Statistics majors normally take MATH 21, 22, 121 and 124, they just need two more mathematics courses at the 100+ level.

Students earning the B. S. in Mathematics may earn a double major in Mathematics and Statistics by meeting the requirements of the Statistics major and earning an additional 18 credits in Mathematics, to include one of Math. 141, 241, 151 or 251.

Further details on the Statistics major and minor curricula may be obtained from the Director of the Statistics Program. The Handbook for Mathematics and Statistics majors, available from the Mathematics and Statistics department office, also provides a wealth of useful information.

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Mathematics and Statistics](#)

Specific Requirements

Premedical Concentration in Statistics

Each student electing the Premedical Concentration in Statistics will fulfill the general requirements for the Statistics major. Statistics 200 is recommended as an important elective for students interested in medicine or allied health. In addition, the premedical concentration should include as a minimum two years of chemistry with laboratory (Chemistry 31, 32, or 35, 36, 37, 38, and 141, 142), at least one year of physics with laboratory (Physics 21, 31, 22, 42 or 21, 31, 125), and at least one year of biology with laboratory (Biology 1, 2). Exposure to medical research problems will be provided through supervised experiences in the College of Medicine Biometry Facility.

Concentration in Quality

Students interested in methods of quality control and quality improvement are encouraged to develop a concentration in quality. Statistics 224: Statistics in Quality and Productivity is regularly offered. Related courses to consider include Business Administration 178 and others in the Production and Operations Management and Quantitative Methods area of Business Administration. Project experience in industrial quality control or in health care quality can be gained in Statistics 191 and 281, or 293-294.

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Minor in Statistics

College: [Engineering and Mathematics, Arts and Sciences](#)

Department(s): [Mathematics and Statistics](#)

Requirements

A Statistics Minor consists of 15 credits of statistics (STAT) courses, acquiring calculus knowledge equivalent to MATH 19 or 21, and gaining computer experience equivalent to STAT 201 or a computer programming course (CS 16 or higher or MATH 52). Not more than seven credits of introductory Statistics 11/51/111/140/141/143/211 may be counted. The course plan for the Statistics Minor must be approved by a Statistics faculty advisor. See more complete guidelines at <http://www.emba.uvm.edu/math/programs/statminor/> ↻.

Note that Mathematics majors can minor in Statistics as well. In Arts and Sciences you must earn 12 of your 15 credits in statistics beyond any statistics courses counted in your major courses. In Engineering and Mathematics you must earn 15 credits in statistics beyond any statistics courses counted in your major courses.

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Minor in Sustainable Landscape Agriculture

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Requirements

Fifteen hours including nine in required courses ASCI 230 or CDAE 208, CDAE 61 and PSS 152; three or four credits from the following restricted electives: ASCI 110, 113, 115, 118, 213, 214, 220, 231, 233, 234, 264 or CDAE 171, 205, 218, 272, 273, or PSS 106, 161, 122, 123, 124, 125, 126, 127, 138, 141, 145, 154, 210, 215, 217, 221, 232; and a three to six credit hour internship: AGRI 195 – Special Topics, ASCI 197 or 297, CDAE 196, or PSS 197 or 297.

Agriculture and Life Sciences Majors: Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Plant and Soil Science, Community Development and Applied Economics, or Animal Science departments. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College of Agriculture and Life Sciences may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Arts and Sciences Majors: Fifteen hours to include: CDAE 61, CDAE 208, PSS 152, one elective at 100 or 200 level in ASCI/CDAE/PSS (see list of approved electives in Department or Dean's Offices) and three to six hours of internship at 100 or 200 level in AGRI/ASCI/CDAE/PSS. Note: Students should take their four academic courses **before** they design their internship experience. Thus the intership will serve as a culminating event in this program of study. The College of Arts and Sciences requires their students to receive a letter grade for internships taken in minor programs of study.

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Sustainable Landscape Horticulture (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Overview

Sustainable Landscape Horticulture (SLH) provides a professional education in the use and care of trees, flowers, shrubs, lawn grasses, and other plants in the human environment. The program integrates professional training in landscape design and the plant sciences with courses in business and the liberal arts. The emphasis is on the preparation of students for the changing future and a variety of careers in the expanding field of Sustainable Landscape Horticulture. Students are encouraged to participate in internships related to their studies.

This interdisciplinary program is coordinated by the Department of Plant and Soil Science; student majors in the program are therefore enrolled in the Plant and Soil Science Department.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)

Specific Requirements

Required Core Courses: Plant Soil Science 11, 106 or 107, 117 (or Forestry 234), 123, 125, 131, 132, 138, 145, 161, 162; Forestry 21; Community Development and Applied Economics 61, 166, or Business Administration 120; Botany 4; Botany 104 or Forestry 225; Botany 160 or Forestry 120 or Natural Resources 103; Natural Resources 25 or 143 or Community Development and Applied Economics 101; Chemistry 23 and 26; Math. 10; Statistics 111, 141, 211 or Natural Resources 140. All students must get a C- or better in all courses required by the SLH major.

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College of Education and Social Services Teacher Education

 College: [Education and Social Services](#)

 Department(s): [Education](#), [Integrated Professional Studies](#)

Overview

The undergraduate Teacher Education programs include Art, Early Childhood, Elementary, Family and Consumer Sciences, Middle Level, Music, Physical Education and Secondary Education. All students are required to meet specific criteria for admittance into the professional portion of the program and for a teaching internship placement as well as for a recommendation for licensure.

Requirements for Teacher Preparation Programs

Candidacy: The professional programs begin with the student enrolling in the College of Education and Social Services as a candidate for licensure. Candidacy status is the stage prior to acceptance into the professional education sequence and, for some programs, may also be available to students enrolled in other colleges at UVM.

Intercollege Transfer: Students transferring to the College of Education and Social Services for the Teacher Education programs are required to have a minimum overall grade point average of 2.5 or higher, and it must be possible to earn an overall average of 3.0 before reaching program completion.

Academic Major: All students who enroll in the Teacher Education programs are required to complete a 30 hour (minimum) major in the liberal arts and sciences. It is essential for students to complete many liberal arts and sciences requirements during the first two years of their program. Copies of the options and the requirements are available through the Office of Student Services, 528 Waterman and on the Web at <http://www.uvm.edu/~cess/stservices/?Page=requirements.html> ↻.

Students in Secondary Education complete a major (minimum 30 hours) and a minor (minimum 18 hours) or a broadfield major (minimum 48 hours) from [a very specific list of options](#).

Students in Middle Level Education complete an Individually Designed Interdisciplinary Major Concentration (IDIMC).

Students in Early Childhood, Elementary, Family and Consumer Sciences, and Physical Education complete a 30-hour (minimum) major concentration and are strongly encouraged to select a specific discipline but they also have the option of creating an Individually Designed and Interdisciplinary Major Concentration (IDIMC).

Portfolio Development and Professional Licensure: In accordance with the Standards for Vermont Educators (Vermont State Board of Education, 1991), students seeking a license to teach must develop documentation that they can perform in ways that address State standards. Each candidate must assemble that documentation in a preprofessional portfolio according to program guidelines. While students have candidacy status, they should maintain a file which includes all materials from courses completed so that selected items can be included in the portfolio.

Application to Teacher Education: Candidates interested in pursuing teaching as a career apply to the teacher education program of their choice. Applications are available in each departmental office. Once the candidate's application is complete, the program faculty will review the materials which include a record of academic performance at UVM, recommendations from University and public school faculty, evidence of superior course work, passing scores on PRAXIS I (or fulfillment of this requirement by one of the approved alternate options) as determined for Vermont, and other pertinent sources of information. All students must apply for acceptance into the teacher education segment of their program. Students are required to complete this application and gain acceptance before being eligible to enroll in the professional education courses. This includes: CESS students who are already enrolled as candidates in the teacher education programs; students who transferred to the CESS; and students in other colleges on campus who plan to maintain their primary affiliation with their home college while completing the SDE approved requirements in the CESS.

Students who meet the criteria and are eligible will be accepted. CESS students who do not meet the criteria for admission to Teacher Education will receive a warning of pending disenrollment letter. Students who are warned of pending disenrollment should meet with the program coordinator and determine if program completion is an option.

Students who have not successfully fulfilled the PRAXIS I requirement may appeal for conditional acceptance.

Application to Student Teaching: If a candidate's application to a teacher education program is approved, the candidate completes a sequence of professional education courses and applies during the junior year to intern as a student teacher senior year. The candidate submits his/her portfolio and application to student teach to the Program Coordinator. The application lists the current set of criteria that permit a candidate to qualify for student teaching. Included among the criteria are a record of strong academic performance in program and University courses, recommendations from education faculty, and evidence of superior course work and passing scores on PRAXIS I as determined for Vermont. Once admitted to student teaching, the student must successfully complete the interview process and be accepted by an approved public school teacher/administrator before being placed for student teaching. After placement,

the student will carry out an internship under the guidance of an approved cooperating teacher and department supervisor. Student teachers will be placed in Professional Development Schools or Partnership Schools. Although many students remain in the Burlington area, not all can be placed close to campus. Effort is made to accommodate student preference regarding placement site and the semester during which student teaching will occur. All students should be prepared to student teach in either the fall or spring -semester of their senior year. Candidates must meet specific requirements to be recommended for licensure. These requirements are available in the Office of Student Services, 528 Waterman.

Note: Students who are not admitted to student teaching may appeal through the College Student Affairs Committee.

Application for Licensure: Students who successfully complete a Teacher Education program are eligible to apply for licensure. The Licensing Newsletter which explains this process is available in 528 Waterman as well as on the Web at <http://www.uvm.edu/~cess/stservices>. Applications for licensure are available in 528 and from the Vermont State Department of Education (802-828-2445).

Teacher Assessment-PRAXIS: Undergraduate Students: Students are required to submit passing scores for PRAXIS I (refer to chart) as part of their application to the professional portion of their Teacher Education program. If all three areas have not been passed, the student may appeal for conditional acceptance. Passing scores must be received by the program for all three content areas of PRAXIS I before the student is eligible for a teaching internship placement.

Teaching endorsements as listed on the chart require passing scores on PRAXIS II for Vermont licensure. Science endorsements require passing scores on both General Science as well as the specific area (e.g. Chemistry, Biology, etc.). Endorsement areas which have both multiple choice and a constructed response (essay) options require a passing score in one option for PRAXIS II. Refer to the [Vermont Department of Education Web site](#) for current information.

PBTP and Licensing Masters: Applicants will provide passing scores on PRAXIS I & PRAXIS II (if required for endorsement) before being admitted to the program. Students who receive conditional acceptance must provide passing scores for PRAXIS I & PRAXIS II (if required for endorsement) before being eligible for a teaching internship placement.

PRAXIS I Options

1. Candidates for initial licensure may meet either the three individual PRAXIS I test scores (i.e., Reading - 177, Writing - 174, and Mathematics - 175) or a composite score of 526 (i.e., the total of the three test scores).
2. The following assessments have been approved as alternatives to PRAXIS I. Students must meet both the total score as well as the minimum scores as equivalent to earning passing scores on PRAXIS I.

	Total Score	Verbal/English	Math/Quantitative
Graduate Record Exam (GRE)	1100	500	500
Scholastic Aptitude Test (SAT)	1100	500	500
ACT		22	22

PRAXIS II

Biology	Multiple Choice: 161/Essay: 150
Chemistry	Multiple Choice: 150/Essay: 150
Earth Science	Multiple Choice: 158/Essay may be added
Elementary	Multiple Choice: 148/Essay may be added
English	Multiple Choice: 172/Essay: 160
General Science	Multiple Choice: 157/Essay may be added
Mathematics	Multiple Choice: 141/Proofs, Models, & Problems, Part I: 154
Social Studies	Multiple Choice: 162/Essay: 165

2000-2001 Teacher Examination Pass Rate:

Praxis I Basic Skills

Reading	97%
Writing	100%
Mathematics	94%

- [Brochure detailing the Testing Requirements for Educator Licensing](#) ↻

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Theatre (B. A.)

College: [Arts and Sciences](#)

Department(s): [Theatre](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

A total of 48 hours to include 10, 20, 30, 40, 50, 110, 130 or 140, 150, 151, 250, 251; three hours in 190: Theatre Practicum; nine hours in selected area of emphasis: Design/Tech; or Performance; or History/Criticism. Design/Tech: 41, 42, 120, 130, 131, 140, 141, 142, 143, 144, 160, 200, 230; Performance: 111, 112, 200, 210; History/Criticism: nine hours from English 127, 128, 152; Classics 153; Theatre 200; or other courses by departmental permission.

Note: Students entering the College of Arts and Sciences should be advised that Theatre 1 is not recommended for students intending to major or minor in Theatre. Those students should enroll in required courses immediately. If Theatre 1 is taken, it will not be counted toward the required 48 hours for the major but will be counted toward the total 122 hours required for graduation.

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Minor in Theatre

College: [Arts and Sciences](#)

Department(s): [Theatre](#)

Requirements

Nineteen hours to include: 10, 150, 151; two credits of 190; and two of the following: 20, 30, 40.

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Minor in Vermont Studies

College: [Arts and Sciences](#)

Department(s): [Vermont Studies](#)

Requirements

Eighteen hours (at least five courses), of which at least nine hours must be at the 100 level or above. As an interdisciplinary minor, it must include at least fifteen hours from departments outside the major. Completion of Vermont Studies (VS) 52, three of the following VS courses: 55, 64, 92 or 192, 123, 160, 184, and two additional courses from an approved list chosen in consultation with the Vermont Studies advisor.

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Minor in Wildlife Biology

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Wildlife and Fisheries Biology](#)

Requirements

The Bachelor of Science degree in The Rubenstein School of Environment and Natural Resources does not require completion of a minor. However, many students in The Rubenstein School do complete minors, either within the School or in other departments across campus. Interested students should contact the chair of the minor program or department.

Applications for the minor must be filed no later than June 1 of the year preceding graduation or of the completion of the requirements for the minor. A minimum of 15 credit hours is required in prescribed and elective courses. Required courses: WFB 130, WFB 174; WFB 271 or 273. Elective courses: WFB 131, 150, 176, 185/186, 187/188, 271, 272, 273, 274, 275, 279, 285/286, 287/288; NR 224.

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Wildlife and Fisheries Biology: Wildlife Biology Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Wildlife and Fisheries Biology](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)
- [Wildlife and Fisheries Biology Requirements](#)

Specific Requirement

Required courses: FOR 21; WFB 130, 131*, 150*; BOT 109; BIOL 217; three courses (one must have a lab) selected from NR 224; WFB 271/272, 273/274, 275, or 279.

* Field intensive courses offered only during the summer session.

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Women's Studies (B. A.)

College: [Arts and Sciences](#)

Department(s): [Women's Studies](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

A total of thirty-six hours (twelve courses) are required for the major.

- Core (twelve hours): Women's Studies 73, 101, 273, and 191 or 192;
- Electives (nine hours): One additional race/ethnicity class beyond the A&S requirement, one additional non-European culture class beyond the A&S requirement and any one course in fine arts or humanities cross-listed with Women's Studies.
- Concentration (fifteen hours): An individually-designed concentration consisting of five approved Women's Studies electives, at least four of which are at or above the 100 level.

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Minor in Women's Studies

College: [Arts and Sciences](#)Department(s): [Women's Studies](#)

Requirements

Eighteen hours of course work to include WST 73, 273 and six hours at the 100 level or above to be chosen with the approval of the Women's Studies Committee or the consent of a Women's Studies advisor. Students may take a maximum of nine hours in any one discipline toward the minor. Not all sections of a multisection course will necessarily meet Women's Studies approval for the minor. (Students should consult the course listings each semester for further details.)

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Zoology (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Chemistry 31, 32 or 35, 36, to be taken the first year if possible; 141, 142; Math. 19, 20 or 21; Physics 21, 22 in combination with 11, 12 or preferably 31, 42. Thirty-three hours of Biology including Biology 1, 2, 101, 102, 103, 104, and three advanced courses (including one with lab).

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Zoology (B. S.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Chemistry 31, 32 or 35, 36, to be taken the first year if possible; Chemistry 141, 142; Physics 21, 22 in combination with 11, 12 or preferably 31, 42; Math. 19, 20 or 21, 22; Statistics 141 or 211. Forty-three hours of Biology and Zoology courses including Biology 1, 2, 101, 102, 103, and 104. The remaining credits may be chosen from Biology 203, 205, and 200-level Biology courses. Three hours of Biology undergraduate research or honors may be counted toward the total of the 43 required credits.

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Minor in Zoology

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Requirements

Biology 1 and 2; three courses at the level of 100 or above, chosen from courses within the Biology department, at least one of which must include a laboratory.

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Athletic Training Concentration

College: [Education and Social Services](#)

Department(s): [Education](#)

Overview

An Athletic Training concentration is offered in Physical Education and is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). Upon completion of the concentration and 800 clinical experience hours, students are eligible to sit for the National Athletic Trainers' Association Board of Certification (NATABOC) examination.

Certified athletic trainers are highly trained health professionals qualified to work in a number of settings to enhance the quality of health care for athletes and those engaged in physical activity. Working closely with physicians and other allied health professionals, their expertise includes the prevention, evaluation, management, and rehabilitation of injuries incurred by the physically active.

Admission to the program is contingent upon successful completion of 60 hours of directed observation, pre-admission course work, overall GPA, and an interview with the program faculty. Students are also required to submit a formal application to the program director. In addition, students must meet technical standards consistent with the practice of Athletic Training as a profession. These standards are published in the Athletic Training Education Program Policies and Procedures Manual.

Due to accreditation standards, the program is selective and space limited. A competitive review of applicants takes place at the end of each academic year. Advanced Placement in the ATEP is available to transfer students with prior experience and coursework relative to Athletic Training. Students must be enrolled in a degree program at UVM to be eligible for enrollment in the Athletic Training Concentration. It is often combined with the Teacher Education / Physical Education program. For more information, call (802) 656-4456.

General Requirements

- [University](#)

- [Education and Social Services](#)
- [Teacher Education](#)

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Continuing Education Programs

College: [Continuing Education](#)

Evening Programs

Hundreds of credit courses are offered at non-traditional hours (evening, weekends, etc.) on- and off-campus or on-line during the fall and spring semesters. Registration occurs before the beginning of each semester. Courses are announced in the Continuing Education catalogue, FOCUS, which is available at the CE office and other UVM offices, and [online](#) .

Guaranteed Admission Program (GAP)

This program provides an avenue of entry to the University of Vermont for students who are not prepared to enter under standard admission criteria. In the Guaranteed Admission Program, academic advisors work with students to design sequences of courses that will prepare them for matriculation. Admission to UVM is guaranteed upon successful completion of a contract of approved academic credit courses taken through Continuing Education. The program is administered cooperatively by Continuing Education, Undergraduate Admissions, and the deans' offices of the colleges and schools within UVM.

Evening Degrees

Opportunities to complete undergraduate degrees through courses offered after 4:00 p.m. are available in English, Sociology, Mathematics, Psychology, and Studio Art. A minor in Women's Studies is also available.

Certificate Program in Gerontology

A Certificate in Gerontology is offered for professionals currently working in fields relating to aging and others interested in such fields. The 18-credit certificate focuses on the sociological, psychological, and biological changes in the aging population and presents courses from a number of academic disciplines.

Certificate in Healthcare Management


A cohesive series of courses focus on the education needs of healthcare professionals with management responsibilities. Program content crosses healthcare disciplines and offers training necessary to make critical management decisions. Students enrolled in this advanced-level certificate have access to a broader array of faculty and academic disciplines than if they enrolled in a more disciplined specific management training program.

Postbaccalaureate Pre-Medical Preparation Program

A sequence of courses gives individuals with a bachelor's degree in a non-science area the preparation they need for admission to medical and other health professional schools. Those interested in applying should pay careful attention to the specific requirements of the schools of medicine, dentistry, veterinary, or other health science programs to which they intend to apply. The required courses in laboratory sciences and mathematics are accessible through a combination of day and evening courses. Prospective medical school applicants receive individual advisement through all phases of the medical school application process.


Summer Programs

During May through mid-August, hundreds of credit courses are offered. Summer University courses provide opportunities to get ahead, catch up, focus on pre-med requirements, participate in an internship, study abroad, and explore new topics. In addition, Summer University meets the professional education needs of teachers and school administrators, engineers, business managers, human services professionals, nurses, and school librarians.

Special attention is given to providing undergraduate courses that are in high demand during the academic year. In addition, there are field courses, on-line courses, special seminars, and intensive workshops. Summer University provides a financial advantage through lower tuition. A FOCUS catalogue of courses is available in March in print as well as [online](#) .

Note: Undergraduate students should verify with their advisor and dean that any CE course would be applicable to their degree program. Students not officially admitted to the Graduate College who wish to enroll for more than six graduate credits in one semester must receive permission from the Graduate Dean.

Courses and Programs Available Statewide

Through the use of distance technologies, many graduate and professional courses and programs are available statewide. Courses are available on-site, online, or are taught live on campus and are delivered by interactive television to various sites around Vermont. For more information, call 800-639-3210 or 802-656-2085 or visit [online](#) .

Non-Credit Courses and Programs

Continuing Education offers a variety of non-credit learning opportunities including:

- The George Bishop Lane Series which provides concerts and programs that help promote education through the performing arts.
- The Aiken Lecture Series which discusses relevant and pertinent topics.
- The Legal Issues in Higher Education Conference which attracts over 400 participants from diverse areas of higher education.

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Military Studies

Army Reserve Officer Training Corps (ROTC) Program

Faculty: [Military Studies](#)

Courses: [Military Studies \(MS\)](#)

The Army ROTC program offers men and women the opportunity to develop leadership and management skills that lead to an officer commission as a second lieutenant in the United States Army, Army Reserve, or Army National Guard.

Department Course Offerings

The four-year Military Studies program at UVM consists of a two-year Basic Course (first-year and sophomore year) and a two-year Advanced Course (junior and senior year).

The Basic Course — Open to all first-year and sophomore students, the course introduces interested students to the Army, the role of an Army officer, and basic military skills. Other than for Army ROTC scholarship students, the Basic Course incurs no military obligation. Students survey Army opportunities and decide whether to continue on to the Advanced Course and a Army commission as second lieutenant.

The Advanced Course — Open to qualified junior and senior students who have either successfully completed the Army ROTC basic course, the Army ROTC Basic Camp, or Army Basic Training and Advanced Individual Training. The course is designed to prepare students for a career as an Army officer. Students are required to successfully complete a 35-day Army ROTC Advanced Camp the summer following the junior year. Upon completion of the Advanced Course and the requirements for the bachelor's degree, graduates are commissioned as Second Lieutenant in the U.S.A. Army, Army Reserves, or the Army National Guard.

Note: Total Allowable credit for Military Studies varies with college/school. Military Studies course are open to all students, regardless of major or intention to complete the full cadet program. A two-hour weekly leadership laboratory is required for all students enrolled in any MS course. Students interested in pursuing an officer's commission through ROTC should contact the Department.

Interdepartmental Course Offerings

The Military Studies Department also offers one-credit courses in related fields on behalf of the UVM Department of Physical Education including: PEAC Course 014-Orienteering, Course 017-Military Fitness, and Course 019-Backpacking. These courses are open to all UVM students. Students incur no military obligation for taking these courses.

Army ROTC Scholarships and Financial Aid Scholarships


Two-, three-, and four-year Army ROTC Scholarships paying up to \$17,000 per year are available to qualified applicants. Application for the four-year Army ROTC scholarship is made during the high school senior year by applying electronically at www.armyrotc.com. All other Army ROTC scholarship applications are made through the Department. Note: Private UVM Army ROTC Alumni Scholarships and loans are also available for ROTC students.

Financial Aid

Non-scholarship contracted junior and senior students can earn up to \$2,750 a year through simultaneous participation in Army ROTC and the Vermont National Guard. For more information on other Vermont National Guard benefits, contact the Army ROTC Dept. at (802) 656-5757.

Subsistence Allowance

All contracted scholarship and non-scholarship cadets receive a living stipend for 10 months of the school year: 1st year = \$200 a month; Sophomore = \$250 a month; Junior = \$300; Senior = \$350. Students receive travel allowances to and from all required military schooling away from the University. Those who attend advanced summer camp will receive approximately \$750.

The offices of the Department of Military Studies are located at 128 University Heights, (802) 656-2966. E-mail: uvmrotc@zoo.uvm.edu, UVM ROTC homepage: <http://www.uvm.edu/~uvmrotc/> .

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Preprofessional Options

Pre-Medical and Pre-Dental Options

Pre-Medical and Pre-Dental options are available to all students, regardless of major. Advising is coordinated through UVM Career Services, and students are strongly encouraged to consult the Pre-Medical/Pre-Dental advisor early on and throughout their college career. See [the Web site](#).

Pre-Law Option

Pre-Law advising is available at both UVM Career Services and through several department faculty and staff in the College of Arts and Sciences. See [the Web site](#).

Pre-Veterinary Option

The pre-veterinary studies option, within the Animal Science major, is offered through the [College of Agriculture and Life Sciences](#).

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- College of Arts &
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- College of
Education & Social
Services
- College of
Engineering &
Mathematics
- College of Nursing
& Health Sciences
- Rubenstein School
of Environment
and Natural
Resources
- School of Business
Administration
- Graduate College

Faculty

Colleges and Schools

The degree information presented in this catalogue encompasses five colleges, two schools, and the graduate college. Additional areas of interest include:

- [Studying the Environment](#)
- [College of Medicine](#)
- [Continuing Education](#)

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 Colleges & Schools

- **College of Agriculture & Life Sciences**

- College of Arts & Sciences

- College of Education & Social Services

- College of Engineering & Mathematics

- College of Nursing & Health Sciences

- Rubenstein School of Environment and Natural Resources

- School of Business Administration

- Graduate College

 Faculty

Colleges and Schools

College of Agriculture and Life Sciences

Contact Information:

University of Vermont

College of Agriculture and Life Sciences

108 Morrill Hall

146 University Place

Burlington, VT 05405-0106

Phone: (802) 656-2980

Fax: (802) 656-0290

E-mail:

Web Site: <http://www.uvm.edu/cals/>

- [Departments and Programs](#)
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- [Regulations Governing Academic Standards](#)
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Overview

The programs of the College of Agriculture and Life Sciences (CALs) emphasize life sciences, agriculture and food systems, environmental protection, and the preservation of healthy rural communities. The College is committed to providing educated professionals knowledge to help solve important societal problems, and to insure a sustainable, vital healthy Vermont and globe.

The College performs the four public functions which include teaching, conducting research, disseminating information to the public, and performing related services. These four areas of work are performed by CALS in cooperation with the Agricultural Experiment

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Station, and The University of Vermont Extension.

The College faculty strive for excellence in undergraduate education as evidenced by a sustained and enviable record of University teaching award winners. The College emphasizes the importance of each individual student and promotes significant student-faculty interaction. Students are provided with a firm foundation in the social and life sciences in order to excel and meet the challenges in future professional careers. Faculty and peer advisors provide a broad range of support, to help students develop high-quality academic programs that meet individual needs.

Opportunities abound for off-campus experiences such as internships, independent study, and study abroad. Graduates of the College are successfully meeting the requirements to pursue advanced education. Career choices are broad, but focus primarily in agribusiness, dietetics, international and rural development, agriculture, veterinary and human medicine, biotechnology, nutrition, research and teaching, horticulture, and botany.

Academic majors are enhanced by the on-campus and field facilities, labs, and research for which the College is renowned. Many CALS faculty working through the Experiment Station conduct mission-oriented, applied agricultural research, and faculty encourage undergraduate research.

The College of Agriculture and Life Sciences welcomes applications from international students. The specific procedures and requirements are listed in the Admissions section presented earlier in the catalogue.

The Office of the Dean of the College is located in Rooms 106 and 108 in Morrill Hall.

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Departments and Programs

College: [Agriculture and Life Sciences](#)

The College's instructional units include six departments and four interdepartmental programs.

Departments

- [Animal Science](#)
- [Botany](#)
- [Community Development and Applied Economics](#)
- [Nutrition and Food Sciences](#)
- [Microbiology and Molecular Genetics](#)
(a department shared with the College of Medicine)
- [Plant and Soil Sciences](#)

Programs

- [Biochemistry](#)
- [Biological Sciences](#)
- [Environmental Sciences](#)
- [Environmental Studies](#)

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Departments and Programs

Animal Science Department

Colleges: [Agriculture and Life Sciences](#), [Graduate College](#)

Faculty: Animal Science

Courses: [Animal Science \(ASCI\)](#)

Contact Information:

*University of Vermont
Animal Science Department
102 Terrill Hall
570 Main Street
Burlington, VT 05405*

Phone: (802) 656-2070

Fax: (802) 656-8196

Email: ktatro@uvm.edu

Web Site: <http://asci.uvm.edu/>

- [Animal Science Requirements](#)

Academic Offerings

- Undergraduate Majors
 - Bachelor of Science (B. S.)
 - Animal Science
 - [Dairy Production Concentration](#)
 - [Equine Science Concentration](#)
 - Teaching/Training Track
 - Management Track
 - [General Animal Science Concentration](#)
 - [Preveterinary/Preprofessional Science Concentration](#)
- Undergraduate Minors

- Animal Science

Overview

Domestic animals play a major role in our lives through agriculture, recreation, biomedical science, and companionship. The mission of the Department of Animal Science is to provide a high quality, broad-based education emphasizing domestic animals and their interactions with humans.

Our graduates enter the veterinary or other professions, biomedical science, the agribusiness industry, companion animal care and breeding, zoos and aquaria, or education. Additionally, many students use a B. S. in Animal Science as a stepping stone to careers in business and commerce. To provide the necessary flexibility to achieve this diversity students work closely with faculty advisors to individualize their programs.

To enhance the veterinary education of excellent students, the Department of Animal Science has established, with Tufts University School of Veterinary Medicine in Massachusetts, and with Massey University Veterinary School in New Zealand, highly competitive programs for early acceptance / guaranteed admission to veterinary school. For further information on these highly competitive options contact the Department of Animal Science directly at (802)656-0155 or e-mail ktatro@uvm.edu. Some limited veterinary scholarships are also available for upper-level students.

For students interested in dairy production, the FARMS (UVM/VTC Dairy Farm Management 2 + 2 Program) provides Vermont residents with scholarships and the opportunity to earn a B. S. after a two-year Associate's Degree in Dairy Farm Management from the Vermont Technical College.

An option for the outstanding student with an interest in a graduate degree is the Accelerated Master's in which students commence study for their master's degree in their senior year and have the potential to obtain a B. S. and M. S. in a five-year period.

The Department of Animal Science actively encourages participation in undergraduate research, internships, and study abroad. By combining classroom, laboratories, and practical experience students maximize their performance in a friendly environment and develop responsibility for and control over their education.

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Courses in Animal Science

ASCI 001 - Introductory Animal Sciences

An overview of the genetics, nutrition, reproduction, and management of livestock and recreation species; introduction to animal behavior, animal disease, and biotechnology.

Credits: 4.

ASCI 006 - Companion Animal Care & Mgmt

Scientific principles of nutrition, breeding selection, health, management practices, pet therapy, and animal bonding. Primary emphasis on cat and dog.

Credits: 3.

ASCI 043 - Fundamentals of Nutrition

Comprehensive study of specific nutrients in terms of their availability, function, and utilization in mammalian species. Prerequisites: High school chemistry and biology.

Credits: 3.

ASCI 110 - Animal Nutrit, Metab & Feeding

Principles of meeting the nutrient requirements of animals, especially as they relate to the practical problems of formulation and production systems.

Prerequisite: ASCI 043.

Credits: 4.

ASCI 115 - Introduction to Equine Studies

Overview of the scientific and practical application of equine management and selection principles. Housing, nutrition, herd health, reproduction, and career opportunities.

Credits: 4.

ASCI 117 - Horse Health and Disease

Discusses the basic anatomy and physiology of the horse, common equine diseases and problems, their diagnoses, prevention, and treatment. Prerequisite: ASCI 001; a Biology course, or Instructor permission.

Credits: 3.

ASCI 118 - Appl Animal Health

Natural response to disease, methods of diagnosis, control, and treatment.

Prerequisite: ASCI 001; a Biology course, or Instructor permission.

Credits: 3.

ASCI 119 - Equine Training Techniques

Behavior modification and training of the young horse under saddle and in the cart. Introduction to interdisciplinary directions open to the equine athlete and to conditioning programs associated with these options.

Credits: 3.

ASCI 121 - Equus

A hands-on equine management experience. Students perform horse duties, recordkeeping, and make financial and management decisions on a horse boarding operation. Prerequisite: Sophomore standing; Instructor permission.

Credits: 2-4.

ASCI 122 - Animals in Soc/Animal Welfare

Designed to heighten awareness and understanding of human-animal relationships in society, agriculture, and science. Prerequisite: Sophomore standing.

Credits: 3.

ASCI 125 - Equine Instructing Techniques

Examines philosophies, concepts and teaching-learning strategies needed for the development of sound equine instructing skills. Prerequisite: ASCI 115 or Instructor Permission.

Credits: 3.

ASCI 134 - CREAM

A two-semester course in which students perform the work and make the financial and management decisions associated with the CREAM dairy herd. Prerequisite: Sophomore/Junior standing; Instructor permission.

Credits: 4.

ASCI 135 - CREAM

A two-semester course in which students perform the work and make the financial and management decisions associated with the CREAM dairy herd. Prerequisite: Sophomore/Junior standing; Instructor permission.

Credits: 4.

ASCI 141 - Anat&Physiol Domestic Animals

A comprehensive review of the structure and function of domestic animals, emphasizing those of economic importance. Differences between mammalian and avian species are discussed. Prerequisite: BIOL 001; a chemistry course, or Instructor permission.

Credits: 4.

ASCI 143 - Forage Crop Management

(See Plant and Soil Science 143.) Alternate years, 2002-03.

Credits: 2.

ASCI 154 - Dog Training and Behavior

Canine behavior is thoroughly examined and applied to the training and behavior modifications of dogs. Prerequisite: ASCI Major or Instructor permission.

Credits: 3.

ASCI 161 - Lab Animal Health & Disease

An introduction to laboratory animal science and welfare covering animal care and

management, the correct performance of experimental procedures, and the regulatory and legislative framework governing it. Prerequisite: ASCI 001; a Biology course, or Instructor permission.

Credits: 3.

ASCI 171 - Zoos, Exotics & Endang Species

From gorillas to golden lion tamarinds, how human attitudes, activities, utilization, and management strategies impact wild and captive animal populations.

Prerequisite: ASCI 001 or Instructor permission.

Credits: 3.

ASCI 195 - Field Experience

Professionally-oriented field experience under joint supervision by faculty and business or community representative. Prerequisite: Instructor permission. Total credits towards graduation cannot exceed 15 hours.

Credits: .5-15.

ASCI 196 - Field Experience

Professionally-oriented field experience under joint supervision by faculty and business or community representative. Prerequisite: Instructor permission. Total credits towards graduation cannot exceed 15 hours.

Credits: 1-15.

ASCI 197 - Undergraduate Research

Research activity under direction of qualified staff member. Must have faculty member approval. Written proposal and report required. Prerequisite: Junior standing; Department Chair permission.

Credits: 1-3.

ASCI 198 - Undergraduate Research

Research activity under direction of qualified staff member. Must have faculty member approval. Written proposal and report required. Prerequisite: Junior standing; Department Chair permission.

Credits: 1-3.

ASCI 205 - Equine Reproduction&Management
permission.

Credits: 3.

ASCI 211 - Summer Farm Management

A work-study program on the modern practices associated with farm management. Taught at Miner Institute, Chazy, NY. For students with a strong interest in farm management. Prerequisites: Junior, senior, or graduate standing. UG only.

Credits: 4.

ASCI 212 - Genetics & Breeding

A review of Mendelian genetics, the study of genetic engineering applications, a review of statistics, and the study of selection and mating schemes. Prerequisites: A course in statistics (141 preferred), Biology 1, or permission. UG only.

Credits: 4.

ASCI 213 - Dairy Herd Management

Organization and management of the dairy herd. Practical application of feeding, reproduction, milking, and general management principles. Prerequisites: Junior standing or

Credits: 4.

ASCI 214 - Dairy Herd Management

Organization and management of the dairy herd. Practical application of feeding, reproduction, milking, and general management principles. Prerequisites: Junior standing or instructor permission. UG only.

Credits: 4.

ASCI 215 - Physiology of Reproduction

Fundamental principles of the physiology of reproduction with emphasis on, but not limited to, farm animals. Prerequisite: 120 or instructor permission.

Credits: 4.

ASCI 216 - Endocrinology

Physiology of endocrine and autocrine/paracrine systems and growth factors.

Prerequisite: Course in both biology and physiology; one course in anatomy desirable. Alternate years, 2001-2002.

Credits: 3.

ASCI 220 - Lactation Physiology

Physiological mechanisms that control and affect lactation in domestic and laboratory animals with emphasis on dairy cattle. Includes mammary anatomy, development and health, and milk synthesis. Prerequisite: One chemistry course and one course in anatomy and physiology, or Instructor permission.

Credits: 3.

ASCI 230 - Agricultural Policy & Ethics

Examines American agriculture and policies from various perspectives - historical, political, ecological,

Credits: 3.

ASCI 231 - Adv Ruminant Nutr&Dairy Feed

Integration of microbial growth and fermentation with metabolism to define nutrient requirements in ruminant animals and application to current feeding practices in dairy production systems. Prerequisite: 110. (Not offered for graduate credit.)

Credits: 2.

ASCI 233 - Dairy Cattle Breeding

Setting breeding goals, making selection and mating decisions; balancing opposing forces to maximize genetic progress, and understanding the underlying genetic principles. Prerequisites: A genetics course, a statistics course, and permission. (Not offered for graduate credit.)

Credits: 2.

ASCI 234 - Advanced Dairy Management

An intensive, residential program at the Miner Institute providing an in-depth experiential program in the management of the dairy herd. Prerequisites: ASCI 110, 134 or 135 or equivalents. Fifteen hours. (Not offered for graduate credit.)

Credits: 15.

ASCI 263 - Clin Top:Companion Animal Med

The use of case studies in companion animal medicine to develop clinical, analytical, and diagnostic skills. Prerequisites: 118, 141, junior standing.

Credits: 3.

ASCI 264 - Clin Topics:Livestock Medicine

An advanced study of diseases in cattle, sheep, goats, and pigs, emphasizing disease detection, pathobiology, treatment and prevention. Prerequisites: ASCI 118, ASCI 141, Junior standing.

Credits: 4.

ASCI 272 - Adv Top:Zoo,Exotic,Endang Spec

An exploration of modern zoo philosophy and ethics and the extent of human intervention necessary for the preservation of endangered species. Prerequisite: ASCI 171 and Instructor permission.

Credits: 3.

ASCI 281 - Animal Sciences Career Seminar

Discussion and workshop activities exploring careers in animal and food sciences. Includes resume preparation and interview training. Prerequisite: Junior standing ASCI major. UG only.

Credits: 1.

ASCI 297 - Spec Topics in Animal Science

Written courses, seminars or topics beyond the scope of existing offerings. See Schedule of Courses for specific titles. Prerequisite: Department Chair permission. May enroll more than once for maximum of fifteen hours.

Credits: 1-15.

ASCI 298 - Spec Topics in Animal Science

titles.

Credits: .5-15.

ASCI 301 - ASCI Graduate Journal Club

Students learn to critically read and discuss current scientific literature in terms of scientific method and merit. Pre/corequisite: Graduate standing.

Credits: 1.

ASCI 302 - ASCI Graduate Seminar

Topics of current faculty and graduate student interest Graduate standing.

Credits: 1.

ASCI 303 - Research Proposal Writing

Students develop and write a formal proposal for their graduate research project. Pre/co-requisite: Graduate standing; must be taken prior to/during the semester of student's first committee meeting.

Credits: 1.

ASCI 391 - Master's Thesis Research

Credits: 1-9.

ASCI 392 - Independent Literature Rsch

Reading and literature research culminating in a paper on a topic of current interest in Animal Sciences.

Credits: 1-6.

ASCI 491 - Doctoral Dissertation Research

Credits: 1-12.

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Animal Science Requirements

College: [Agriculture and Life Sciences](#)

Department(s): [Animal Science](#)

Concentrations: [Dairy Production](#), [Equine Science](#), [General Animal Science](#), [Preveterinary/Preprofessional Science](#)

- Animal Science 1, 43, 110, 122, 141, 281, plus two additional Animal Science courses; at least one at the 200 level
- Animal Health (choose from one of the following: ASCI 117, 118, 263, 264; MMG 101, 222, 223, 225; BMT 242)
- Biology 1
- Chemistry 23 or 31
- Chemistry 26 or 42 or 141
- Computer Science 2 or Foundations: Technology (AGRI 196)
- A genetics course (Biology 101, Botany 132, or Animal Science Genetics)
- Math 9 or higher
- Statistics 111 or 141 or 211
- Additional courses are selected with the help of the advisor (also see specific options for additional courses)

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Animal Science: Dairy Production / Farm Management Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Animal Science](#)

Overview

Designed for the student seeking an in-depth training in dairy herd management with strong links to agribusiness and an emphasis on experiential learning.

For students interested in dairy production, the UVM/VTC Dairy Farm Management 2 + 2 Program provides Vermont residents with scholarships and the opportunity to earn a B. S. after a two-year Associate's Degree in Dairy Farm Management from the [Vermont Technical College](#).

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Animal Science Requirements](#)

Possible Curriculum

First Year

Course	Hours
Foundations	6
Cultural Diversity	1-3
Introduction to Animal Science	4
Organic Chemistry	4
Inorganic Chemistry	4
Math	3
Intro A & R Entrepreneurship	3
Written English	3

Electives	3-6
Total	31-36

Sophomore Year

Course	Hours
Anatomy & Physiology of Domestic Animals	4
Animal Nutrition, Metabolism & Feeding	4
Fundamentals of Nutrition	3
CREAM	4
Biology	4-8
Financial Management	3
Statistics	3
Animals in Society / Animal Welfare	3
Career Seminar	1
Electives	3
Total	32-36

Junior Year

Course	Hours
CREAM	4
Dairy Cattle Judging	2
Advanced Feeds	2
Advanced Dairy Management	15
Accounting	3
Physical Education	1
Electives	6-9
Total	33-36

Senior Year

Course	Hours
Physiology of Reproduction	4
Decision Making	3
Lactation Physiology	3
Senior Project	4-8
Risk Analysis & Forecast Procedures	3
Physical Education	1
Marketing	3
Electives	6-9
Total	27-34

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Animal Science: Equine Science Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Animal Science](#)

Overview

Specialized courses are offered on the care, management, breeding, training, and health of horses. Students declaring an Equine Concentration can specialize in either a teaching/training track or a management track.

The world-famous Morgan Horse Farm at Middlebury, about 45 minutes from campus, is also part of the Department and offers opportunities for study and research. Students may also enroll in equine courses at the Miner Agricultural Research Institute in Chazy, New York.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Animal Science Requirements](#)

Specific Requirements

- ASCI 115 Introduction to Equine Studies
- ASCI 177 Horse, Health and Disease
- ASCI 298 Equine Industry Issues
- One of the following courses
 - ASCI 195/196 Field Experience
 - ASCI 197/198 Undergraduate Research
 - ASCI 298 Special Topics
- Two of three courses in the following tracks:
 - Teaching/Training Track
 - ASCI 119 Equine Training Techniques
 - ASCI 125 Equine Instructing Techniques
 - ASCI 298 Equine Enterprise Management

- Management Track
 - ASCI 205 Equine Reproduction & Management
 - ASCI 121 EQUUS
 - ASCI 298 Equine Enterprise Management

Possible Curriculum

First Year

Course	Hours
Foundations	6
Cultural Diversity	1
Introduction to Animal Science	4
Inorganic Chemistry	4
Written English	3
Biology 1	4
Organic Chemistry	4
Math	3
Introduction to Equine Studies	4
Electives	0-3
Total	33-36

Sophomore Year

Course	Hours
Anatomy & Physiology of Domestic Animals	4
Fundamentals of Nutrition	3
Horse, Health, & Disease	3
Emergency First Aid	2
Animal Nutrition, Metabolism, & Feeding	4
Financial Management	3
Intro A & R Entrepreneurship	3
Physical Education	1
Electives	3-6
Total	26-29

Junior Year

Course	Hours
Physiology of Reproduction	4
Microbiology	4
Introduction to Plant Science	3
Equine Training Techniques or EQUUS	3 or 4
Speech	3
Animals in Society / Animal Welfare	3

Statistics	3
Equine Enterprise Management	2
Career Seminar	1
Marketing	3
Electives	3-6
Total	32-36

Senior Year

Course	Hours
Equine Reproduction & Management or Equine Instructing Techniques	3
Practical Equine Management	3
Forage Crops	3
Equine Industry Issues	3
Genetics	3
Equine Internship	3-6
Specialized Topic	1-3
Decision Making	3
Physical Education	1
Electives	6-8
Total	29-36

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Animal Science: General Animal Science Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Animal Science](#)

Overview

Under this concentration, students design a program to suit their needs, or keep a broader-based program to meet a particular career goal. For example, this option is often used by students who have an interest in human/animal interactions, animal welfare, and zoo animals. The student and advisor select a combination of basic science, production, or companion animal courses and balance these with courses available elsewhere in the College or University. It usually involves an internship experience.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Animal Science Requirements](#)

Possible Curriculum

First Year

Course	Hours
Foundations	6
Cultural Diversity	1-3
Introduction to Animal Science	4
Organic Chemistry	4
Inorganic Chemistry	4
Math	3
Biology	4
Written English	3
Physical Education	1
Electives	3-6

Total 33-36

Sophomore Year

Course	Hours
Anatomy & Physiology of Domesitc Animals	4
Animal Nutrition, Metabolism, & Feeding	4
Fundamentals of Nutrition	3
Zoos, Exotics, & Endangered Species	3
Biology	4
Environmental Biology	3
Principles of Wildlife Management	3
Statistics	3
Physical Education	1
Electives	3-6
Total	31-34

Junior Year

Course	Hours
Ornithology	3
Terrestrial Wildlife	3
Advanced Zoos, Exotics, & Endangered Species	3
Dog Training & Behavior	3
Animals in Society / Animal Welfare	3
Animal Health	3
Career Seminar	1
Psychology Research Methods	4
Electives	6-12
Total	29-35

Senior Year

Course	Hours
Reproductive Physiology	4
Animal Behavior	3
Endocrinology	3
Clinical Topics in Companion Animal Medicine	3
Florida Ecology Field Trip	2
Field Experience	12
Electives	3-9
Total	30-36

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Animal Science: Preveterinary/Preprofessional Science Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Animal Science](#)

Overview

This is the option for students most interested in the basic sciences who intend to enter veterinary, professional, or graduate school. It provides the necessary background in science as well as the opportunity for advanced study related to production and companion animals.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Animal Science Requirements](#)

Possible Curriculum

First Year

Course	Hours
Foundations	6
Cultural Diversity	1
Inorganic Chemistry	8
Math through Calculus	6
Introduction to Animal Science	4
Biology	8
Electives	3
Total	36

Sophomore Year

Course	Hours
Organic Chemistry	8

Animal Nutrition, Metabolism, & Feeding	4
Statistics	3
Anatomy & Physiology of Domestic Animals	4
Fundamentals of Nutrition	3
Written English	3
Electives	3-9
Total	28-34

Junior Year

Course	Hours
Animals in Society / Animal Welfare	3
Horse, Health, & Disease	3
Microbiology	4
Physics	10
English Composition	3
Career Seminar	1
Electives	3-12
Total	27-36

Senior Year

Course	Hours
Clinical Veterinary Medicine	3
Animal Health	3
Physiology of Reproduction	4
Biochemistry	4
Endocrinology	3
Genetics	3
Dog Behavior & Training	3
Electives	6-12
Total	29-35

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Minor in Animal Science

College: [Agriculture and Life Sciences](#)

Department(s): [Animal Science](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Animal Science department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Five courses with a minimum of 15 credit hours including Introductory Animal Sciences (ASCI 1); two courses selected from core sciences including 43, 110, 122, 141, 205, 215 or 216; two courses selected from applied sciences including 113, 115, 117, 118, 125, 134, 135, 161, 220, 231, 233, 234, 263, or 264. At least three credits must be at 200 level or above.

For students in the College of Arts and Sciences:

Five courses with a minimum of 15 credit hours, including Introductory Animal Science (ASCI 1), two courses in Core Science including ASCI 43, 110, 122, 141, 205, 215, 216, and two courses selected from Applied Sciences including 115, 117, 118, 134, 135, 161, 211, 220, 231, 233, 234, 263, 264. At least 8 credits must be at the 100 level, 3 of which must be at the 200 level. Acceptance into this program is by application only. Contact Dept. of Animal Science, 102 Terrill, for more information.

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Departments and Programs

Botany Department

Colleges: [Agriculture and Life Sciences](#), [Arts and Sciences](#), [Graduate College](#)

Faculty: Botany

Courses: [Botany \(BOT\)](#)

Contact Information:

*University of Vermont
Botany Department
Marsh Life Science Building
Burlington, VT 05405*

Phone: (802) 656-2930

Fax: (802) 656-0440

Email: lreade@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~plantbio/>

- [Biological Sciences Core](#)
- [Botany Core](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Arts (B. A.)
 - [Botany](#)
 - Bachelor of Science (B. S.)
 - [Ecology and Evolutionary Biology of Plants](#)
 - [General Botany](#)
 - [Plant Molecular Biology](#)
- Undergraduate Minors
 - [Botany](#)

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Courses in Botany

BOT 004 - Intro to Botany

Structure, function, and reproduction of plants. Fundamental aspects of plant science with implications of Credit not given for both Botany 4 and Biology 1.
Credits: 4.

BOT 006 - The Green World

Evaluation of the impact of plants on the aesthetic, cultural, social, medical, and religious lives of peoples of the world. Botany and Biological Science majors will not receive credit for Botany 6 as part of program distribution requirements.
Credits: 3.

BOT 095 - Special Topics

Credits: 1-4.

BOT 096 - Special Topics

Credits: 1-4.

BOT 104 - Plant Physiology

Study of the plant as a whole, growth and development, water and mineral relations, environmental factors, and regulatory processes. Prerequisites: One year of plant or biological science, beginning chemistry recommended, or instructor's permission.
Credits: 4.

BOT 108 - Morph & Evol Vasc Pl

Evolutionary relationships of vascular plants as inferred from plant structure, ecology, geography, and reproductive biology. Synthesis includes both fossil and extant groups. Prerequisite: 4 or Biology 1, 2. Alternate years.
Credits: 4.

BOT 109 - Systematics & Phylogeny

Classification; evolution of flowering plants; characterization and recognition of major families; species and generic concepts; biosystematics; taxonomic keys; preparation of herbarium specimens. Prerequisite: 4 or Biology 1, 2.
Credits: 4.

BOT 117 - Plant Pathology

Diagnosis, life history, control of diseases caused by fungi, viruses, bacteria, nematodes, parasitic plants, and environmental factors. Physiology, biochemistry,

and genetics of host-parasite interaction. Prerequisite: 4 or Biology 1, 2. Alternate years, 2001-02.

Credits: 4.

BOT 132 - Principles of Genetics

Introduction to transmission and molecular genetics with reference to prokaryotic, animal, and plant systems. Prerequisites: Biology 1, 2; Chemistry 31, 32.

Credits: 3.

BOT 151 - Plant Anatomy

Credits: 3.

BOT 160 - Plant Ecology

Interactions among plants and their environment. Topics covered include individuals, populations, communities, and ecosystems. Field methods and experimental design covered; ecological applications. Prerequisite: Botany 4 or Biology 1, 2; Math 19 or 21 recommended. Four Hours. Molofsky.

Credits: 4.

BOT 193 - College Honors

(For Arts and Sciences seniors.)

Credits: 3.

BOT 194 - College Honors

(For Arts and Sciences seniors.)

Credits: 3.

BOT 195 - Special Topics

Credits: 1-3.

BOT 197 - Undergrad Research

Individual projects under direction of a faculty member. Project may involve original research, readings, or apprenticeships. Prerequisites: Junior or senior standing, departmental permission. One to six hours.

Credits: 1-6.

BOT 198 - Undergrad Research

Individual projects under direction of a faculty member. Project may involve original research, readings, or apprenticeships. Prerequisites: Junior or senior standing, departmental permission. One to six hours.

Credits: 1-6.

BOT 205 - Mineral Nutrition of Plants

Role of essential elements for plant growth including classical and modern approaches to the study of ion availability and transport. Prerequisite: BOT 104.

Credits: 3.

BOT 209 - Biology of Ferns

Evolutionary biology; a survey of New England ferns and discussion of their phylogenetic relationships; current research emphasizing morphological, biogeographical, genetic, and phytochemical aspects of speciation. Prerequisite: 108; 101 or 132 recommended. Alternate years.

Credits: 3.

BOT 213 - Plant Communities

Plant sociology; structure and organization of the plant community; sampling methods and analysis of data; climatic and edaphic factors; field work.

Prerequisite: 109 or departmental permission.

Credits: 0-3.

BOT 223 - Fundamentals of Field Science

Pattern and process in natural systems. Weekly discussion of unifying questions in science. Field labs teach sampling and analysis of vegetation, soils, and animals.

Prerequisite: Graduate standing or several university courses in earth sciences, life sciences, and chemistry.

Credits: 3.

BOT 226 - Environmental Problem Solving

and map and inventory forested natural areas as they apply problem solving skills to Vermont environmental project. Prerequisites: Instructor permission. One to three hours.

Credits: 1-3.

BOT 229 - Water Relations of Plants

See Forestry 299.

Credits: 3.

BOT 232 - Botany Field Trip

Trips to selected environments outside Vermont, led by faculty members representing different fields of botany. Overall, integrated approach to ecology, structure, and function.

Credits: 1.

BOT 234 - Ecology of Freshwater Algae

Community, population and physiological ecology of algae. Topics include taxonomy; diversity; distribution and seasonal succession; productivity and grazing; growth kinetics; and competitive and synergistic reactions. Prerequisites: Botany 160 or Natural Resources 103 or Biology 102. Alternate years.

Credits: 3.

BOT 241 - Tropical Plant Systematics

Principles and methods of angiosperm phylogeny. Recent systematic and evolutionary research on flowering plants; survey of tropical flowering plant families. Student presentations on recent research. Prerequisite: 109. Alternate years.

Credits: 4.

BOT 250 - Microtechnique

Theory and practice in the preparation of biological materials for anatomical and cytological study, including histochemistry and photomicrography. Prerequisites: Introductory chemistry; some knowledge of organic chemistry,

Credits: 3.

BOT 251 - Principles of Light Microscopy

Introduction to the optics, construction, and care of the light microscope. Theory of phase and interference contrast, fluorescence, and video methods. Prerequisite: One year of physics or permission.

Credits: 1.

BOT 252 - Molecular Genetics II

How cells control the flow of genetic information from gene into active gene product. Distinctions between quiescent and active genes, mechanisms of genetic

communication/regulation. Prerequisites: Biology 101 or Agricultural Biochemistry 201 or Biochemistry 301, or equivalent; others by instructor's permission.

Credits: 3.

BOT 254 - Genetics of Fungi

Understanding the classical and molecular genetics of fungi with respect to their contributions in agriculture, basic genetics, biotechnology, industry, recombinant DNA, and gene expression. Prerequisites: Biology 101, or Agricultural Biochemistry 201 or Biochemistry 301 or equivalents; others by instructor's permission.

Credits: 3.

BOT 256 - Adv Plant Genetics

Review of major topics in higher plant genetics and cytogenetics. Designed to be applied to the systematics, breeding, and gene engineering of higher plants.

Prerequisite: 132 or Biology 101.

Credits: 3.

BOT 257 - Plant Cell Physiology

Detailed study of photosynthesis, plant cell membrane function, and plant cell growth. Prerequisites: 104, Chemistry 141, 142 or Chemistry 42, Physics 11, 12 or 31, 42. Alternate years.

Credits: 4.

BOT 258 - Biology of the Fungi

microbiological technique and laboratory culture of the Taxonomy, genetics, physiology, ecology, and economic importance of the fungi. Representatives of each major group are explored with respect to the above. Includes fungi.

Prerequisites: 101 or 104 or 132 or permission.

Credits: 4.

BOT 260 - Plant Population Biology

Study of how environmental and life-history characteristics of plants determine the dynamics and evolution of populations. Prerequisites: Biology 102 or Botany 160 or instructor permission. UG only.

Credits: 3.

BOT 261 - Plant Growth & Development

Concepts in plant structure and development. Biophysics of plant structure and pattern-formation. Introduction to methods of plant microscopy and microtechnique. Prerequisites: 104, 108, Intro. Physics or permission.

Credits: 4.

BOT 281 - Botany Seminar

Presentations of personal research by faculty, graduate students, and outside guest speakers. Attendance required of botany graduate students and seniors in botanical research programs. Without credit.

Credits: 0.

BOT 282 - Botany Seminar

See Botany 281.

Credits: 0.

BOT 295 - Special Topics

For advanced students within areas of expertise of faculty. Aspects of ecology,

physiology, genetics, cytology, bryology, pteridology, paleobotany, photobiology, membrane physiology, and cell biology. Prerequisite: Departmental permission.

Credits: 0-6.

BOT 296 - Special Topics

Special Topics. UG only.

Credits: 1-6.

BOT 301 - Cell & Molecular Biology

Advanced survey of cell organelles, their composition, origin, and the relationship between their structure and function. Emphasis on recent literature and current controversies. Prerequisites: Chemistry 142, graduate Molecular Biology 301.

Credits: 3.

BOT 311 - Field Naturalist Practicum

Landscape analysis; planning and designing field projects; integrated problem solving. Prerequisites: Enrollment in the Field Naturalist program. Variable hours up to three.

Credits: 0-3.

BOT 381 - Problems in Modern Botany

Subject matter varies. Topics will stress current graduate student and staff research interests in a journal review or presentation-discussion format.

Prerequisite: Permission.

Credits: 1-4.

BOT 391 - Master's Thesis Research

Credit as arranged.

Credits: 1-10.

BOT 392 - Master Project Rsch

Credit as arranged.

Credits: 0-3.

BOT 491 - Doctoral Dissertation Research

Credit as arranged.

Credits: 1-10.

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Botany Core Courses

College: [Agriculture and Life Sciences](#)

Department(s): [Botany and Agricultural Biochemistry](#)

Concentrations: [General Botany](#), [Plant Molecular Biology](#), [Ecology and Evolutionary Biology of Plants](#)

Overview

Options for our Majors: Our students select from three concentrations: General Botany, Plant Molecular Biology, and Ecology and Evolutionary Biology of Plants. Basic courses that are required for all the concentrations, and courses specific for each concentration are listed below. Students may petition the department to substitute similar courses for those listed. Study of modern foreign languages is encouraged for those attracted to the many international career opportunities in plant biology.

Botany Required Core Courses

Basic Course Requirements (29-32 hours) - required for all concentrations: Biology 1, 2. Botany 104, 132. Chemistry - see specific concentration. Math 13, 14 or 19, 20 or 21, 22. Physics - one semester with laboratory. Statistics - one course (141, 211, or NR 140).

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Botany (B. A.)

College: [Arts and Science](#)

Department(s): [Botany and Agricultural Biochemistry](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Math. 21, 22; or Math. 21 and Statistics 141 or 211; or Math. 19, 20 and Statistics 141 or 211; Physics 21, 22; and 11, 12 or preferably 31, 42; Chemistry 42 or preferably 141, 142; Biology 1, 2; Biology 101 or 132, 104, 107, 108, and 109 or 160; two additional semester courses in Botany, at least one at the 200 level. Six credits of modern foreign language are strongly recommended. Students may petition the department to substitute other courses for certain requirements in the planning of individual programs.

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Botany: Ecology and Evolutionary Biology of Plants Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Botany](#)

Overview

This concentration offers broad training in organismal biology, with emphasis on population and physiological ecology, community structure and function, and plant evolution and diversity. Students choose from a menu of options in fulfilling most requirements; this flexible curriculum enables students to select from a wide range of courses while achieving proficiency in ecology and evolution of plants. Students are encouraged to initiate an independent research project with one of our faculty.

General Requirements

- [University](#)
- [College of Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)
- [Botany Core](#)

Specific Requirements

In addition to the basic course requirements for our departmental major, this concentration has the following requirements and electives:

Concentration Requirements (28 hours): Botany 108, 109, 160. Chemistry 31, 32, 141, 142.

Concentration Electives (12-24 hours): At least six courses from the following, at least two of which must be 200-level Botany courses: Agricultural Biochemistry 201, 202. Biology 102, 203, 238, 254, 264, 270. Botany 117, 205, 209, 213, 223, 232, 234, 241, 260, 261. Environmental Science 101, 201. Forestry 21, 120, 121, 122, 225, 228, 234. Geography 81. Geology 1, 55, 151, 101. MMG 220. Natural Resources 220, 224, 260. Plant and Soil Science 151, 161, 215.

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Botany: General Botany Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Botany](#)

Overview

This concentration offers broad training at all levels of plant biology ranging from molecular biology to plant communities. Students have the flexibility to study plants from many perspectives and to understand how the diverse areas are interrelated. Students, in consultation with a faculty advisor, can choose courses that meet their individual needs and interests. Students are encouraged to perform undergraduate research working directly with departmental faculty on laboratory or field projects in plant biology.

General Requirements

- [University](#)
- [College of Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)
- [Botany Core](#)

Specific Requirements

In addition to the basic course requirements for our departmental major, this concentration has the following requirements and electives:

Concentration Requirements (29 hours): Botany 108 or 109, 160. Chemistry 31, 32, 141, 142. Physics - one additional semester, with laboratory.

Concentration Electives (1-20 hours): Botany - 5 electives, at least two of which are at the 200 level.

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Botany: Plant Molecular Biology Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Botany](#)

Overview

This concentration focuses on the inner workings of plants at the molecular, cellular, and organismal level. Although the basic cellular functions of plants are the same as those of animals, plants face unique challenges and have evolved interesting solutions. To understand the unique biology of plants within a context of what is known about other organisms, courses examining the biochemistry and molecular biology are supplemented by courses on the molecular functions and development of other organisms. In addition to coursework, students are encouraged to get hands-on laboratory experience by taking advantage of the many opportunities to participate in independent research with department faculty.

General Requirements

- [University](#)
- [College of Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)
- [Botany Core](#)

Specific Requirements

In addition to the basic course requirements for our departmental major (listed above), this concentration has the following requirements and electives:

Concentration Requirements (40 hours): Agricultural Biochemistry 201, 202, 220. Botany 261. Chemistry 31, 31 or 35,36; 141, 142. MMG 101, 102. Physics - an additional semester with lab (31/42 or 11/12)

Concentration Electives (8-15): At least four courses from the following list: Agricultural Biochemistry 191, 221, 230, 250. Animal Science 230. Botany 109, 117, 205, 256, 257. Biology 263, 265. MMG 220, 225, 240. Nutrition 243. Pharmacology 272, 290.

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Minor in Botany

College: [Agriculture and Life Sciences](#), [Arts and Sciences](#)

Department(s): [Botany](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Botany Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

At least 15 hours of course work to include Botany 4 or Biology 1 or 2; plus three additional courses in Botany, at least one at the 200 level.

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Departments and Programs

Community Development and Applied Economics Department

Colleges: [College of Agriculture and Life Sciences](#), [Graduate College](#)

Faculty: Community Development and Applied Economics

Courses: [Community Development and Applied Economics \(CDAE\)](#)

Contact Information:

University of Vermont

Community Development and Applied Economics Department

103 Morrill Hall

Burlington, VT 05405

Phone: (802) 656-2001

Fax: (802) 656-1423

Email: cdae@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~cdae/>

- [CDAE Core Courses](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - [Agricultural and Resource Entrepreneurship](#)
 - [Community and International Development](#)
- Undergraduate Minors
 - [Agricultural and Resource Entrepreneurship](#)
 - [Applied Design](#)
 - [Consumer Affairs](#)
 - [Consumer and Advertising](#)
 - [Community and International Development](#)

Overview

The Department of Community Development and Applied Economics (CDAE) expands and promotes the use of economic, social, and environmental principles to develop sustainable communities locally and globally. Students in CDAE focus on the application of economic principles and their relationship to leadership and management, economic and business development, environmental sustainability, and social responsibility.

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Courses in Cmty Dev & Apld Econ

CDAE 001 - Drafting and Design Drawing

three-view, oblique, isometric, and perspective drawings. Creating freehand pictorial presentation drawings.

Credits: 3.

CDAE 002 - World Food,Population&Develop

Agricultural development emphasizing natural and economic phenomena and the effect of food supplies on population trends and policies.

Credits: 3.

CDAE 006 - Energy Alternatives

Concepts of energy, work, and power. Energy conversion, utilization, and conservation. Alternatives to fossil fuels including solar, wind, biomass, etc. Energy systems for rural areas.

Credits: 3.

CDAE 015 - Design Strategies

Introduction and analysis of aesthetics and function of design in the context of communications and marketing, the built environment, and community development.

Credits: 3.

CDAE 016 - Sketching and Illustration

Techniques of sketching, color rendering, and scale drawing in relation to nature forms, the human figure, and interior space. Preparation of portfolio. Prerequisite: 15. Spring.

Credits: 3.

CDAE 030 - Des Studio Skills:Woodworking

Common methods, processes, materials, and equipment employed in transforming wood into useful products.

Credits: 3.

CDAE 035 - Des Stdy Skills:Weldng/Metl Fab

Skills, tools, and processes to cut, shape, and join metallic materials intended for artisans, designers, and craftpersons. Emphasis on welding, machining, and metal fabrication.

Credits: 3.

CDAE 061 - Prin A&R&Community Develpmt Ec

Introduction to principles of microeconomics and their application to food and agricultural markets, resource management, and community development.

Credits: 3.

CDAE 091 - Introductory Special Topics

Credits: 1-3.

CDAE 101 - Computer Aided Drafting&Design

Using a computer to create, manipulate, and record drafting and design concepts, symbols, and conventions to prepare technical and/or presentation drawings.

Prerequisite: CDAE 001 or Instructor permission.

Credits: 1-3.

CDAE 102 - Sustainable Community Dev

Introduction to perspectives and methods used to develop healthy communities that are economically, socially, and environmentally sustainable with rural and urban, U.S. and international examples. Prerequisites: CDAE 61 or equivalent, and by permission.

Credits: 3.

CDAE 110 - Entrepreneurial Indust Prodctn

Principles, concepts, methods employed in organizing capital, labor, tools, machines for producing products. Students function as labor source and mass produce and market a product. Prerequisite: CDAE 030 or CDAE 035, or CDAE 166, or Instructor permission.

Credits: 3.

CDAE 117 - History of Costume

(See Theatre 41.) Prerequisite: Art 6 or Theatre 1. Fall

Credits: 3.

CDAE 127 - Consumer,Markets&Public Policy

Analysis of consumer choices through the examination of consumer behavior theories, current marketplace issues and public policy. Prerequisites: Sophomore standing.

Credits: 3.

CDAE 128 - The Consumer & Advertising

Examination of advertising strategy and how it impacts consumers and the economy. Extensive application of critical analysis to actual advertising campaigns from development through evaluation. Prerequisite: Junior standing. Fall.

Credits: 3.

CDAE 131 - Light Frame Buildings

MATH 010.

Credits: 3.

CDAE 156 - Law, Ethics & Responsibility

Prerequisite: Sophomore standing. Spring. The roles of law and ethics in guiding the actions of individuals and organizations, and the impact of those actions on others, including consumers, employees, communities, and developing countries.

Credits: 3.

CDAE 157 - Consumer Law and Policy

Law as an expression of public policy to protect consumers in the marketplace.

Emphasis on laws prohibiting deceptive advertising and marketing practices.

Prerequisites: Sophomore standing.

Credits: 3.

CDAE 158 - Personal and Family Finance

An examination of personal and family financial management concepts and topics within various income levels and stages in the life cycle. Prerequisite: EC 011 or equivalent. Fall.

Credits: 3.

CDAE 159 - Consumer Assistance Program

Jointly sponsored by UVM and Vermont Attorney General. Under supervision of an attorney, students respond to phone and mail requests for consumer information and handle consumer complaints. Prerequisite: Sophomore standing. Three to six hours.

Credits: 3-6.

CDAE 166 - Intro A&R Entrepreneurship

operating an agricultural or resource-based

Credits: 3.

CDAE 167 - Fin Mgmt: A&R Entrepreneurship

Financial management concepts for agricultural and resource-based businesses, with emphasis on interactions between business and personal financial decisions faced by entrepreneurs. Prerequisites: BSAD 65, CDAE 166 or permission.

Credits: 3.

CDAE 168 - Marketing:A&R Entrepreneurship

Marketing concepts and methods and their applications in agricultural and resource businesses. Focus on development of marketing plan and its use in guiding business operations. Prerequisites: CDAE 61, 166.

Credits: 3.

CDAE 169 - Small Business Computer Appl

Using the microcomputer to accomplish tasks specific to small businesses. One credit modules may include spreadsheets, databases, presentations, mapping markets, WWW, project management and local area networks. Prerequisites: 85 or equivalent. One to six hours.

Credits: 1-6.

CDAE 170 - Solar Strategies Bldg Constrct

Passive, active, and hybrid heating; photovoltaic electric systems. Physical principles, site evaluation, component and system analysis, materials selection, and design of low-cost systems. Prerequisite: Math 10 or permission.

Credits: 3.

CDAE 171 - Community&Int'l Econ Transform

Models of economic development, including constraints to economic transformation and policy approaches and strategies for promoting social welfare and sustainable development. Prerequisites: 2,61 or equivalent.

Credits: 3.

CDAE 175 - Farm Credit Fellowshp Prac/Sem

Acquaints students who have a strong interest in farm management and farm finance with financial intermediaries serving agriculture. Prerequisite: CDAE 167.

Credits: 3.

CDAE 180 - Real Estate Appraisal

Basic concepts and methods of measuring real estate values. Prerequisite: CDAE 061 or equivalent, or Instructor permission.

Credits: 3.

CDAE 191 - Special Problems

Independent projects under direction of a faculty member. Includes undergraduate teaching assistance. 291 number for juniors and seniors only. Prerequisites: Permission. One to six hours (maximum).

Credits: 1-6.

CDAE 195 - Special Topics

Lectures or readings on contemporary issues in Community Development and Applied Economics. Enrollment may be more than once, up to twelve hours.

Credits: 0-12.

CDAE 196 - Field Experience/Practicum

Professionally-oriented field experience under joint supervision by faculty and business or community representative. Total credit toward graduation in 196 and 296 cannot exceed 15 hours. Prerequisites: Permission. One to 15 hours.

Credits: 1-15.

CDAE 205 - Rural Comm in Modern Society

Cross-listed with: SOC 205.

Credits: 3.

CDAE 207 - Markets, Food & Consumers

Learn how producers, processors, wholesalers, cooperatives, retailers, consumers, and governments affect the movement of food and fiber products through the production-marketing chain. Prerequisite: CDAE 061 or equivalent.

Credits: 3.

CDAE 208 - Agricultural Policy and Ethics

An examination of American agriculture and policies from various perspectives - historical, political, ecological, technological, social, economic, and ethical. Emphasis on contemporary issues, policy options, and future development.

Prerequisites: 61 or equivalent, permission. Fall.

Credits: 3.

CDAE 210 - Small Bus Mktg & Entrepreneur

Students learn through participation in a series of guest lectures and field trips, the challenges, opportunities, and strategies faced and employed by small business entrepreneurs in the area of marketing. Prerequisite: 168 or 207. Spring. (Not offered for graduate credit.)

Credits: 3.

CDAE 218 - Community Ldrshp,Org&Inst Dev

Role of civic engagement, leadership, and social and political institutions in a community standing, CDAE 102, or permission. development context. Special attention given to problems of formulation and implementation of alternative change strategies. Prerequisites: Jr

Credits: 3.

CDAE 231 - Applied Computer Graphics

Directed research, planning, design, technical experimentation, production and evaluation for computer-generated design application. Prerequisite: 15 or permission.(Not offered for graduate credit.)

Credits: 3.

CDAE 237 - Economics of Sustainability

Economic analysis that integrates natural resource

Credits: 3.

CDAE 250 - Applied Research Methods

Methods used in the collection and analysis of qualitative and quantitative data. Critical review of literature, and data collection, analysis, and interpretation for descriptive, inferential, and evaluation research. Prerequisites: Statistics 141 or permission. UG only.

Credits: 4.

CDAE 251 - Contemp Policy Iss:Comm Devel

policy issues such as affordable housing, land use and sprawl, alternative energy, environmental sustainability, effective community planning, social and environmentally responsible business. Prerequisites: CDAE 102 or permission.

Credits: 3.

CDAE 253 - Macroeconomics for Appl Econ

Explore macroeconomic principles and concepts as they affect individuals and businesses in local, regional, national, and

Credits: 3.

CDAE 254 - Microeconomics for Appl Econ

Prerequisites: 61 or equivalent. Math 19, or permission. The study of economic choices of individuals and firms, and the analysis of competitive and noncompetitive markets. Emphasis on application of intermediate microeconomic theory

Credits: 3.

CDAE 255 - Applied Consumption Economics

Analysis and application of micro-economic principles as they relate to consumers, including consumption and saving, investments in human capital, market work, household production, and leisure choices. Prerequisites: ECON 172.

Credits: 3.

CDAE 258 - Consumer Policy:Iss & Analysis

Examination and analysis of contemporary issues underlying a variety of consumer policies such as health care, income inequality, and consumer protection. Prerequisites: 254 or permission, Political Science 21 or similar course. Spring. (Not offered for graduate credit.)

Credits: 3.

CDAE 264 - Risk Anyl&Forecast Procedures

Analytical concepts and skills and their applications in risk analysis related to agricultural and resource markets focusing on decision making processes.

Prerequisite: STAT 141, CDAE 061, MATH 019, or Instructor permission.

Credits: 3.

CDAE 266 - Dec Making:A&R Entrepreneurshp

Major topics include linear programming, risk and uncertainty, inventory decisions,

and e-commerce.

Credits: 3.

CDAE 267 - Strat Plan:A&R Entrepreneurshp

Applications of marketing, finance, and management strategies. Drafting a simulated business plan for rural entrepreneurs and economic development.

Prerequisites: ARE majors or minors, or with instructor's permission; senior standing.

Credits: 4.

CDAE 272 - Int'l Economic Development

International trade, finance, investment and or instructor's permission. with 273.

Credits: 3.

CDAE 273 - Project Development & Planning

the economy as a whole. Prerequisite: 171 or instructor's permission.

Credits: 3.

CDAE 287 - Spatial Analysis

Credits: 3.

CDAE 291 - Special Problems

Independent projects under the direction of a faculty member. Includes undergraduate teaching assistance. Prerequisite: Departmental permission.

Students may enroll more than once for a maximum of 12 hours. One to six hours.

Credits: 1-6.

CDAE 292 - Seminar

Reports, discussions, and investigations in selected fields. May enroll more than once up to six hours. One to three hours.

Credits: 1-3.

CDAE 295 - Special Topics

Lectures or readings on contemporary issues in Community Development and Applied Economics. Enrollment may be more than once, up to twelve hours.

Credits: 0-12.

CDAE 296 - Field Experience/Practicum

Professionally-oriented field experience under joint supervision by faculty and business or community 296 cannot exceed 15 credits. UG only.

Credits: 1-18.

CDAE 297 - Undergraduate Research

Work on a research problem under direction of a staff member. Findings submitted in written form as prescribed by the department. Prerequisite: Senior standing.

Credits: 3.

CDAE 298 - Undergraduate Research

member. Findings submitted in written form as prescribed by the department. Prerequisite: Senior standing.

Credits: 3.

CDAE 351 - Research Methods

Prerequisite: Three hours of Statistics. Developing research projects with the scientific methods; evaluating alternative literature review, sampling, surveying, and analytic methods; and reporting the results.

Credits: 3.

CDAE 354 - Advanced Microeconomics

Principles and applications of advanced microeconomics: consumer and market demand, firm and market supply, perfect and imperfect markets, partial and general equilibrium, and policy analysis. Prerequisite: CDAE 254 or equivalent.

Credits: 3.

CDAE 377 - Practicum in Extension Educ

Credits: 1-12.

CDAE 391 - Master's Thesis Research

Credits: 1-18.

CDAE 392 - Graduate Seminars

Report and discuss research projects and findings of graduate students and faculty, and offer workshops on selected topics in community development and applied economics. May enroll more than once for up to three credits.

Prerequisite: Graduate standing.

Credits: 1.

CDAE 395 - Special Topics

Lectures or readings on contemporary issues in Community Development and Applied Economics at the graduate level. Prerequisite: Graduate standing.

Credits: 3.

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Community Development and Applied Economics General Requirements

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics](#)

Concentrations: [Agricultural and Resource Entrepreneurship](#), [Community and International Development](#)

The following courses are required of all students:

- Communication Skills: English 1, AGRI 183, or other approved course, one additional communications course(either oral or written).
- Quantitative Skills: Math 19, Statistics 141, AGRI 85.
- Science: Two courses in physical or natural science.
- Arts and Humanities: Two courses.
- Social Science: Political Science 21, Economics 11.
- Physical Education: Two courses.
- Core Courses: CDAE 002, CDAE 015, CDAE 061, CDAE 102, CDAE 127, CDAE 157, CDAE 166, CDAE 253, CDAE 254, CDAE 255, and Internship/service learning requirement
- Restricted Electives: The purpose of restricted electives is to provide students with an additional opportunity to specialize within an area of study or, alternately, to provide breadth of exposure across the major.
 - Students may take any course offered in CDAE.
 - Students must take nine credits in CDAE outside their area of concentration.
 - Students may take courses in other departments with advisor approval.

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Community Development and Applied Economics: Agricultural and Resource Entrepreneurship Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics](#)

Overview

With Vermont as your laboratory, you will acquire knowledge in applied economics and skills management, strategic planning, marketing, and public policy related to developing or operating a small, natural-resource based business.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [CDAE General Requirements](#)

Specific Requirements

Major Requirements: BSAD 065, CDAE 167, CDAE 168, CDAE 264, CDAE 266, CDAE 267.

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Community Development and Applied Economics: Community and International Development Concentration (B.S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics](#)

Overview

Building on a strong, applied economics base, you will acquire the knowledge, skills and values necessary to address rural economic and policy problems locally and globally.

General Requirements

- [University](#)
- [College of Agriculture and Life Sciences Core Curriculum](#)
- [CDAE General Requirements](#)

Specific Requirements

Students must complete 6 of the following 8 courses: CDAE 156, 171, 218, 237, 250, 251, 272, 273.

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Minor in Agricultural and Resource Entrepreneurship

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics](#)

Requirements

Any student interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Fifteen to sixteen credits including 12 credits in required courses CDAE 166, 167, 168, 266; one course three to four credits from the following restricted electives: CDAE 157, 264, 267.

Arts and Sciences Majors: This minor is also available for Arts and Sciences students. Courses required are: CDAE 61, 166, 167, 168, and 266. Arts and Sciences students should note that BSAD 65, MATH 19, and CS 2 or instructor permission are listed as prerequisites for some of the upper level courses.

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Minor in Applied Design

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics Department](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Nine credits in required courses: CDAE 15; 1 or 16, 101 or 231 plus two additional elective courses at or above the 100 level, approved by the student's advisor to define an applied design focus for a total of 15 credits.

Arts and Sciences Majors: Nine of the 15 hours must be at the 100 level or above. The Applied Design minor is not available to students majoring or minoring in Studio Art.

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Minor in Consumer Affairs

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics Department](#)

Requirements

Any student interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Fifteen credits including CDAE 127, 128, 157, 159; plus one of the following restricted electives: CDAE 102, 250, or 255. *Note: CDAE majors must take CDAE 250 as their "elective."*

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Minor in Consumer and Advertising

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics Department](#)

Requirements

Any student interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Fifteen credits including CDAE 15, 127, 128, 183, and an advisor-approved elective.

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Minor in Community and International Development

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics Department](#)

Requirements

Any student interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

A total of 15 credit hours with nine from required courses CDAE 2, 61, and 171; and six hours from a list of restricted electives as follows: CDAE 166, 167, 196, 218, 237, 251, 255, 272, 273, or 296.

Arts and Sciences Majors: This minor is also available for Arts and Sciences students. Courses required are: a total of 15 credits with 12 from required courses CDAE 2, CDAE 61 or EC 12, CDAE 102, and either CDAE 171, 273, or 296; and three hours from a list of restricted electives as follows: CDAE 166, 167, 237, 251, 255, 272, EC 140.

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Departments and Programs

Nutrition and Food Sciences Department

Colleges: [College of Agriculture and Life Sciences](#), [Graduate College](#)

Faculty: Nutrition and Food Sciences

Courses: [Nutrition and Food Sciences \(NFS\)](#)

Contact Information:

University of Vermont

Nutrition and Food Sciences Department

305 Terrill Hall

570 Main St

Burlington, VT 05405-0148

Phone: (802) 656-3374

Fax: (802) 656-0407

Email: ammartin@zoo.uvm.edu

Web Site: <http://nutrition.uvm.edu/>

- [Biological Sciences Core](#)
- [Nutrition and Food Sciences Core](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - Nutrition and Food Sciences
 - [Dietetics Concentration](#)
 - [Nutrition and Food Sciences](#)
- Undergraduate Minors
 - [Nutrition and Food Sciences](#)

Overview

The Department of Nutrition and Food Sciences (NFS) prepares students to enter the rapidly expanding field of dietetics, food science, nutrition, health, and fitness. Nutrition and Food Science, unique in fields of study, are rooted in the physiological, chemical, and biochemical sciences but are comprehensive in scope since they integrate knowledge learned in the social and psychological sciences. The faculty in the department believe that excellence in teaching, research and undergraduate student advisement are critical components of their responsibility to undergraduate education. Through formal course work, field experience, and independent research, students prepare themselves in the biochemical, psychological, and socioeconomic aspects diet, nutrition and foods. Thus NFS majors are able to meet the current and future needs in nutrition and food science and assume innovative, leadership roles in society and industry.

The course credits earned in NFS provide background in preventive and therapeutic nutrition as well as nutrient requirements for human growth, development, health, and fitness throughout the life cycle. Other courses focus on the physical, chemical, and nutritional properties of food, food safety, and consumer aspects of food related to socioeconomic status, life style, cultural beliefs, and health. Although a series of courses providing knowledge in these areas is required of all majors, each student has a generous amount of free elective credits to pursue personal interests.

It is possible for students to meet the requirements for more than one program option (for example, Dietetics majors are also double majors in Nutrition and Food Sciences) or combine a major in this department with another area of study (e.g. Athletic Training). In addition, department majors may elect to meet the undergraduate requirements needed for admission to medical schools (including naturopathic, chiropractic, or osteopathic) or graduate school in nutrition, food science, sports nutrition, or family and consumer sciences.

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Courses in Nutrition and Food Sciences

NFS 043 - Fundamentals of Nutrition

Comprehensive study of specific nutrients in terms of their availability, function, and utilization in mammalian species. Prerequisites: High school chemistry and biology. Fall /Spring.

Credits: 3.

NFS 044 - Survey of the Field

Nutrition and Food Sciences Introduction to the professional field and career opportunities in dietetics, nutrition and food science. Required of all First-Year and transfer students. Fall.

Credits: 1.

NFS 053 - Basic Concepts of Foods

preparation. Spring.

Credits: 3.

NFS 054 - Basic Concepts of Foods Lab

Developing comprehension of scientific principles of food preparation through modification of standard recipes, manipulation of ingredients and techniques, and evaluation using sensory and objective methods. Prerequisite: NFS 053 or concurrent registration in NFS 053 or permission. Spring; Department majors only.

Credits: 1.

NFS 063 - Obesity,Weight Control&Fitness

Introduction to the causes, consequences, and reputed cures of obesity which includes: evaluation of body composition and modification of eating and exercise behaviors in weight control. Fall / Spring.

Credits: 3.

NFS 124 - Professional Presentations

Credits: 3.

NFS 143 - Nutrition in the Life Cycle

Nutritional needs of people throughout the life cycle. Physiological and environmental factors which affect nutritional status. Designed for Nutrition majors. Prerequisite: NFS 043. Fall.

Credits: 3.

NFS 150 - Quantity Food Production&Serv

Principles and techniques of food accounting, recipe and menu planning/costing, preparation and service including equipment, sanitation, and time motion studies.

Prerequisite: NFS 053. Fall.

Credits: 4.

NFS 153 - Principles of Food Technology

Food processing technologies and underlining principles of changes in microbiological quality and safety, chemical composition and nutritional value, and interaction of functional additives and ingredients. Prerequisite: NFS 043, NFS 053; organic chemistry. Spring.

Credits: 3.

NFS 154 - Principles Food Technology Lab

Experiential learning of principles of major modern food processing and preservation technologies, essential skills of food quality and safety assurance, and new product development. Prerequisite: NFS 054, NFS 153, or concurrent enrollment in NFS 153, organic chemistry; Department majors only.

Credits: 1.

NFS 163 - Sports Nutrition

Timing and composition of meals for training and pre- and post-competition.

Prerequisite: Instructor permission. Fall/Spring.

Credits: 3.

NFS 165 - Mgmt of Eating Disorders

Examination of the causes, diagnosis, and treatment of body image disorder, anorexia nervosa, bulimia nervosa, binge eating, and obesity. Information is provided through readings, lecture, discussion, and speakers. Spring.

Credits: 3.

NFS 175 - International Nutrition

Credits: 3.

NFS 176 - Food and the Consumer

Credits: 3.

NFS 195 - Special Topics

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Credits negotiable. Enrollment may be more than once, maximum of 12 hours in NFS 195 and NFS 295 combined. Prerequisite: Department permission

Credits: 1-12.

NFS 196 - Field Experience

Professionally-oriented field experience under joint supervision by faculty and business or community representative. Credits negotiable, maximum of 15 hours in NFS 196 and NFS 296 combined. Prerequisite: Department permission.

Credits: 1-15.

NFS 197 - Undergraduate Research

Individual laboratory or community research in food or nutritional sciences under the guidance of a faculty member. Arrangement with faculty member and permission of Department Chair.

Credits: 1-3.

NFS 198 - Undergraduate Research

Individual laboratory or community research in food or nutritional sciences under

the guidance of a faculty member. Arrangement with faculty member and Department Chair permission.

Credits: 1-3.

NFS 201 - Fermented Dairy Foods

Fundamental processes involved in the manufacture of domestic and imported cheese varieties and other cultured dairy foods. Acquired knowledge of manufacturing procedures applied at pilot plant level. Prerequisite: A course in organic chemistry; AGBI 201, or permission. Alternate years.

Credits: 4.

NFS 203 - Food Microbiology

Desirable and undesirable activities of bacteria in foods. Mechanisms of food-borne infection and intoxication. Laboratory methods to enumerate and identify microorganisms associated with food. Prerequisite: A course in Biochemistry. Fall.

Credits: 4.

NFS 204 - Industrial Microbiology

Undergraduate only.

Credits: 3.

NFS 208 - Sensory Evaluation of Foods

Nature of sensory responses to aroma, taste, and texture of foods; relation of sensory data to instrumental measurements; statistical analysis and interpretation of sensory data. Prerequisite: a course in Statistics. Alternate years.

Credits: 4.

NFS 223 - Meth Education Human Sciences

Credits: 3.

NFS 238 - Food Service Systems Mgmt

Credits: 3.

NFS 243 - Advanced Nutrition

Study of nutrients and their specific functions in metabolic process integrating cellular physiology, biochemistry, and nutrition. Prerequisites: 43, AGBI 201 or equivalent, ANPS 19 or equivalent; Junior standing. Spring.

Credits: 3.

NFS 249 - Nutrition Seminar

Undergraduate only.

Credits: 1.

NFS 250 - Food Service Systems Mgmt

Organization and administration of food service systems including principles of production, accounting management decisions, communications, and legal responsibilities specific to quantity food production. Emphasis on problem solving. Prerequisites: 150, BSAD 120, or permission. Spring. (Not offered for graduate credit.)

Credits: 3.

NFS 253 - Food Safety & Regulation

Comprehensive study of the relationships between food processing and preservation, food toxicology, and the scope, applicability, and limitations of U.S. food laws. Prerequisite: AGBI 201 or equivalent. Spring.

Credits: 3.

NFS 260 - Diet and Disease

nutrition principles associated with treatment. Examination of the physiologic, biochemical, and psychosocial basis of several disease states with application of the normal and therapeutic food and Prerequisites: 53, 143, 243. Fall.

Credits: 3.

NFS 261 - Clinical Nutrition

Applications of clinical nutrition including practice experiences in interviewing, nutritional assessment and counseling, case studies, and in-depth discussions of current controversies in the dietary management of specific diseases.

Prerequisite: NFS 260 or concurrently enrolled. Fall.

Credits: 3.

NFS 262 - Community Nutrition

Study of U.S. public health nutrition policies, programs and practices. Emphasis on community nutrition program planning including needs assessment, intervention development and evaluation. Prerequisite:NFS 260; Senior standing. Spring.

Credits: 3.

NFS 263 - Nutritional Biochemistry

Comprehensive study of metabolism of carbohydrates, lipids, and protein emphasizing diet induced, hormone mediated alterations in metabolism (e.g. starvation and obesity). Prerequisite: NFS 243 or Instructor permission. Spring.

Credits: 3.

NFS 273 - Nutrition Counseling

Professional field experience providing preventive and therapeutic nutritional information and education to individuals or groups under the direct supervision of a Registered Dietitian. Credit negotiable but not to exceed three per semester. Enrollment may be more than once. Prerequisite: Instructor's permission Fall/Spring. (Not offered for graduate credit.)

Credits: 1-3.

NFS 274 - Community Practicum

Professional field experience in a community nutrition organization. Credit negotiable but not to exceed three per semester. Enrollment may be more than once, maximum of 6 credits. Prerequisite: Instructor's permission. (Not offered for graduate credit,)

Credits: 1-6.

NFS 290 - Rsrch Meth Nutritional Science

nutritional biochemistry. Prerequisite: AGBI 201, Advanced research methods, including grant preparation, Institutional Review Board requirements, data analysis and presentation, and selected techniques in advanced AGBI 202, or equivalent. Fall. Undergraduate only.

Credits: 4.

NFS 295 - Special Topics

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Credits negotiable. Enrollment may be more than once, maximum of 12 hours in 195 and 295 combined. Prerequisite: Departmental permission.

Credits: 1-15.

NFS 296 - Field Experience

Professionally-oriented field experience under joint supervision of faculty and business or community representative. Credit negotiable. Maximum of 15 hours in 196 and 296 combined. Prerequisite: Departmental permission.

Credits: 1-15.

NFS 350 - Nutrition&Food Science Seminar

Credits: 1.

NFS 360 - Rsch Meth Nutr & Food Sciences

Pre/Co-requisites: Permission of the Instructor. Advanced research methods, including grant preparation, IRB requirements, data analysis and presentation, and selected topics in advanced nutritional and food sciences.

Credits: 3.

NFS 391 - Master's Thesis Research

Credits: 1-18.

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Nutrition and Food Science Core Requirements

College: [Agriculture and Life Sciences](#)

Department(s): [Nutrition and Food Science](#)

Concentrations: [Dietetics](#), [Nutrition and Food Sciences](#)

Course requirements for all Department Majors

General Education Studies for all Majors(50 hours)

- A. Communication Skills (6 hours)
 - English 1 (or equivalent)
 - Speech: AGRI 195 (or equivalent)
- B. Fine Arts and Humanities (6 hours)
 - Two unspecified courses
- C. Social Science Core (6 hours)
 - Psychology 1
 - Sociology 1 or 109, or Social Work 47
- D. Basic Science Core (20 hours)
 - Chemistry 23 (or 31); 42 (or 141)
 - Anatomy and Physiology 19-20
 - Biochemistry 201 and 202
- E. Analytical Science Core (9 hours)
 - Statistics 111 (or equivalent)
 - Mathematics 9 or higher
 - Computer Science: AGRI 195 (or equivalent)
- F. CALS first year Orientation (1 credits)
 - Race and Culture EDSS 11 (or equivalent)
 - New Beginnings: AGRI 195
- G. Physical Activity
 - Two unspecified courses

Department Core Requirements for all Majors Nutrition and Food Sciences (25 hours)

NFS 43, 44, 53, 54, 143, 153, 154, 203, 243, 253.

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Nutrition and Food Sciences: Dietetics Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Nutrition and Food Sciences](#)

Overview

Dietetics is a profession concerned with the science and art of human nutritional care, an essential component of human health science. The Didactic Program in Dietetics is currently granted developmental accreditation by the Commission on Accreditation for Dietetics Education of the American Dietetic Association, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, 312/899-0040 ext. 5400. This program prepares students for careers as Registered Dietitians by providing the undergraduate requirements needed to apply to dietetic internships.

To become a Registered Dietitian, students must complete our Didactic Program in Dietetics; complete a CADE accredited approved supervised practice/internship program and pass the National Registration Examination for Dietitians. Dietetics majors are also double majors in Nutrition and Food Sciences. This prepares graduates to counsel people about the preventive and therapeutic role of nutrition in the maintenance of health and fitness.

General Requirements

- [University](#)
- [College of Agriculture and Life Sciences Core Curriculum](#)
- [Nutrition and Food Sciences Core](#)

Specific Requirements

Dietetics Required Courses (28 hours): Nutrition and Food Sciences (NFS) 150, 250, 260, 261, 262, 263, 272; Business Administration (BSAD) 120; EDFC 123; BMT 3; Electives (19-41 hours).

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Nutrition and Food Sciences (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Nutrition and Food Sciences](#)

Overview

This customized major is designed to provide a strong background in preventive nutrition, food science, and basic science. Students have an opportunity to integrate course work in medical, biochemical, biological, physiological, psychological, and sociological sciences or business. This option can prepare students for careers in the commercial food processing industry or in professions where knowledge of food and beverage, nutrient content of foods, eating behavior, and the role of food in society is critical. The demand for qualified professionals with education and training in the food science arena greatly exceeds the number of graduates available thus making this option highly desirable for the career motivated student.

Students may elect to fill the academic and practical application requirements needed to become an Athletic Trainer. Upon graduation, students selected for the athletic training option will be prepared to take the National Athletic Trainers Association certification examination (see description of Athletic Training concentration). Alternately, students may choose the Nutrition and Food Science Masters in Physical Therapy (MPT) Program called the 3+3 program. In the 3+3, all NFS requirements must be completed in three years and the student must apply for matriculation into the MPT.

General Requirements

- [University](#)
- [College of Agriculture and Life Sciences Core Curriculum](#)
- [Nutrition and Food Sciences Core](#)

Specific Requirements

Nutritional and Food Sciences (12 hours): In consultation with the student's academic advisor, select four additional courses, at least two of which must be at the 200 level. Electives (33-55 hours). For Athletic Training add EDPE 23, 46, 157, 158, 166, 167, 185,

186, 187, 188, 200, PEAC 28.

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Minor in Nutrition and Food Science

College: [Agriculture and Life Sciences](#)

Department(s): [Nutrition and Food Science](#)

Requirements

A total of fifteen credit hours in Nutrition and Food Sciences, 9 credit hours consisting of 43, 53, 143, and six credits of NFS courses from the following: 63, 123, 150, 153, 165 or any 200-level course approved by the student's minor advisor that will define a particular focus. Independent study, field experience and undergraduate research cannot be counted in this total.

Agriculture and Life Sciences Majors: Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Nutrition and Food Science Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Arts and Sciences Majors: Arts and Sciences students must select at least eight credits of NFS course work at or above the 100 level.

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Departments and Programs

Microbiology and Molecular Genetics Department

Colleges: [College of Agriculture and Life Sciences](#), [Graduate College](#), [College of Medicine](#)

Faculty: Microbiology and Molecular Genetics

Courses: [Microbiology and Molecular Genetics \(MMG\)](#)

Contact Information:

University of Vermont

Microbiology and Molecular Genetics Department

201 Stafford Hall

Burlington, VT 05405

Phone: (802) 656-2164

Fax: (802) 656-8749

Email: @zoo.uvm.edu

Web Site: <http://www.uvm.edu/microbiology/>

Related Programs:

- [Biochemistry Undergraduate Program](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science(B. S.)
 - [Microbiology and Molecular Genetics](#)
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 - [Molecular Genetics](#)
- Undergraduate Minors
 - [Microbiology](#)
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* MMG normally accepts only applicants for the Ph. D. program. However, UVM undergraduate students may apply for the Accelerated Master's Program. Other students who wish to apply to the M. S. program should contact the individual faculty member with whom they wish to study.

Overview

- Biological Sciences Core

Undergraduates who undertake studies in the Department of Microbiology and Molecular Genetics receive instruction in the classroom and in state-of-the-art teaching and research laboratories. The Department offers either a Microbiology or a Molecular Genetics major or minor as well as courses in the areas of molecular genetics, general, clinical, and environmental microbiology, virology, and immunology which are available to students in other programs. Numerous research opportunities provide undergraduates with close interactions with faculty at the cutting edge of microbiology using molecular genetics technology.

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Courses in Micr & Molecular Genetics

MMG 065 - Microbiology & Pathogenesis

Overview of microbiology, emphasizing the relationships between the structure, metabolism, and genetics of pathogenesis. Prerequisite: One semester chemistry. Not intended for students who have completed BIOL 001 and BIOL 002 or equivalent. Fall.
Credits: 4.

MMG 095 - Special Topics

Credits: 1-3.

MMG 096 - Special Topics

Credits: 1-3.

MMG 101 - Biology of Microorganisms

An introduction to the biology of microorganisms, encompassing their diversity, metabolism, pathogenesis, and ecology. Prerequisites: One semester of chemistry and biology, or equivalent, or instructor's permission. Fall.
Credits: 4.

MMG 102 - Molecular Genetics

Modern molecular genetics. Topics include: mechanisms of gene expression in prokaryotes and eukaryotes; retroviruses; cancer biology; human genetic diseases. Emphasis on experimental and conceptual aspects. Prerequisite: MMG 101, BOT 132, or Instructor permission. Spring.
Credits: 4.

MMG 195 - Special Topics

Prerequisite: Instructor's permission. Credits negotiable.
Credits: 1-6.

MMG 196 - Special Topics

Prerequisite: Instructor's permission. Credits negotiable.
Credits: 0-6.

MMG 197 - Undergrad Research

Undergraduate honors students accommodated in individual research projects sponsored by department member. Arrangement with individual department member and department chairperson approval. Credits negotiable.
Credits: 1-6.

MMG 198 - Undergrad Research

Undergraduate honors students accommodated in individual research projects sponsored by department member. Arrangement with individual department member and department chairperson approval. Credits negotiable.

Credits: 1-6.

MMG 201 - Molecular Cloning Lab

Intensive advanced laboratory course in the fundamentals of recombinant DNA technology through the isolation and characterization of a unique gene.

Prerequisite: 102 or equivalent. Fall.

Credits: 3.

MMG 203 - Mamm Cell Cult:Molecular Biol

The basic principles and techniques of mammalian cell culture, as well as cell and mammalian molecular genetics. Prerequisite: Permission of coordinator. Alternate years, Spring.

Credits: 4.

MMG 205 - Biochemistry I

Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems, including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisites: CHEM 142 or 144. Crosslisted with BIOC 205 and CHEM 205. UG only. Fall.

Credits: 3.

MMG 206 - Biochemistry II

with BIOC 206 and CHEM 206. UG only. Spring.

Credits: 3.

MMG 207 - Biochemistry Lab

spectrometry, chromatography, and electrophoresis;

Credits: 2.

MMG 211 - Prokaryotic Molecular Genetics

The organization, replication, and expression of genes in prokaryotes, focusing on the genetics of Escherichia coli and its viruses. Prerequisite: Introductory microbiology, biochemistry, genetics, and/or cell biology courses. Fall.

Credits: 3.

MMG 220 - Environmental Microbiology

The activities of microorganisms, primarily bacteria, in air, soil, and water.

Prerequisite: A previous course in microbiology. Alternate years.

Credits: 3.

MMG 222 - Clinical Microbiology

Comprehensive study of human pathogenic microorganisms and their disease states in humans, which includes pathogenic bacteriology, medical mycology, and virology. Laboratory sessions provide practical experience in handling and identifying these pathogens. Prerequisite: 65 or 101 or equivalent. Spring.

Credits: 4.

MMG 223 - Immunology

Analysis of the immune response with respect to structure and function of immunoglobulins and the T-cell receptor, tolerance, innate and adaptive immunity, the Major Histocompatibility Complex, hypersensitivity states, transplantation,

cancer, and AIDS. Prerequisite: Instructor's permission. Alternate years. Fall.
Credits: 3.

MMG 225 - Eukaryotic Virology

An in-depth analysis of eukaryotic virus-mammalian cell interactions emphasizing mechanisms by which viruses modulate gene expression in infected cells. Prerequisite: 101 or 102 or equivalent. Alternate years. Fall.
Credits: 3.

MMG 231 - Bioinformatics

Prerequisites: Instructor's permission; STAT 151, CS 26, and MMG 102 desirable. (Cross-listed with CS 231). Fall.
Credits: 3.

MMG 240 - Macromol Struct Prot&Nucl Acid

Introduction to structural biology and macromolecular structure with an emphasis on protein-protein and protein-nucleic acids interactions. Prerequisites: Biology 1, 2; Organic Chemistry; Junior standing recommended; concentration in Physics. (Cross-listed with BIOC 240) Alternate years, not approved for graduate credit. Spring.
Credits: 3.

MMG 295 - Special Topics

Supervised investigations in microbiology or molecular genetics. Prerequisite: Instructor permission. Credit as arranged.
Credits: 1-6.

MMG 296 - Special Topics

Supervised investigations in microbiology or molecular genetics. Prerequisite: Instructor permission. Credit as arranged.
Credits: 0-6.

MMG 302 - Medical Microbiology

Fundamentals of pathogenic microbiology emphasizing mechanisms of disease production and mechanisms of resistance to infection. The ecologic rather than taxonomic approach is stressed. Primarily for Medical students.
Credits: 8.

MMG 310 - Current Topics in MMG

Seminar to focus on specific issues at the forefront of current research in molecular genetics. Meetings will involve student presentation and discussion of research articles. Prerequisite: Permission of Coordinator.
Credits: 2.

MMG 312 - Eukaryotic Molecular Genetics

The use of lower eukaryotes, such as the yeasts *Saccharomyces cerevisiae* and *Schizosaccharomyces pombe*, as model genetic systems to answer questions of basic biological importance. Prerequisites: Instructor permission; MMG 233 and CLBI 301, or equivalent.
Credits: 3.

MMG 320 - Cellular Microbiology

Utilizes primary literature to explore the cellular and molecular basis of microbial pathogenesis caused by viruses, pathogenic bacteria and protozoan parasites. Alternate years. Spring.

Credits: 4.

MMG 332 - Critical Reading

Students will participate in group discussions to critically evaluate and interpret the experimental data from one assigned paper from the scientific literature per week.

Prerequisite: Permission of Coordinator. Fall.

Credits: 1.

MMG 352 - Protein:Nucleic Acid Interact

Structure of DNA and RNA, and the structure and assembly of nucleoprotein complexes will be described using examples from prokaryotes, yeast, viruses, and mammalian cells in culture. Prerequisite: MMG 211 or equivalent; AGBI 201 or BIOC 301; BIOC 302 or equivalent. Cross-listed with: BIOC 352. Alternate years. Spring.

Credits: 3.

MMG 391 - Master's Thesis Research

Credits: 1-18.

MMG 491 - Doctoral Dissertation Research

Credits: 1-18.

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Microbiology (B. S.) and Molecular Genetics (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Microbiology and Molecular Genetics](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)

Specific Requirements

The Microbiology and Molecular Genetics core courses total 55 credits. The courses comprising the core are: biology, biochemistry, genetics, inorganic and organic chemistry, mathematics, general microbiology, molecular genetics, physics, and statistics. In addition to the core requirements departmental majors take a minimum of 15 credit hours from an array of approved elective courses including undergraduate research.

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Minor in Microbiology

College: [Agriculture and Life Sciences](#)

Department(s): [Microbiology and Molecular Genetics](#)

Requirements

Core requirements are MMG 101 and 102, Botany 132, plus an additional six credit hours of MMG courses chosen from MMG 195/196, 201, 203, 211, 220, 222, 223, 225, 295/296 depending on student needs.

Agriculture and Life Sciences Majors: Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Microbiology and Molecular Genetics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Arts and Sciences Majors: A student may minor in Microbiology and Molecular Genetics upon permission of the departmental Undergraduate Affairs Committee and assignment of a minor advisor within the department who will direct the student's program plan and course selection.

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Minor in Molecular Genetics

College: [Agriculture and Life Sciences](#)

Department(s): [Microbiology and Molecular Genetics](#)

Requirements

Core requirements are MMG 101, 102, 211, Botany 132; plus an additional six credit hours of MMG courses chosen from MMG 195/196, 201, 203, 223, 225, 295/296 depending on students needs.

Agriculture and Life Sciences Majors: Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Microbiology and Molecular Genetics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Arts and Sciences Majors: A student may minor in Microbiology and Molecular Genetics upon permission of the departmental Undergraduate Affairs Committee and assignment of a minor advisor within the department who will direct the student's program plan and course selection.

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Departments and Programs

Plant and Soil Science Department

Colleges: [College of Agriculture and Life Sciences](#), [Graduate College](#)

Faculty: Plant and Soil Science

Courses: [Plant and Soil Science \(PSS\)](#)

Contact Information:

University of Vermont

Plant and Soil Science Department

Hills Agricultural Building

105 Carrigan Drive

Burlington, VT 05405-0082

Phone: (802) 656-2630

Fax: (802) 656-4656

Email: pass@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~pss/>

- [Biological Sciences Core](#)
- [Plant and Soil Science Core](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - [Plant and Soil Science](#)
 - [Agroecology / Sustainable Agriculture](#)
 - [Horticulture](#)
 - [Environmental Soil Science](#)
 - [Sustainable Landscape Horticulture](#)
- Undergraduate Minors
 - [Plant and Soil Science](#)

- Sustainable Agriculture

Overview

The Plant and Soil Science program allows students to expand their knowledge of science and apply it to plant production, landscape design, and to environmental issues related to plants and soils. The faculty represent the disciplines of agronomy, horticulture, entomology, plant pathology, and soil science. Our program provides a unique, interdisciplinary opportunity for studying plant/soil ecosystems that are managed for food, feed, fiber production, landscape purposes, or recycling/waste utilization.

The program integrates classroom and field experiences and incorporates relevant environmental, social, and economic issues into the curriculum. Faculty help students develop individualized courses of study to match their interests and career goals. The department has two majors, Plant and Soil Science and Sustainable Landscape Horticulture. There are three areas of concentration within the Plant and Soil Science program, they are: Agroecology/Sustainable Agriculture, Horticulture, and Environmental Soil Science.

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Courses in Plant & Soil Science

PSS 010 - Home & Garden Horticulture

Planning, selecting, and maintaining shrubs, trees, flowers, lawns, fruits, and vegetables around the home. Designed primarily for non-agricultural students.
Credits: 3.

PSS 011 - Principles of Plant Science

Principles and practices involved in the culture, management, and utilization of economically important horticulture and agronomic crops.
Credits: 3.

PSS 106 - Entomology & Pest Mgmt

Survey of the major insect orders, and methods for controlling injurious species.
Prerequisite: 11.
Credits: 4.

PSS 107 - Forest Entomology

Ecology and population dynamics of insects affecting forests and forest products. Insect control by silvicultural, biotic, and chemical means. Prerequisite: Junior standing in Forestry or Urban Forestry and Landscape Horticulture.
Credits: 3.

PSS 117 - Plant Pathology

Alternate years.
Credits: 4.

PSS 121 - Indoor Plants

Indoor flowers, culture, related topics such as design. Prerequisite: PSS 10 or 11 or Botany 4 or permission. Alternate years.
Credits: 1.

PSS 122 - Small Fruit Crops

Principles of small fruit production, including propagation, culture, management, and harvesting. Prerequisite: PSS 011 or permission. Alternate years.
Credits: 2.

PSS 123 - Garden Flowers

Outdoor flowers, culture, related topics. Prerequisite: PSS 10 or 11 or Botany 4 or permission. Alternate years.
Credits: 2.

PSS 124 - Vegetable Fruit Crops

Principles and practices of commercial vegetable fruit production, including seed production, tillage, cultural practices, and nutrition value. Prerequisite: PSS 11. Alternate years. Credits: 2.

PSS 125 - Woody Landscape Plants

Identification, climatic requirements, cultural management, and use of ornamental plant materials in landscape planting. Prerequisite: 11 or Botany 4 or permission. Credits: 4.

PSS 126 - Vegetable Root Crops

Principles and practices of commercial vegetable root crop production, including propagation, tillage, cultural practices, and nutrition value. Prerequisite: PSS 011. Alternate years. Credits: 2.

PSS 127 - Greenhouse Operations & Mgmt

Principles and practices of commercial greenhouse management including construction, heating, cooling, container media, watering, fertilization, light and temperature, growth regulators, integrated pest management and disease control. Prerequisite: PSS 11. Alternate years. Credits: 2.

PSS 131 - Landscape Design 1

A studio course emphasizing theory of landscape design and its application to actual landscape design problems. Graphic communication techniques included. Prerequisite: PSS 11 or permission. Credits: 3.

PSS 132 - Landscape Design 2

Advanced techniques in landscape design. Grading, construction details, graphic techniques, site analysis as well as various design problems. Prerequisite: PSS 125 or PSS 131, or RM 138, or permission. Credits: 3.

PSS 138 - Commercial Plant Propagation

Principles and practices involved in propagating herbaceous and woody plants by seeds, division, layering, cuttings, budding, grafting, and aseptic culture. Prerequisite: PSS 11 or permission. Credits: 4.

PSS 143 - Forage Crop Management

Identification, establishment, and management of crops grown for hay, pasture, and silage. Prerequisite: PSS 11 or permission. (Cross-Listed with ASCI 143.) Alternate years. Credits: 2.

PSS 145 - Turfgrass Management

Establishment, maintenance, and utilization of turf for lawns, parks, athletic fields, airports, cemeteries, roadsides, golf courses, and ski slopes. Prerequisite: PSS 11 or Botany 4 or permission. Alternate years. Credits: 2.

PSS 152 - Agroecology

An ecosystem approach to agriculture. Ecological thinking in agriculture, plant/soil ecosystems, ecological design principles and specific sustainable systems (permaculture, biodynamics, agroforestry, organic). Prerequisite: Three credits in a basic biological or ecological science or permission. Alternate years.

Credits: 3.

PSS 154 - Composting Ecology & Mgmt

Examines ecological, physical and chemical principles, the practical management of the composting process, and benefits of using compost in plant and soil ecosystems. Prerequisite: 3 credits in basic biological or ecological science or permission. Alternate years.

Credits: 2.

PSS 156 - Permaculture

Design of agriculturally productive environments that have the diversity, stability, and resilience of the natural biosphere to harmoniously integrate landscape and people. Prerequisite: Three credits in a basic biological or ecological science, or permission. Cross-listed with: ENVS 156.

Credits: 2.

PSS 161 - Fundamentals of Soil Science

Biological, chemical, and physical properties of the dynamic soil system as related to plant growth and environmental problems. Prerequisite: Inorganic chemistry or permission.

Credits: 4.

PSS 162 - Soil Fertility & Management

An agroecological analysis of soil fertility management including nutrient supply and uptake, rhizosphere-microbial interactions, fertility evaluations, and management techniques. Prerequisite: PSS 161 or permission.

Credits: 3.

PSS 195 - Undergrad Special Topics

Courses or seminars on topics beyond the scope of existing department offerings. Prerequisite: Instructor permission.

Credits: 1-4.

PSS 196 - Undergrad Special Topics

Courses or seminars on topics beyond the scope of existing department offerings. Prerequisite: Instructor permission.

Credits: 1-4.

PSS 197 - Undergrad Independent Study

internship, or assisting in teaching. Prerequisite: Permission. More than a total of six credits per semester requires the permission of the

Credits: 0-6.

PSS 198 - Undergrad Independent Study

Individual projects under direction of a faculty member. internship, or assisting in teaching. Prerequisite: Permission. More than a total of six credits per semester requires the permission of the Department Chair.

Credits: 1-6.

PSS 210 - Ecological Soil Management

Applying basic ecological concepts and principles to practical soil management.

Will cover integrated strategies for building healthy soils, including management of biological, physical, and chemical properties. Alternate

Credits: 3.

PSS 215 - Weed/Crop Ecology

Weed identification, reproduction, ecological relationships with crops, and integrated management. Prerequisites: PSS 11, 161 or permission. Alternate years.

Credits: 2.

PSS 217 - Pasture Production & Mgmt

Physiological and ecological relationships of pasture plants, effects of grazing livestock on them; grazing management effects on livestock and pastures; emphasis on French Voisin system. Prerequisites: PSS 11 or 161 or permission. Alternate years.

Credits: 2.

PSS 221 - Tree Fruit Culture

Theory and practice of modern commercial fruit science. Nutrition and cultural responses to various management practices. Prerequisite: PSS 011, PSS 161, or permission. Alternate years, 2002-03.

Credits: 2.

PSS 261 - Soil Morph Class & Land Use

Field techniques that describe soil properties, formation, and classification. The principles and processes of soil genesis, land use classification systems, and land use challenges. Prerequisite: PSS 161 or permission. Alternate years.

Credits: 3.

PSS 264 - Chemistry of Soil & Water

An environmentally oriented study of the colloidal chemistry of soil and its interfaces with roots, water, and air. Prerequisites: PSS 161, two semesters chemistry or permission. Ross. Alternate years.

Credits: 4.

PSS 266 - Soil Water Movement

Mathematical modeling and physical principles of the soil-water-plant interaction and its relationship to environmental and agricultural issues. Prerequisites: PSS 161, one semester of physics or permission. Alternate years.

Credits: 3.

PSS 269 - Soil/Water Pollution/Bioremed

Examines key issues in pollution of soil and water. Topics include type of pollutants, their reactions in soil and water, pollution prevention and bioremediation. Alternate years.

Credits: 3.

PSS 281 - Senior Seminar

Presentation and discussion of papers on selected topics of current interest by students and staff. Spring semester. Prerequisite: Senior standing.

Credits: 1.

PSS 297 - Special Topics

Lectures, laboratories, readings, field projects, surveys, or research designed to provide specialized experience in horticulture, agronomy, soils, entomology, and

integrated pest management. Prerequisite: Senior standing and/or permission.

Credits: 1-3.

PSS 301 - Plant Science Colloquium

Graduate student and faculty discussion of current research topics in plant science.

Credits: 1.

PSS 302 - Soil Science Colloquium

Graduate student and faculty discussion of current research topics in soil science.

Credits: 1.

PSS 381 - Graduate Special Topics

Advanced readings and discussion of horticulture, crops, or soils research literature.

Credits: 1-3.

PSS 391 - Master's Thesis Research

Credits: 1-18.

PSS 491 - Doctoral Dissertation Research

Credits: 1-18.

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Plant and Soil Science Required Core Courses

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Concentrations: [Agroecology/Sustainable Agriculture](#), [Horticulture](#), [Environmental Soil Science](#)

The Plant and Soil Science faculty are actively involved not only in teaching but in research that is targeted at solving agricultural and environmental problems. Students are encouraged to become involved in on-going research projects or to develop independent learning experiences with the guidance of a faculty member. In addition, opportunities exist for off-campus internships that provide valuable work experience and insights into professional careers.

Plant and Soil Science Required Core Courses

Required Core Courses (18-20 hours): Plant and Soil Science 11, 106, 117, 138, 161, 162; Botany 4; Botany 104; Inorganic Chemistry 23 or 31; Organic Chemistry 26, 42, or 141; Math. 9 or equivalent; Statistics 111, 141, 211 or Natural Resources 140; Community Development and Applied Economics 61 or 166; Natural Resources 103, Botany 160, or Forestry 120; plus a minimum of 18 credits made up of at least six additional courses in Plant and Soil Sciences at the 100 level or above, excluding PSS 195, 196, 197, 198, so as not to include independent studies and special topics unless approval is obtained from the students advisor. All students must get a C- or better in all courses required by the PSS major.

More information can be found at the [Plant and Soil Science web site](#).

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Plant and Soil Science: Agroecology / Sustainable Agriculture Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science Department](#)

Overview

A goal of the Agroecology/Sustainable Agriculture concentration is to develop a knowledge base and skills to critically analyze and address issues related to sustainable agriculture.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)
- [Plant and Soil Science Core](#)

Specific Requirements

Faculty help students develop individualized courses of study to match their interests and career goals.

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Plant and Soil Science: Horticulture Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Overview

The Horticulture concentration provides students with the knowledge and skills needed for challenging careers in "green" industry and in the production of fruits and vegetables.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)
- [Plant and Soil Science Core](#)

Specific Requirements

Faculty help students develop individualized courses of study to match their interests and career goals.

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Plant and Soil Science: Environmental Soil Science Concentration (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Overview

In the Environmental Soil Science concentration students learn how the soil affects the transport and remediation of environmental contaminants in both natural and agricultural ecosystems.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)
- [Plant and Soil Science Core](#)

Specific Requirements

Faculty help students develop individualized courses of study to match their interests and career goals.

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Sustainable Landscape Horticulture (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Overview

Sustainable Landscape Horticulture (SLH) provides a professional education in the use and care of trees, flowers, shrubs, lawn grasses, and other plants in the human environment. The program integrates professional training in landscape design and the plant sciences with courses in business and the liberal arts. The emphasis is on the preparation of students for the changing future and a variety of careers in the expanding field of Sustainable Landscape Horticulture. Students are encouraged to participate in internships related to their studies.

This interdisciplinary program is coordinated by the Department of Plant and Soil Science; student majors in the program are therefore enrolled in the Plant and Soil Science Department.

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Biological Science Core](#)

Specific Requirements

Required Core Courses: Plant Soil Science 11, 106 or 107, 117 (or Forestry 234), 123, 125, 131, 132, 138, 145, 161, 162; Forestry 21; Community Development and Applied Economics 61, 166, or Business Administration 120; Botany 4; Botany 104 or Forestry 225; Botany 160 or Forestry 120 or Natural Resources 103; Natural Resources 25 or 143 or Community Development and Applied Economics 101; Chemistry 23 and 26; Math. 10; Statistics 111, 141, 211 or Natural Resources 140. All students must get a C- or better in all courses required by the SLH major.

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Minor in Plant and Soil Science

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Plant and Soil Science Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Sixteen credits including Plant and Soil Science 10 or 11, 161, plus an additional 9 credits in Plant and Soil Science courses at the 100 level or above.

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Minor in Sustainable Landscape Agriculture

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Requirements

Fifteen hours including nine in required courses ASCI 230 or CDAE 208, CDAE 61 and PSS 152; three or four credits from the following restricted electives: ASCI 110, 113, 115, 118, 213, 214, 220, 231, 233, 234, 264 or CDAE 171, 205, 218, 272, 273, or PSS 106, 161, 122, 123, 124, 125, 126, 127, 138, 141, 145, 154, 210, 215, 217, 221, 232; and a three to six credit hour internship: AGRI 195 – Special Topics, ASCI 197 or 297, CDAE 196, or PSS 197 or 297.

Agriculture and Life Sciences Majors: Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Plant and Soil Science, Community Development and Applied Economics, or Animal Science departments. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College of Agriculture and Life Sciences may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Arts and Sciences Majors: Fifteen hours to include: CDAE 61, CDAE 208, PSS 152, one elective at 100 or 200 level in ASCI/CDAE/PSS (see list of approved electives in Department or Dean's Offices) and three to six hours of internship at 100 or 200 level in AGRI/ASCI/CDAE/PSS. Note: Students should take their four academic courses **before** they design their internship experience. Thus the intership will serve as a culminating event in this program of study. The College of Arts and Sciences requires their students to receive a letter grade for internships taken in minor programs of study.

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Departments and Programs

Biochemistry Program (Undergraduate)

Colleges: [Agriculture and Life Sciences](#), [Arts and Sciences](#), [College of Medicine](#)

Faculty: Biochemistry, Chemistry, Microbiology and Molecular Genetics

Courses: [Biochemistry \(BIOC\)](#), [Biochemistry \(BICM\)](#), [Chemistry \(CHEM\)](#), [Microbiology and Molecular Genetics \(MMG\)](#)

Contact Information:

University of Vermont

Undergraduate Biochemistry Program

Department of Chemistry

Cook Physical Sciences Building

82 University Place

Burlington, VT 05405-0125

Phone: (802) 656-2594

Fax: (802) 656-8705

Email: Christopher.Landry@uvm.edu

Web Site: <http://biochem.uvm.edu/undergraduate/>

Related Programs:

- [Biochemistry Department \(Graduate Programs\)](#)
- [Chemistry](#)
- [Microbiology and Molecular Genetics](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - [Biochemistry](#)

Overview

Biochemistry is the basic science that explores the chemical and physical properties of living organisms and the chemical changes that occur in these organisms. It is integral to the study of a variety of scientific disciplines, including biology, chemistry, microbiology, genetics, anatomy, physiology, and pharmacology. The Bachelor of Science degree in Biochemistry is an interdisciplinary undergraduate degree program offered through the College of Arts and Sciences (CAS), the College of Agriculture and Life Sciences (CAL S) and the College of Medicine (COM). It draws upon a broad set of University resources from all three colleges to provide students with a modern science-based education designed to emphasize fundamental knowledge of chemistry and biology along with advanced courses specializing in biochemistry and biomedical sciences. The Biochemistry curriculum is challenging, offering students with strong academic abilities in science an opportunity to explore upper-level courses in areas of modern biochemistry. It is designed to meet the needs of students wishing to compete in the job market at the B.S. degree level as well as students planning to continue with advanced studies in a graduate or professional degree program.

Students may apply to the program either through CAS or CAL S, which vary in their college distribution requirements. The distribution categories and the number of required courses in each category differ slightly. In CAS, students are required to fulfill distribution requirements in six of the following seven categories: foreign languages, fine arts, literature, humanities, social sciences, physical sciences and mathematics, plus complete the general requirements in non-European cultures and race relations and ethnicity in the U.S. In CAL S, students are required to fulfill distribution requirements in science, humanities and fine arts, communication skills, information technology skills, quantitative skills, critical thinking skills, interpersonal skills, citizenship & social responsibility values, environmental stewardship values, and personal growth values. Regardless of the College through which students choose to apply, all students must take a core set of basic courses in chemistry, biology, and mathematics in their first two years followed by advanced courses in biochemistry, chemistry, and/or molecular biology in their third and fourth years. Since biochemistry is a "hands-on" science, involvement of students in undergraduate research projects, most of which qualify as honors projects in either College, is strongly encouraged. For more information contact either of the co-directors of the program: Christopher Landry (Christopher.Landry@uvm.edu) or Christopher Francklyn (Christopher.Francklyn@uvm.edu).

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Courses in Biochemistry

BIOC 191 - Undergraduate Research

35, 36. Some programs may require additional courses in Participation in a research program currently being pursued by a faculty member of department. Written report due at end of each semester. Prerequisites: Chemistry 31, 32 or chemistry. Credit as arranged, up to four hours per semester. Credits: 1-4.

BIOC 192 - Undergraduate Research

Participation in a research program currently being pursued by a faculty member of department. Written report due at end of each semester. Prerequisites: Chemistry 31, 32 or 35, 36. Some programs may require additional courses in chemistry. Credit as arranged, up to four hours per semester. Credits: 1-4.

BIOC 196 - Intermediate Special Topics

Credits: 1-6.

BIOC 205 - Biochemistry I

CHEM 205 and MMG 205. UG only. Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisites: CHEM 142 or 144. Crosslisted with Credits: 3.

BIOC 206 - Biochemistry II

Continuation of Biochemistry I. Biochemistry of nucleic acids; nucleic acid based processes, such as replication and transcription; cellular Prerequisite: 205. Crosslisted with CHEM 206 and MMG 206. information transfer, genomics, and proteomics. UG only. Credits: 3.

BIOC 207 - Biochemistry Lab

natural and recombinant enzyme isolation; assays of Credits: 2.

BIOC 212 - Biochemistry of Human Disease

Molecular approach to genetic, metabolic, and infectious diseases; recombinant DNA technology and medicine; molecular biology of cancer. Prerequisites:

- Chemistry 42 or
Credits: 3.
- BIOC 240 - Macromol Struct Prot&Nucl Acid
Introduction to structural biology and macromolecular
Credits: 3.
- BIOC 301 - General Biochemistry
Survey for science majors. Chemistry, structure, metabolism, and function of proteins, carbohydrates, lipids; enzymes, bioenergetics and respiratory processes.
Prerequisites: Chemistry 141, 142 or 143, 144, and departmental permission.
Credits: 3.
- BIOC 302 - General Biochemistry
Survey for science majors. Amino acids, nucleic acids, protein synthesis, cellular and physiological control mechanisms. Prerequisites: Chemistry 141, 142 or 143, 144, and departmental permission.
Credits: 3.
- BIOC 305 - Medical Biochemistry
A survey course in human biochemistry, with particular emphasis on medical applications. Prerequisite: For medical students only.
Credits: 3.
- BIOC 306 - Medical Biochemistry
A survey course in human biochemistry, with particular emphasis on medical applications. Prerequisite: For medical students only.
Credits: 3.
- BIOC 307 - Special Topics in Biochemistry
Areas of biochemistry not treated in concurrent advanced course offerings.
Prerequisites: 301, 302 or 305-306; Chemistry 162.
Credits: 1-3.
- BIOC 308 - Special Topics
Areas of biochemistry not treated in concurrent advanced course offerings.
Prerequisites: 301, 302 or 305-306; Chemistry 162.
Credits: 1-3.
- BIOC 309 - Laboratory Research Rotations
Two sequential research projects in departmental faculty laboratories, composed of experimental work, an oral presentation, and a written report. (First semester).
Credits: 3.
- BIOC 310 - Laboratory Research Rotations
faculty laboratories, composed of experimental work, an oral presentation and a written report. (Second semester).
Credits: 3.
- BIOC 351 - Proteins I: Structure&Function
Special Topics: Introduction to concepts in protein structure and chemistry as well as exploration of ideas in a "hands on" fashion using computational resources.
Credits: 3.
- BIOC 352 - Protein:Nucleic Acid Interact
Structure of DNA and RNA, and the structure and assembly of nucleoprotein complexes will be described using examples from prokaryotes, yeast, viruses, and

mammalian cells in culture. Prerequisites: MMG 211 or equivalent, AGBI 201 or BIOC 301 and 302 or equivalent. Crosslisting: MMG 352. Alternate years.

Credits: 3.

BIOC 353 - Proteins II: Enzymology

General consideration of enzyme nomenclature, purification, assay, kinetics, mechanisms, cofactors, active sites, subunit structure, allosteric and regulatory properties, and control of multienzyme systems. Prerequisites: 301, 302, or 305-306; Chemistry 162.

Credits: 3.

BIOC 354 - Nucleic Acids II

The study of structure, composition, organization, function, synthesis, and metabolism of nucleic acids and nucleoprotein particles and matrices in eukaryotic organisms. Prerequisites: 301-302, 305-306.

Credits: 3.

BIOC 370 - Physical Biochemistry

related topics. Prerequisites: 301, 302 or 306; Chemistry 160 or 162.

Credits: 3.

BIOC 372 - Cancer Biology

Prerequisites: 301-302 or 305-306; under special circumstances , 212.

Credits: 3.

BIOC 381 - Seminar

A review of recent developments and current literature in the various fields of biochemistry. Prerequisite: Department permission.

Credits: 1.

BIOC 391 - Master's Thesis Research

Credit as arranged.

Credits: 1-12.

BIOC 392 - Independent Literature Rsch

Reading and literature research culminating in a paper on a topic of current interest in biochemistry.

Credits: 1-12.

BIOC 395 - Special Topics

Credits: 1-12.

BIOC 396 - Advanced Special Topics

Credits: 1-12.

BIOC 491 - Doctoral Dissertation Research

Credit as arranged.

Credits: 1-12.

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*No such category: **BICM**.*

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Courses in Chemistry

CHEM 020 - Principles & Contemporary Appl

Lecture plus lab. Designed for nonscience majors. An integrated approach to principles of chemistry within context of contemporary technological issues.

Credits: 4.

CHEM 023 - Outline of General Chemistry

One-semester survey of principles and concepts of general chemistry, designed primarily to meet needs of students in agricultural and health sciences. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 25, 31 or 35.

Credits: 4.

CHEM 025 - Outline of General Chemistry

One-semester survey of principles and concepts of general chemistry, designed primarily to meet the needs of students in agricultural and health sciences. NO LABORATORY. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 23, 31 or 35.

Credits: 3.

CHEM 026 - Outline of Organic & Biochem

Broad overview of most important facts and principles of organic and biochemistry and interrelationships between these branches of chemistry. Prerequisite: 31 or 23. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 28, 42 or 44.

Credits: 4.

CHEM 028 - Outline of Organic & Biochem

Broad overview of most important facts and principles of organic and biochemistry and of interrelationships between these branches of chemistry. NO LABORATORY. Prerequisite: 31 or 23 or 25. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 26, 42 or 44.

Credits: 3.

CHEM 031 - Introductory Chemistry

Basic course in principles and concepts of general chemistry. These courses, or Chemistry 35, 36 serve as suitable prerequisites for 100-level courses in Chemistry. Prerequisite: 31 or 35 for 32.

Credits: 4.

CHEM 032 - Introductory Chemistry

Basic course in principles and concepts of general chemistry. These courses, or Chemistry 35, 36 serve as suitable prerequisites for 100-level courses in Chemistry. Prerequisite: 31 or 35 for 32.

Credits: 4.

CHEM 035 - General Chemistry

General chemistry for students with a strong background in physical sciences. Recommended for students concentrating in physical sciences. Prerequisites: One year of high school chemistry, concurrent enrollment or background in calculus. High school physics recommended; 31 or 35 required for 36.

Credits: 4.

CHEM 036 - General Chemistry

General chemistry for students with a strong background in physical sciences. Recommended for students concentrating in physical sciences. Prerequisites: One year of high school chemistry, concurrent enrollment or background in calculus. High school physics recommended; 31 or 35 required for 36.

Credits: 4.

CHEM 039 - Introduction to Research

Overview of methods, areas, and instrumentation of modern chemical research, including hands-on laboratory experiences and written and oral presentations of a research project. Prerequisite: score of 4 or 5 on the AP Chemistry examination or Department permission.

Credits: 2.

CHEM 040 - Introduction to Research

Overview of methods, areas, and instrumentation of modern chemical research, including hands-on laboratory experiences and written and oral presentations of a research project. Prerequisite: score of 4 or 5 on the AP Chemistry examination or permission of department.

Credits: 2.

CHEM 042 - Intro Organic Chemistry

Concepts for understanding chemistry of structurally simple organic compounds of everyday importance. These principles applied to more complex molecules such as polymers and biologically important compounds such as proteins, lipids, and carbohydrates. (Does not satisfy medical school entrance requirements for undergraduate preparation in organic chemistry.) Prerequisite: 31 or 23. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 26, 28, 44, 141 or 143.

Credits: 4.

CHEM 044 - Intro Organic Chemistry

Concepts for understanding chemistry of structurally simple organic compounds of everyday importance. These principles applied to more complex molecules such as polymers and biologically important compounds such as proteins, lipids, and carbohydrates. (Does not satisfy medical school entrance requirements for undergraduate preparation in organic chemistry.) NO LABORATORY.

Prerequisite: 31 or 23 or 25. May not be taken for credit concurrently with, or

following receipt of, credit for CHEM 26, 28, 42, 141 or 143.

Credits: 3.

CHEM 095 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 1-4.

CHEM 096 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 1-4.

CHEM 121 - Quantitative Analysis

Theory and practice of volumetric and gravimetric analysis. Theoretical discussion of indicators, buffers, pH, etc. Introduction to data analysis, spectrophotometry, and chromatography. Prerequisite: CHEM 032 or CHEM 036.

Credits: 4.

CHEM 131 - Inorganic Chemistry

Symmetry, group theory, molecular structure; valence shell; MO, crystal field, and ligand field bonding models; solid state, electron deficient, acid-base, and simple organo-metallic systems. Prerequisite: 142 or 144.

Credits: 3.

CHEM 141 - Organic Chemistry

Survey of properties and reactions of organic compounds with consideration of bonding, stereochemistry, mechanisms, principles of reactivity, spectroscopy, syntheses, and utilization. Designed for premedical, pre dental, and preveterinary students and for those majoring in biological and physical sciences. Prerequisites: 31, 32 or 35, 36; 141 for 142.

Credits: 4.

CHEM 142 - Organic Chemistry

Survey of properties and reactions of organic compounds with consideration of bonding, stereochemistry, mechanisms, principles of reactivity, spectroscopy, syntheses, and utilization. Designed for premedical, pre dental, and preveterinary students and for those majoring in biological and physical sciences. Prerequisites: 31, 32 or 35, 36; 141 for 142.

Credits: 4.

CHEM 143 - Organic Chemistry for Majors

Survey of principles and reactions of organic chemistry for chemistry majors. Prerequisites: 31, 32 or 35, 36; 143 for 144.

Credits: 4.

CHEM 144 - Organic Chemistry for Majors

Survey of principles and reactions of organic chemistry for chemistry majors. Prerequisites: 31, 32 or 35, 36; 143 for 144.

Credits: 4.

CHEM 146 - Adv Organic Laboratory

Laboratory practice in separation, purification, synthesis, identification, spectroscopy, and physical organic techniques as applied to organic compounds. For Chemistry majors. Prerequisite: 144.

Credits: 2.

CHEM 160 - Phys Chem for Bio Sci Students

Aspects of physical chemistry most pertinent to work in biological sciences: acid-base equilibrium, theory of solutions, thermodynamics and kinetics. Prerequisites: 32 or 36, Physics 42.

Credits: 3.

CHEM 161 - Physical Chemistry

Elementary quantum chemistry, bonding, spectroscopy, and statistical mechanics. Prerequisites: 32 or 36; Physics 42, Math. 121 or Chem. 167.

Credits: 3.

CHEM 162 - Physical Chemistry

Properties of gases and solutions; thermodynamics and kinetics. Prerequisites: 32 or 36; PHYS 42, MATH 121 or CHEM 167. Note: CHEM 162 may be taken before 161. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 160.

Credits: 0-3.

CHEM 167 - Physical Chemistry Preparation

Review of relevant mathematical and physical concepts as applied to physical chemistry. Prerequisite: CHEM 032 or CHEM 036; MATH 022. Cross-listed with: MATH 167.

Credits: 1.

CHEM 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

CHEM 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

CHEM 198 - Readings & Research

Credits: 1-6.

CHEM 201 - Advanced Chemistry Lab

Laboratory and discussion only. Laboratory problems requiring modern analytical, physical, and inorganic synthetic techniques. Prerequisites: 146, credit for or concurrent enrollment in 161 or 162 and 221.

Credits: 3.

CHEM 202 - Advanced Chemistry Lab

Laboratory only. Laboratory problems requiring modern analytical, physical, and inorganic synthetic techniques. Prerequisites: 201.

Credits: 2.

CHEM 205 - Biochemistry I

Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisite: CHEM 142 or CHEM 144. Cross-listed with: BIOC 205 and MMG 205.

Credits: 3.

CHEM 206 - Biochemistry II

acids; nucleic acid based processes, such as replication and transcription; cellular information transfer, genomics, and proteomics. with: BIOC 206 and MMG 206.

Credits: 3.

CHEM 207 - Biochemistry Lab

Introduction to biochemical tools, including spectrometry, chromatography, and electrophoresis; natural and recombinant enzyme isolation; assays of DNA-modifying enzymes; computer-based structure/function exercises. Co-requisite: CHEM 205 or CHEM 206. Cross-listed with: BIOC 207 and MMG 207.

Credits: 2.

CHEM 214 - Polymer Chemistry

Polymer size and weight distributions. Kinetic models for step polymerization, addition polymerization, copolymerization. Physical properties, characterization of polymers in the solid state and in solution. Prerequisites: 144, 162. Alternate years.

Credits: 3.

CHEM 221 - Instrumental Analysis

Systematic survey of modern methods of chemical analysis. Fundamental principles and applications of spectroscopy, electrochemistry, and separation techniques. Prerequisites: Credit for or concurrent enrollment in 161 or 162.

Credits: 3.

CHEM 222 - Advanced Analytical Chemistry

In-depth coverage of selected modern instrumental methods of chemical analysis, emphasizing most recent developments in spectroscopy, electrochemistry, and separation techniques. Prerequisite: CHEM 221.

Credits: 3.

CHEM 223 - Mass Spectrometry

students in the course. Prerequisites: 142 or 144 and 221 or instructor's permission.

Credits: 3.

CHEM 224 - Chemical Separations

Theory and practice of chromatographic separations. Emphasis on gas-liquid, liquid-liquid, and liquid-solid chromatography. Prerequisite: CHEM 221. Alternate years.

Credits: 3.

CHEM 225 - Electroanalytical Chemistry

Principles of modern electrochemical analysis focusing mainly on finite current methods - voltammetry, polarography, chronoamperometry, cyclic voltammetry, etc. Introductory to modern operational amplifier instrumentation. Double layer theory and electron transfer kinetics. Prerequisite: 161. Alternate years.

Credits: 3.

CHEM 226 - Analytical Spectroscopy

Principles of optical spectroscopic methods of analysis. Emphasis on theory and practice of atomic spectroscopy and new molecular spectroscopic methods. Prerequisite: CHEM 221. Alternate years.

Credits: 3.

CHEM 227 - Spec Topics in Analytical Chem

Selected topics of current interest in analytical chemistry. New techniques and methodologies, especially in chemical instrumentation. Credit as arranged.

Credits: 1-3.

CHEM 228 - Spec Topics in Analytical Chem

Selected topics of current interest in analytical chemistry. New techniques and methodologies, especially in chemical instrumentation. Credit as arranged.

Credits: 1-4.

CHEM 231 - Adv Inorganic Chemistry

Advanced group theory; electronic transitions in metal complexes and spectroscopic analysis; inorganic substitution and electron transfer mechanisms; homogeneous and heterogeneous catalytic processes; bioinorganic chemistry.

Prerequisite: 131.

Credits: 3.

CHEM 234 - Organometallic Chemistry

Systematic survey of synthesis, properties, structures, bonding, and reactions of both main group and transition series organometallic compounds. Variation of structure and metal-carbon bond stability throughout periodic system. Prerequisite: 231. Alternate years.

Credits: 3.

CHEM 236 - Physical Inorganic Chemistry

magnetic resonance, Mossbauer spectroscopy, and optical activity. Prerequisites: 161, 231. Alternate years.

Credits: 3.

CHEM 237 - SpecTopic: Inorganic Chemistry

Areas of current interest involving inorganic systems such as bioinorganic, solid state and polymers with unusual properties. Credit as arranged.

Credits: 1-3.

CHEM 238 - SpecTopic: Inorganic Chemistry

Areas of current interest involving inorganic systems such as bioinorganic, solid state and polymers with unusual properties. Credit as arranged.

Credits: 1-3.

CHEM 241 - Advanced Organic Chemistry

Stereochemistry, reactivity criteria, reaction mechanisms, and synthetic methods stressed. Reactive intermediates such as carbanions, carbocations, carbenes, and free radicals used to systematize mechanistic discussions. Prerequisites: 142, 162.

Credits: 3.

CHEM 242 - Advanced Organic Chemistry

Detailed mechanistic descriptions of processes which may include enolate reactions and stereochemical considerations, addition processes such as halogenation, cycloadditions, hydroboration, hydride and metal-ammonia reductions, annulations such as biomimetic cyclizations, oxidation processes, rearrangements, eliminations, and examinations of approaches to multistep syntheses. Prerequisite: CHEM 241.

Credits: 3.

CHEM 251 - Physical Organic Chemistry

Structure-reactivity relationships, molecular properties and their interpretation. Methods and results of investigations of mechanisms of common organic reactions. Prerequisites: 142, 162. Alternate years.

Credits: 3.

CHEM 253 - Practical NMR Spectroscopy

Introduction to high resolution pulsed Fourier transform nuclear magnetic resonance spectroscopy. Chemical shifts, scalar coupling, relaxation, molecular symmetry considerations, chemical exchange effects. Prerequisite: CHEM 142 or CHEM 144, CHEM 161. Undergraduate only.

Credits: 3.

CHEM 257 - Special Topics in Organic Chem

Advanced level discussion of specific topics in organic chemistry of current interest such as photochemistry, carbenes, bioorganic chemistry, magnetic resonance, etc. Credit as arranged.

Credits: 1-3.

CHEM 258 - Special Topics in Organic Chem

Advanced level discussion of specific topics in organic chemistry of current interest such as photochemistry, carbenes, bioorganic chemistry, magnetic resonance, etc. Credit as arranged.

Credits: 1-3.

CHEM 262 - Chemical Thermodynamics

Systematic study of application of thermodynamics to chemical problems. Concepts of statistical thermodynamics introduced. Prerequisites: 161, 162. Alternate years.

Credits: 3.

CHEM 263 - Intro to Quantum Mechanics

General considerations of quantum mechanics. Development of techniques pertinent to application of quantum mechanics to chemical problems. Prerequisite: CHEM 161, CHEM 162. Alternate years.

Credits: 3.

CHEM 264 - Fundamentals of Spectroscopy

In-depth discussion of the theory of molecular states and transitions between them, with applications to electronic spectroscopy. Explicit treatment of vibrations in molecules. Prerequisites: 161, Math.121. Alternate years.

Credits: 3.

CHEM 265 - Statistical Mechanics

CHEM 161, CHEM 162; CHEM 263

Credits: 3.

CHEM 266 - Molecular Orbital Theory

Introduction to Huckel molecular orbital method. Energy levels and orbitals, molecular properties and their interpretation. Effects of substituents on electronic structure. Extensions of Huckel method. Prerequisites: 142, 161. Alternate years. UG only.

Credits: 3.

CHEM 267 - Special Topics in Phys Chem

Advanced discussion of physical chemistry and chemical physics, group theory, solid state, molecular orbital theory, irreversible thermodynamics, kinetics and mechanisms, solution theory, calculations, spectroscopy. Credit as arranged.

Credits: 1-4.

CHEM 268 - Special Topics in Phys Chem

physics, group theory, solid state, molecular orbital theory, irreversible thermodynamics, kinetics and mechanisms, solution theory, calculations, spectroscopy. Credit as arranged.

Credits: 1-4.

CHEM 282 - Senior Seminar

Oral and written presentation of a subject of current chemical interest.

Prerequisite: Audit of CHEM 381.

Credits: 1.

CHEM 285 - Special Topics

Credits: 1-3.

CHEM 286 - Special Topics

Credits: 1-3.

CHEM 291 - Undergrad Research

Special study in inorganic, analytical, physical, or organic chemistry with an assigned staff member. Findings submitted in written form. Prerequisite: Departmental permission. Credit as arranged with maximum of four hours per semester and 12 hours for the undergraduate program.

Credits: 1-4.

CHEM 295 - Advanced Special Topics

See Schedule of Courses for specific titles. UG only.

Credits: 1-3.

CHEM 296 - Advanced Special Topics

See Schedule of Courses for specific titles. UG only.

Credits: 1-3.

CHEM 342 - Natural Products: Alkaloids

The major classes of alkaloids surveyed from a biogenetic point of view. Classical and modern degradation methods, total syntheses and biosynthetic incorporation of labeled compounds. Prerequisite: Credit or concurrent enrollment in CHEM 242. Alternate years.

Credits: 3.

CHEM 344 - Natural Products: Terpenes

The chemistry of mono, sesqui, di and triterpenes, including degradations, structure proofs, total syntheses, rearrangement reactions, and biogenesis.

Prerequisite: Credit or concurrent enrollment in CHEM 242. Alternate years.

Credits: 3.

CHEM 363 - Quantum Chemistry

Applications of quantum mechanical techniques to problems of chemical interest.

Prerequisite: CHEM 263. Offered as occasion warrants.

Credits: 3.

CHEM 381 - Grad Seminar

Current problems and literature.

Credits: 1.

CHEM 382 - Grad Seminar

Current problems and literature.

Credits: 1.

CHEM 388 - Rsch Prob Conception&Solution

Independent origination of research problems and the methods of their solution.
Required of all doctoral course shall be completed at least six months in advance
of the Ph.D. dissertation defense, and in no case later than the end of the seventh
semester of Graduate studies at UVM.

Credits: 1.

CHEM 391 - Master's Thesis Research

Credits: 1-18.

CHEM 395 - Independent Lit Rsch Project

Reading and literature research culminating in the preparation of a comprehensive
and critical review of a topic of current interest in chemistry.

Credits: 1-12.

CHEM 491 - Doctoral Dissertation Research

Credits: 1-18.

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Biochemistry (B. S.)

College: [Agriculture and Life Sciences](#), [Arts and Sciences](#)

Department(s): [Biochemistry Program](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Arts and Sciences B. S. Requirements](#)

Specific Requirements

The Biochemistry core requires satisfactory completion of BIOL 1, 2 or BIOL 11, 12 (Introductory Biology); MATH 21, 22 (Calculus); PHYS 31, 42 with 21/22 (Physics); CHEM 35, 36 (Introductory Chemistry); CHEM 143, 144 (Organic Chemistry); CHEM 162 (Thermodynamics); BIOC/CHEM/MMG 205 (Biochemistry I); BIOC/CHEM/MMG 206 (Biochemistry II); BIOC/CHEM/MMG 207 (Biochemistry Lab); CHEM 221 (Instrumental Analysis); CHEM 282 (Senior Thesis); BOT 132 or BIO 101 (Genetics); MMG 102 or BIOL 103 (Cell Biology); and advanced Biochemistry electives.

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Biological Sciences Program

Colleges: [Agriculture and Life Sciences](#)

Faculty: Biological Sciences

Courses: [Biological Sciences \(BSCI\)](#)

Contact Information:

University of Vermont

Biological Sciences Program

108 Morrill Hall

146 University Place

Burlington, VT 05405

Phone: (802) 656-2980

Fax: (802) 656-2914

Email: bioscnscs@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~bioscnscs/> ↻

Related Programs:

- [Preveterinary Programs](#)

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Overview

Some of the most exciting and controversial developments in our society are in the biological sciences. Biotechnology is providing the opportunity for plant and animal cloning, genetic engineering of plants, animals, and microbes, in vitro fertilization, embryo transfer and sexing, and production of biologically-produced chemicals.

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Courses in Biological Sciences

BSCI 195 - Biological Sciences Seminar

Presentations and discussion of selected topics by students, staff, and invited guests. Suggested attendance for all First-Year and transfer students in Biological Science for one semester.

Credits: 1.

BSCI 196 - Biological Sciences Seminar

Presentations and discussion of selected topics by students, staff, and invited guests. Suggested attendance for all First-Year and transfer students in Biological Science for one semester.

Credits: 1.

BSCI 197 - Undergrad Research

Special study and research activity under direction of qualified staff member.

Requires written proposal and final project report. Prerequisite: Research advisor and Department Chair permission. Credit as approved with maximum of six hours for undergraduate program.

Credits: 1-6.

BSCI 198 - Undergrad Research

Special study and research activity under direction of qualified staff member.

Requires written proposal and final project report. Prerequisite: Research advisor and Department Chair permission. Credit as approved with maximum of six hours for undergraduate program.

Credits: 1-6.

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Biological Sciences (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Biological Sciences Program](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Biological Sciences Core Courses](#)

Specific Requirements

In conjunction with a personal faculty advisor, each student plans a curriculum appropriate for individual career goals. Students are urged to participate in undergraduate research and to work one-on-one with a faculty scientist on the cutting edge of research. While each program of study is personalized, all graduates must complete the College requirements and the following major requirements: Biological Sciences Core plus one semester each of anatomy, biochemistry, ecology, physiology, statistics, and two semesters of physics. In addition, each student must satisfactorily complete an undergraduate research project or two advanced biological science courses at the 200 level or above. These courses may be selected from the diverse offerings of departments throughout the University. This program requires the successful completion of 122 credit hours of courses to earn the Bachelor of Science degree.

Possible Curriculum

First Year

	Fall	Spring
Foundations 195, 196	3	3
Cultural Diversity ²	1-3	
BSCI 195 (seminar)	1	
Social Science ²	3	
Biology 1B, 2B	4	4

Chemistry 31, 32 ¹	4	4
Math 19 or 21		3
Physical Education Activities		1
Total	16-18	15

Sophomore Year

	Fall	Spring
Organic Chemistry 141, 142	4	4
Math 20 or 22	3	
English 1 or 50	3	
Genetics 132	3	
Electives ²	3	6
Statistics 141 ¹		3
Physical Education Activities		1
General Biology Course		3
Total	16	17

Junior Year

	Fall	Spring
Physics 11/12	4	4
Physics 21/22	1	1
Microbiology 101	4	
Anatomy	4	
Physiology		4
Research 197, 198 or Electives ²	3-4	6-9
Total	16-17	15-18

Senior Year

	Fall	Spring
Biochem. 201	3	
Biochem Lab 202	1	
Undergrad Res. 197, 198	3	3
Ecology ¹		4
Electives ²	8-11	8-11
Total	15-18	15-18

¹ Selected from list of alternative courses fulfilling requirements of the major.

² Electives include selection of courses to meet the College requirement for social sciences and the humanities and fine arts. Electives may be used for a double major,

minor, advanced biology, or simply general interest courses. Sequence of courses may be modified with guidance of advisor.

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Minor in Biological Sciences

College: [Agriculture and Life Sciences](#)

Department(s): [Biological Sciences Program](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Biological Sciences program. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may also enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Biology 1 and 2 plus a sequence of three semester courses (nine to 12 credits) in the biological sciences selected with advice of the faculty advisor and approved by the program chair. The courses are selected to provide a relevant extension of the student's major program into the biological sciences.

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Departments and Programs

Environmental Sciences Program (College of Agriculture and Life Sciences or The Rubenstein School of Environment and Natural Resources)

Colleges: [Agriculture and Life Sciences](#), [The Rubenstein School of Environment and Natural Resources](#)

Faculty: Environmental Sciences

Courses: [Environmental Sciences \(ENSC\)](#)

Contact Information

University of Vermont

The Rubenstein School of Environment and Natural Resources

Environmental Sciences Program

George D. Aiken Center

81 Carrigan Drive

Burlington, VT 05405

Phone: (802) 656-2691

Email: Alan.McIntosh@uvm.edu

Web Site (College of Agriculture and Life Sciences): <http://pss.uvm.edu/ENSC/>

Web Site (The Rubenstein School of Environment and Natural Resources):

http://www.uvm.edu/envnr/?Page=undergrads/enviro_sciences.html

Related Programs:

- [Environmental Sciences \(College of Arts and Sciences\)](#)

Academic Offerings

- Undergraduate Majors
 - Bachelor of Science (B. S.)
 - [Environmental Sciences](#)
Concentrations [*College of Agriculture and Life Sciences*]:

- Agriculture and the Environment
- Conservation Biology and Biodiversity
- Ecological Design
- Environmental Analysis and Assessment
- Environmental Resources
- Water Resources

Overview

Students with an aptitude for science and an interest in the quality of the environment can choose alternate pathways in pursuing a major in Environmental Sciences at UVM. The Rubenstein School of Environment and Natural Resources and the College of Agriculture and Life Sciences jointly offer a science-based education emphasizing the application of scientific skills and knowledge in addressing complex environmental problems. The Environmental Sciences major provides students with the fundamental knowledge and hands-on experience to identify, analyze, and solve "real world" environmental problems arising from human activities.

The College of Arts and Sciences offers a science education with an emphasis on basic science approaches to understanding the environment. See the [Environmental Sciences Program in the College of Arts and Sciences](#) for more information.

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Courses in Environmental Sciences

ENSC 001 - Intro Environmental Sciences

Emphasizes the impacts of human activity on the environment. Attention to resources at risk and pollutant fate and effects on ecosystems.

Credits: 3.

ENSC 101 - Pollutant Mvmt/Air, Land & Water

Physical, chemical, and biological aspects of pollutant behavior from source to ultimate fate. Laboratory methodologies for measuring pollutants and predicting their transport, behavior, and fate. Prerequisites: 1; Biology 1, 2; Chemistry 31, 32; Math. 19, 20; co-requisite Chemistry 42.

Credits: 4.

ENSC 130 - Global Environmental Assessment

Assessment of human impacts on the global environment. Hands-on application of satellite remote sensing and geographic information systems to address key environmental issues. Prerequisite: BIOL 001 or BOT 004, CHEM 023, or equivalent, MATH 019.

Credits: 3.

ENSC 185 - Special Topics

See Schedule of Courses for specific titles. Variable credit.

Credits: 1-12.

ENSC 195 - Internship

Professionally-oriented field experience under joint supervision of faculty and business or community representative. Prerequisite: Proposal and permission of ENSC Director; Junior standing; good academic standing; Maximum of six hours. Three can be applied to elected concentration with Director permission.

Credits: 1-6.

ENSC 196 - Independent Research

Special study and research activity under the directory of a faculty member. Prerequisite: Proposal and permission of ENSC Director; Junior standing; good academic standing. Up to six hours. Three can be applied to elected concentration with Director permission.

Credits: 1-6.

ENSC 201 - Recovery & Restor Altered Ecosys

Role of stress and disturbance and the natural process of recovery in aquatic and terrestrial ecosystems. Human efforts to modify, restore, and remediate altered ecosystems. Prerequisites: Natural Resources 103 or an intermediate-level ecology course; or instructor's permission. Environmental Sciences 101 strongly recommended.

Credits: 3.

ENSC 202 - Ecological Risk Assessment

Approaches used to identify, measure, and manage ecological risk. Problem formulation, characterization, uncertainty analysis, and risk management. Case studies. Prerequisite: ENSC 201, NR 140 or STAT 141; Senior standing, or Instructor permission.

Credits: 3.

ENSC 222 - Pollution Ecology

Impacts of pollutants on the structure and function of ecosystems. Examination of how air, land, and water influence ecological fate and effects of pollutants.

Prerequisites: Biology 1; Chemistry 23, Natural Resources 103 or equivalent ecology course. (Not offered for graduate credit.)

Credits: 3.

ENSC 285 - Adv Special Topics ENSC

See Schedule of Courses for specific titles. Prerequisites: Senior standing or instructor's permission. Variable credit. (Not offered for graduate credit.)

Credits: 1-12.

ENSC 299 - Environmental Sciences Honors

Honors project dealing with environmental sciences. Prerequisites: By application only; see program chair.

Credits: 3-6.

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Environmental Sciences (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Environmental Sciences](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)

Specific Requirements

Students may major in Environmental Sciences through the College of Agriculture and Life Sciences, the College of Arts and Sciences, or the School of Natural Resources. For general information about the Environmental Sciences curriculum, see [Studying the Environment](#).

Environmental Sciences majors through the College of Agriculture and Life Sciences must fulfill the following requirements for graduation:

- General CALS distribution requirements.
- Core distribution requirements for major (also fill distribution requirements): Animal Science 1, 230; Community Development and Applied Economics 2; Plant and Soil Science 11; Botany 160; Microbiology and Molecular Genetics 101.
- Environmental Science minimal basic science/quantitative courses (also fill distribution requirements): Biology 1, 2; Chemistry 31, 32; Chemistry 42¹; Geology 55 or Plant and Soil Science 161²; Math 19, 20; Natural Resource 140 or Statistics 141.
- Environmental Sciences foundation courses: ENSC 1, 101, 130, 201, 202.
- Concentration requirement, 14 credit hours in one of the following: **Agriculture and the Environment, Conservation Biology and Biodiversity, Ecological Design, Environmental Analysis and Assessment, Environmental Resources, Water Resources**. Detailed lists of courses for each concentration are available from the Program Director and the Office of the Dean.

¹ Students should consider taking Chemistry 141/142.

² Plant and Soil Science 161 is required for many advanced PSS courses in several curricular concentrations; most students should take this course.

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Departments and Programs

Environmental Studies Program

Colleges: [Agriculture and Life Sciences](#), [Arts and Sciences](#), [Education and Social Services](#), [The Rubenstein School of Environment and Natural Resources](#)

Faculty: Environmental Studies

Courses: [Environmental Studies \(ENVS\)](#)

Contact Information:

*University of Vermont
Environmental Program
Bittersweet
153 South Prospect St.
Burlington, VT 05401*

Phone: (802) 656-4055

Fax: (802) 656-8015

Email: Elizabeth.Getchell@uvm.edu

Web Site: <http://www.uvm.edu/~envprog/>

- [Degree Requirements and Curriculum](#)

Academic Offerings

- Bachelor of Science (B. S.)
 - [Environmental Studies](#)
[College of Agriculture and Life Sciences]

Overview

Environmental Studies is a University-wide undergraduate environmental curricular option directed by the Environmental Program in cooperation with several colleges and professional schools. This option is one of UVM's most distinctive and popular academic programs — unique nationally in its breadth and interdisciplinary nature.

Students entering UVM may apply for admission to Environmental Studies through several of the undergraduate divisions. Choice of the appropriate college or school will depend on the individual's interests, career and educational objectives.

The Environmental Program involves students and faculty from throughout the University, as well as community professionals, recognizing that study of the environment must draw upon all academic disciplines and professional fields. The activities of the Program include undergraduate education, research, and community service programs dedicated to the study and improvement of the cultural and natural environments essential to the quality of life on earth.

The Program serves a wide range of environmental interests, with its primary mission being undergraduate education, and its primary focus the individual student. Working closely with the faculty, each student plans an individualized program that combines a broad, comprehensive understanding of the environment with depth in a specific discipline or profession. Major concentrations can be in the natural or technical sciences, the humanities or arts, the social sciences or professions, or broadly interdisciplinary.

Many graduates continue their education in graduate or professional schools; others work in public and private sectors in highly diverse fields throughout Vermont, the nation, and in countries around the globe.

Students enrolled in Early Childhood, Elementary Education and Physical Education may complete the major concentration in Environmental Studies as a fulfillment of the liberal arts and sciences major requirement. Environmental Studies is not a Vermont State Department of Education approved endorsement area for Secondary Education.

Program offices and a Student Services Center are located in The Bittersweet, where students are encouraged to visit with the staff and faculty regarding their academic plans, to gain assistance with research or action projects, and to seek information about academic programs, internships, international study opportunities, graduate studies, and future careers.

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Courses in Environmental Studies

ENVS 001 - Intro to Environmental Studies

Survey of environmental studies examining ecological, socioeconomic, aesthetic, and technological influences determining quality of life on earth. Prerequisite: First-year/Sophomore standing or Instructor permission.

Credits: 4.

ENVS 002 - Internat'l Environmental Stds

A multidisciplinary analysis of the interaction of global and local variables in understanding and solving pervasive environmental problems. Prerequisite: First-year or sophomore standing.

Credits: 4.

ENVS 007 - Environmental Awareness

Selected current environmental issues from evolving political, religious, scientific, and social perspectives. For non-majors. Cannot receive credit for both ENVS 001 and ENVS 007

Credits: 3.

ENVS 095 - Special Topics

Introductory courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural areas management.

Credits: 1-4.

ENVS 096 - Special Topics

Credits: 1-3.

ENVS 100 - Environmental Theory

Comparative analysis of emerging concepts of human/environment relationships; the history, philosophy, and theoretical framework of environmental studies.

Prerequisites: 1,2.

Credits: 3.

ENVS 151 - Intermed Environmental Studies

Individual investigation of interdisciplinary areas of environmental studies with emphasis on academic and career choices and preparation for senior thesis/project. Prerequisites: Major in Environmental Studies; 1, 2; permission.

Credits: 3.

ENVS 152 - Environment Information Skills

This course focuses on the complexities of conducting environmental research in a networked information age by teaching information concepts, skills, and broad ranging resources. Prerequisite: ENVS 151, or concurrently enrolled in ENVS 151. Credits: 1.

ENVS 156 - Permaculture

Cross-listed with: PSS 156. Design of agriculturally productive environments that have the diversity, stability, and resilience of the natural biosphere to harmoniously integrate landscape and people. Prerequisite: Three hours basic biological or ecological science, or permission. Credits: 2.

ENVS 173 - Landscape Natural History

This field-based course examines patterns and processes on local landscapes from an interdisciplinary perspective, with an emphasis on geology, soil science, plant ecology, and ecosystem geography. Prerequisites: ENVS 001; Credits: 3.

ENVS 174 - Nat Areas Conservation&Steward

Prerequisites: ENVS 001, NR 001, or Instructor permission. Credits: 3.

ENVS 177 - Intro to Landscape Restoration

Introduction to the history, philosophical foundations, and approaches to restoration of natural landscapes damaged by human activity and neglect. Case studies of selected local sites. Prerequisite: ENVS 001, NR 001, or Instructor permission. Credits: 3.

ENVS 178 - Environmental Ethics

Current approaches and problems in environmental ethics drawing on philosophy and case studies in animal rights, land ethics, deep ecology, wilderness protection, and human rights. Prerequisite: One environmental course; Junior standing. Credits: 0-3.

ENVS 179 - Ecofeminism

(Cross-listed with Women's Studies 179.) Investigation of the parallel dominations of women and nature, through analysis and reflection on ecofeminist theory, activism, and spirituality. Prerequisites: ENVS 001, ENVS 002 or WST 073, sophomore standing. Credits: 3.

ENVS 180 - Radical Environmentalism

Survey of radical environmental philosophy and activism from a liberation ethics perspective. Includes deep ecology, ecofeminism, environmental justice, and ecological resistance movements around the world. Prerequisite: ENVS 001, ENVS 002; Sophomore standing. Credits: 3.

ENVS 181 - Strategic Environmental Leadership

Theory and analysis of strategic environmental leadership as it varies with culture, ethnicity, and gender. Prerequisites: 1, 2, junior standing, permission of instructor. Credits: 1.

- ENVS 182 - Religion and Ecology
or ENVS 002; or
Credits: 3.
- ENVS 190 - Environmental Skills
Workshops to develop applied skills useful for environmental work and/or research. Topics vary by semester. Prerequisite: ENVS 001, ENVS 002.
Credits: 1-3.
- ENVS 191 - Environmental Practicum
Individual readings and research, internship, or field-based learning experience under direction of a faculty member or environmental practitioner. Credit arranged.
Prerequisite: Permission of course coordinator.
Credits: .5-9.
- ENVS 195 - Special Topics
Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course; Sophomore standing.
Credits: 1-6.
- ENVS 196 - Special Topics
Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course; Sophomore standing.
Credits: 1-6.
- ENVS 197 - Student Designed Course
Course Student-taught courses beyond the scope of existing formal courses in environmental studies. Developed according to Program guidelines, with sponsorship by interested faculty. Prerequisites: 1, 2, permission.
Credits: 1-3.
- ENVS 201 - Research Methods
Planning, design, and methods for the required senior thesis or project. Includes literature review and proposal writing. Prerequisites: 151, junior standing. (Not offered for graduate credit.)
Credits: 3.
- ENVS 202 - Senior Project and Thesis
Senior level project or thesis under faculty direction. Prerequisites: 201, permission of Environmental Program. Credits arranged. (Not offered for graduate credit.)
Credits: 1-9.
- ENVS 203 - Honors Thesis
Undergraduates only.
Credits: 1-9.
- ENVS 204 - Seminar Environmental Studies
Review and discussion of current environmental research and literature.
Prerequisites: 1, 2, junior or senior standing. (Not offered for graduate credit.)
Credits: 1-3.

ENVS 284 - Teaching Assistantship

Students gain practical teaching experience through assisting with instruction, evaluation, and reflection. Tasks may include: leading discussion sessions, grading, and developing course materials. Prerequisites: Senior standing or permission of instructor, concurrent teaching assistant in ENVS course. Variable credit. May be repeated. UG only.

Credits: 1-2.

ENVS 289 - Environmental Economics

Application of economic theory and methods to environmental problems and policies. Includes cost-benefit analysis and economic incentives as tools for environmental problem solving. Prerequisites: 1, three hours intermediate economics. For students in Arts and Sciences: Economics 11-12, intermediate course in ENVS. UG only.

Credits: 3.

ENVS 290 - Environmental Policy

Public policy dimensions of natural resource management and environmental protection; U.S. historical context; policy analyses of contemporary issues; administration of environmental resource institutions. Prerequisites: Six hours of intermediate or advanced courses in ENVS or related areas. UG only.

Credits: 3.

ENVS 291 - Advanced Environmental Pract

Individual readings and research, internship, or field-based learning experience at the advanced level, under direction of faculty member or environmental practitioner. Prerequisite: ENVS 001, ENVS 002; Senior/Graduate standing.

Credits: 1-12.

ENVS 293 - Environmental Law

Principles of environmental law, including legal research methods, threshold issues, case law, trial procedure, and international comparisons in aspects of air, land, and water law. Prerequisite: Junior standing.

Credits: 3.

ENVS 294 - Environmental Education

Philosophy, concepts, and strategies of environmental education, emphasizing integration of environmental concerns into formal and nonformal educational programs for youth and adults. Prerequisite: Six hours of intermediate or advanced courses in Environmental Studies or related areas.

Credits: 3.

ENVS 295 - Advanced Special Topics

Advanced courses of current areas of interest which may vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course at 100 level; Junior standing.

Credits: 0-6.

ENVS 296 - Advanced Special Topics

Advanced courses of current areas of interest which may vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management.

Prerequisites: One environmental course at 100 level, junior standing. UG only.

Credits: 1-6.

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Environmental Studies Degree Requirements and Curriculum

College: [Studying the Environment](#)

Department(s): [Environmental Program](#)

Degree Requirements

Students must complete the distribution and credit-hour requirements of their college or school and one of the following programs. Incoming students will be assigned an advisor in the Environmental Program who will assist in selecting a major or minor program.

Curriculum

The curriculum in Environmental Studies offers students several alternatives leading to an individualized program of studies. The Major in Environmental Studies provides a unique academic program for the student seeking an interdisciplinary major leading to the B. S. or B. A. degree, with opportunity for Honors Studies. The Minor in Environmental Studies fulfills the minor requirement for students in the College of Arts and Sciences and is available as an elective minor in other schools and colleges. For selected students, a double major offers the opportunity for combining interdisciplinary studies with a traditional major.

Major in Environmental Studies

This interdisciplinary major offers students the opportunity to combine studies in several disciplines and professional fields. In addition to a core of interdisciplinary courses, each student's program includes an individually-designed plan of study directed toward newly-developing careers and graduate study programs. It is equally suited to the student seeking a broad liberal education with an environmental emphasis and to the student focusing on a particular science, humanities, social studies, or technical discipline.

The Major in Environmental Studies is a selective program for qualified students with well-conceived academic goals. Admission to the major (regardless of declared major at the time of admission to UVM) requires submission of an application to the Environmental Program during the sophomore year, approval of the Director, and successful completion of Environmental Studies 151. In addition to course requirements,

this major includes a required senior research thesis or project that may qualify for program, college, or school honors recognition. Requirements for Secondary Education majors differ. Consult the appropriate sections of this catalogue for the exact requirements of each college or school.

Environmental Studies Major Core

Required Courses	Credit Hours
Intro. to Environmental Studies (ENVS 1)	4
International Environmental Studies (ENVS 2)	4
Intermediate Environmental Studies (ENVS 151)	3
Research Methods (ENVS 201)	3
Senior Project and Thesis (ENVS 202/203) (Planned and designed in ENVS 201; credit arranged in consultation with senior thesis advisors)	6 - 12

Individually-Designed Program

Required Courses	Credit Hours
Individually-designed program of studies (Intermediate and advanced courses, including courses in natural sciences, humanities, social sciences, and international studies)	18 - 30

Students are strongly encouraged to undertake internships, independent projects, study abroad, and cross-cultural experiences.

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Environmental Studies (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Environmental Studies](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Environmental Studies Degree Requirements and Curriculum](#)

Specific Requirements

The Major in Environmental Studies is an interdisciplinary program available to qualified students upon approval of the Director of the [Environmental Program](#).

Environmental Studies students majoring through the College of Agriculture and Life Sciences must complete a minimum of 122 credit hours, including ENVS 1, 2, 151, 201, and 202: 30 credit hours of approved environmentally-related courses at the 100 level or above, including three hours at the 200 level, with at least one course in each of the following areas — natural sciences, humanities, social sciences, and international studies (may be fulfilled with study abroad experience).

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Academic Offerings

College: [Agriculture and Life Sciences](#)

Undergraduate Degrees

- Bachelor of Science (B. S.)
 - Animal Science
 - [Dairy Production / Farm Management Concentration](#)
 - [Equine Science Concentration](#)
 - [General Animal Science Concentration](#)
 - [Preveterinary / Preprofessional Science Concentration](#)
 - [Biochemistry](#)
 - [Biological Sciences](#)
 - Botany
 - [General Botany Concentration](#)
 - [Ecology and Environmental Biology of Plants Concentration](#)
 - [Plant Molecular Biology Concentration](#)
 - Community Development and Applied Economics
 - [Community and International Development Concentration](#)
 - [Agricultural and Resource Entrepreneurship Concentration](#)
 - [Environmental Sciences](#)
 - Agriculture and the Environment Concentration
 - Conservation Biology and Biodiversity Concentration
 - Ecological Design Concentration
 - Environmental Analysis and Assessment Concentration
 - Environmental Resources Concentration
 - Water Resources Concentration
 - [Environmental Studies](#)
 - [Microbiology and Molecular Genetics](#)
 - [Nutrition and Food Sciences](#)
 - Plant and Soil Science
 - [Agroecology Concentration](#)
 - [Horticulture Concentration](#)
 - [Environmental Soil Science Concentration](#)

- [Self-Designed Major](#)
- [Sustainable Landscape Horticulture](#)

Undergraduate Minors

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- [Animal Science](#)
- [Biological Sciences](#)
- [Botany](#)
- Community and International Development
 - [Applied Design](#)
 - [Consumer Affairs](#)
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 - [Community and International Development](#)
- [Dietetics](#)
- [Environmental Studies](#)
- Microbiology and Molecular Genetics
 - [Microbiology](#)
 - [Molecular Genetics](#)
- [Nutrition and Food Sciences](#)
- Plant and Soil Science
 - [Plant and Soil Science](#)
 - [Sustainable Agriculture](#)

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College of Agriculture and Life Sciences Honors Programs

College: [Agriculture and Life Sciences](#)

- [College Honors Program](#)
- [Justin Morrill Honors Program](#)
- [Preveterinary Honors Program](#)

College Honors Program

The College Honors Committee promotes and encourages independent study by recognizing those students who especially excel in their creative, innovative, responsible, and independent pursuit of study. Honors Committee Guidelines for student projects may be obtained in the Student Services office in Morrill Hall or they are available on the [CALS web page](#) ↗.

Independent study can be an important aspect of a student's education. Undergraduate research, independent projects, and internships or field practica are examples of independent study which benefit students as they pursue graduate study or seek employment. Over the years a number of undergraduate research projects have been published in well-known scientific journals; and manuals, videotapes, and other products of special projects have been incorporated into classes to enhance the learning environment in the College.

The completed study, in a form appropriate to the area of study, is evaluated first by a departmental review committee. Independent studies of the highest quality will be chosen for College Honors by the Honors Committee. Students are recognized at College Honors Day.

Justin Morrill Honors Program

The Justin Morrill Honors Program in the College of Agriculture and Life Sciences (CALS) is a four-year program designed for highly qualified and motivated students

desiring an academically challenging undergraduate experience in the broad areas of the life sciences and agriculture. Justin Morrill Scholars will be engaged in honors studies throughout their academic careers to include first-year seminars conducted by renowned scholars from the University of Vermont and other institutions. They will enroll in special honors courses in the college and will have the opportunity to do independent research with faculty from CALS and across campus. Cultural events and field trips will complement the strong academic component. Entering first-year students with outstanding academic records will be invited to participate in the program. Scholars will be required to maintain a minimum grade point average of 3.5, participate in program activities, enroll in honors classes and successfully complete a Senior Honors Thesis.

Matriculated students in CALS who demonstrate academic excellence during the course of their program may also apply to become a Justin Morrill Scholar.

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Agriculture and Life Sciences Preveterinary Programs

College: [Agriculture and Life Sciences](#)

Departments: [Animal Science](#), [Biological Sciences](#)

UVM/Tufts School of Veterinary Medicine Program

The UVM College of Agriculture and Life Sciences and Tufts School of Veterinary Medicine in Massachusetts offer a seven-year B.S./D.V.M. program to selected honors students. Students who meet rigorous eligibility criteria may enroll for three years of study at UVM majoring either in Animal Science or Biological Sciences. After completion of about 90 credits with a minimum GPA of 3.25 each year, the student enters Tufts School of Veterinary Medicine. The student will be awarded a B.S. degree from The University of Vermont following the successful completion of the first year of the D.V.M. program at Tufts. The successful student will earn a D.V.M. degree from Tufts School of Veterinary Medicine after the fourth year at Tufts.

Prospective students must apply to both UVM and Tufts University. Both applications may be obtained from the UVM Admissions Office. Candidates' files are first reviewed at Vermont, and admissible student applications are then forwarded to Tufts for their evaluation. Students will be notified of the results of these reviews through the UVM admissions process. Absolute standards may vary from year to year, but this is an intensive program with limited places. We expect that successful candidates will have:

1. Excellent grades in high school biology, chemistry, physics, and mathematics. It will be advantageous to have completed or be enrolled in AP (advanced placement) biology, AP calculus, and AP chemistry.
2. Standardized test scores at or above the 80th percentile nationally.
3. A class rank in the top ten percent of their high school class.
4. Some appropriate animal and/or veterinary experience.

It is important to recognize that some excellent students may not be admitted to the joint B. S./D.V.M. because of space limitation. These students may be admitted to UVM as preveterinary students and complete four years at UVM, graduate with a B. S. degree, and apply to any of the veterinary schools in the nation. There are many options to meet individual educational goals.

The specific courses to be taken for this option start with the Core Program of the College as discussed previously. In addition, each student will be required to successfully complete the following courses and credit hours within the three-year period:

Course	Credit
Biology	8
Calculus	4 or 6
Inorganic Chemistry	8
Organic Chemistry	8
Biochemistry	4
Physics	10
Microbiology	4
General Biology	3
Anatomy	3
Physiology	3
Genetics	3
Ecology	3
Undergraduate Research	6
English 50 (recommended)	3

Note: Beginning Fall 2003, Tufts offers a guaranteed admission program for students in their sophomore year at UVM. Students will apply directly to Tufts, and, if accepted, will be guaranteed admission to Tufts Veterinary School after completing their B.S. degree at UVM. The 3+4 UVM/Tufts early decision high school program is being discontinued.

UVM/Massey University Veterinary School Program


The UVM College of Agriculture and Life Sciences and Massey University Veterinary School in New Zealand offer a B.S./B.V.Sc program. Their B.V.Sc degree is equivalent to the D.V.M. or V.M.D. degree offered in the United States since Massey University is accredited by the American Veterinary Medical Association (AVMA). Massey has guaranteed admission for the top 5 UVM applicants each year.

The specific courses to be taken for this option start with the Core Program of the College. In addition, each student will be required to successfully complete the following courses and credit hours. The student must have maintained a minimum GPA of 3.0 in the sciences, and must also have met the required minimum score for the Graduate Record Exam (GRE) tests.

Course	Credit
Biology	8
Inorganic Chemistry	8

Organic Chemistry	8
Physics	10
Anatomy & Physiology of Domestic Animals	4

Applications will be made directly to Massey University during the Junior or Senior year at UVM and all decisions will be made by the Massey University Admissions Committee.

For information regarding admissions and/or applications to these exciting programs, contact the [Admissions Office](#) , 194 S. Prospect Street, Burlington, VT 05401-3596. For specific program information contact Dr. Karen Plaut, Chair, Animal Science, College of Agriculture and Life Sciences, 102 Terrill Hall, UVM, Burlington, Vermont 05405, 802-656-0155 or e-mail kplaut@uvm.edu.

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College of Agriculture and Life Sciences Preprofessional Programs

College: [Agriculture and Life Sciences](#)

Preprofessional Preparation

Students striving for admission to professional colleges, such as dentistry, medicine including naturopathic, chiropractic, osteopathic, and veterinary medicine, can meet the undergraduate requirements for these programs through enrollment in the College of Agriculture and Life Sciences. Upon admission, each student will be assigned a faculty advisor knowledgeable in preprofessional preparation. Competition for admission to professional schools is very keen, and a superior academic record throughout an undergraduate program is necessary to receive consideration for admission. Due to the intense competition, only a small percentage of those first-year students declaring an interest in professional schools are admitted after completion of the baccalaureate. Consequently, students must select a major, in an area of their choice, to prepare them for a career other than medical sciences. The preprofessional requirements will be met concurrently with the major requirements for the B. S. degree. Students interested in human medical sciences often enroll in either biochemistry, biological sciences, nutrition and food sciences, microbiology, or molecular genetics. Those interested in veterinary medicine usually enroll in animal science or biological sciences.

Each student prepares a four-year program of courses, with the guidance of a faculty advisor, to meet requirements for a B. S. degree in their major. It is recommended that students complete the following courses to meet minimum requirements of most professional schools. It is the responsibility of each student to contact the professional schools of choice to determine the exact entrance requirements.

Human Medical and Dental Schools:

Topic	Course
Biology with laboratory	Biology 1,2
Chemistry with laboratory: inorganic	Chemistry 31, 32

Chemistry with laboratory:
organic Chemistry 141, 142

Physics with laboratory: with
math Physics 11/21, 12/31

Physics with laboratory: with
calculus Physics 31/21, 42/31

Mathematics (requirement
varies) Math. 19, 20

Humanities, Social Sciences,
Languages

Students must complete the minimum College requirements in this area that includes English composition and speech. Advanced composition and additional courses in this area are encouraged as time allows.

Veterinary Medical Schools:

All of the courses listed above under Human Medical Schools plus:

Topic	Course
Biochemistry	Ag. Biochemistry 201/202
Written English	English 50 or 53
Genetics	Botany 132 or Biology 101
Microbiology	Micro. and Mol. Genetics 101
Nutrition	Animal Sciences 43

Several schools require a course in introductory animal sciences, vertebrate embryology, or statistics. Students should consult their advisor regarding specific requirements for the various veterinary schools.

Finally, both human and veterinary medical schools want to see a history of interest in medicine. It is important for students to work with physicians or veterinarians and gain first-hand knowledge of their chosen profession. Volunteer or paid work in hospitals, nursing homes, or emergency centers is important. Commercial farm experience is also valuable for preveterinary students.

Students applying to the College of Agriculture and Life Sciences who express an interest in medicine or preveterinary medicine should present evidence of high performance in high school level science and mathematics courses, plus additional supporting documentation such as high SAT scores, strong letters of recommendation, and a motivational summary statement.

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College of Agriculture and Life Sciences Regulations Governing Academic Standards

College: [Agriculture and Life Sciences](#)

See also: [Degree Requirements](#), [CALs Core Curriculum](#)

The College of Agriculture and Life Sciences (CALs) Studies Committee reviews the semester grades of all students in the college whose semester or cumulative grade-point average falls below the 2.00 minimum, as well as the academic progress of all students placed on academic probation the previous semester. Detailed information may be obtained from the CALs Student Services Office, 106 Morrill Hall, (802) 656-2980.

Guidelines

A student whose semester grade-point average falls below a 2.00 will be placed "on trial" and will be given a target semester average to achieve by the end of the following semester. A student whose semester grade-point average is below a 1.00, or who fails to achieve the stated target average while "on trial," may be placed on "intermediate trial." Any student with a prolonged history of poor grades, including students who consistently fail to achieve the target semester average, may be placed on "final trial." A student who does not achieve the target semester grade-point average while on "final trial" is a candidate for dismissal from the University.

Appeal

A student may appeal a dismissal by submitting a written appeal to the CALs Studies Committee within two working days of the receipt of the dismissal letter. The student will be asked to appear in person before the Studies Committee to appeal the case.

Continuing Education and Readmission

A student who has been dismissed from the College may take up to six credits of course work through UVM Continuing Education in an attempt to improve his/her grades. To gain readmission to the College, the student must achieve no less than a 2.67 semester average on the six credits. Dismissed students may enroll in six credits at another

institution, and should work with the Office of Transfer Affairs to insure transferability.

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College of Agriculture and Life Sciences Degree Requirements

College: [Agriculture and Life Sciences](#)

See also: [CALC Core Curriculum](#), [Regulations Governing Academic Standards](#)

All programs in the College of Agriculture and Life Sciences lead to the Bachelor of Science degree and require:

- A. The successful completion of a minimum of 120 credit hours of course work plus two credit hours in physical education.
- B. A minimum cumulative grade-point average of 2.00.
- C. Completion of the CALS Core Curriculum (see below)
- D. Completion of AGRI 195, "New Beginnings" by all first semester first-year students in the College of Agriculture and Life Sciences.
- E. One course addressing race relations and ethnic diversity for all (incoming first-year, incoming transfer and internal transfer) CALS students. Students may enroll in EDSS 11, the one-credit Race and Culture course, or may choose from a CALS faculty-approved list of alternative 3-credit courses: ALANA 51, ALANA 55, SOC 19, SOC 31, SOC 118, SOC 119, ANTH 187, EC 153, GEOG 60, HST 60, HST 68, POLS 29, POLS 129, CMSI 160, ENG 57. Students choosing the 3-credit course option satisfy 3 of the 6-credit social science distribution requirement.
- F. All courses as specified in individual program majors.

The applicability of courses to specific areas is based on content and not departmental label. Courses taught in the College of Agriculture and Life Sciences can be used to fulfill knowledge core curriculum requirements; however, they must be taken outside the department in which the student's program of study is located. Applicability of courses to fulfill requirements rests with the student's advisor and, if necessary, concurrence of the Dean of the College.

Students in the College of Agriculture and Life Sciences may not take more than 25 percent of their course credits in the School of Business Administration.

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College of Agriculture and Life Sciences Core Curriculum

College: [Agriculture and Life Sciences](#)

See also: [Degree Requirements](#), [Regulations Governing Academic Standards](#)

A. Knowledge

Students develop a fundamental base of knowledge that will serve as a foundation for lifelong learning.

1. Science: Students use the scientific method to understand the natural world and the human condition.
 - a. Physical and Life Sciences: Competency may be met by satisfactory completion of two courses in such subjects as: anatomy, animal science, biology, botany, chemistry, ecology, entomology, food science, forestry, geology, genetics, microbiology, nutrition, physics, physiology, plant science, and soil science.
 - b. Social Science: Competency may be met by satisfactory completion of two courses in such subjects as: anthropology, community development, economics, geography, history, political science, public policy, psychology, and sociology.
2. Humanities & Fine Arts: Students develop an understanding and appreciation for the creative process and human thought. Competency may be met by satisfactory completion of two courses in such subjects as art: classics, history, literature, music, philosophy, religion, language, theater.

B. Skills

Students develop abilities and use tools to effectively communicate, analyze, problem solve, think critically and work with others.

1. Communication Skills: Students express themselves in a way that is easily understood at a level that is appropriate for the audience.
 - a. Oral: Students show confidence and efficacy in speaking before a group. Competency may be met by satisfactory completion of AGRI 183 (or equivalent) or AGRI 195 where primary focus is public speaking, and an additional course or series of courses in which students present a minimum of three graded speeches, in total, to a group.

- b. **Written:** Students effectively communicate in writing. Competency may be met by satisfactory completion of any English writing course and an additional course or series of courses that uses the writing process (redrafting) for a minimum of three graded papers in total.
2. **Information Technology:** Students demonstrate mastery of technology for communication, data gathering and manipulation, and information analysis. Competency may be met by satisfactory completion of AGRI 85 (or equivalent) or AGRI 195 and an additional course or series of courses that uses computers for a minimum of two applications in total.
3. **Quantitative Skills:** Students demonstrate the ability to understand and use numbers.
 - a. **Mathematics:** Students demonstrate the use of numbers for problem solving. Competency may be met by satisfactory completion of Math 9 or higher.
 - b. **Statistics:** Students demonstrate the use of numbers for data analysis and inference. Competency may be met by satisfactory completion of Statistics 111 or higher or NR 140.
 - c. **Quantitative Skills Application:** Students apply mathematics or statistics skills in a course relevant to their major. Competency may be met by satisfactory completion of one course that utilizes principles from math or statistics.
4. **Critical Thinking Skills:** Students demonstrate ability to comprehend, judge, and present written/oral arguments and to solve problems. Students learn how to distinguish between fact, conjecture, and intuition. Competency may be met by satisfactory completion of any course or series of courses in which students solve problems and analyze, judge, and construct arguments.
5. **Interpersonal Skills:** Students demonstrate the ability to work well with other people by understanding and using skills of leadership, conflict resolution, and group process. Competency may be met by satisfactory completion of any course or series of courses that includes leadership, working in diverse groups, conflict resolution, and group process.

C. Values

Students are exposed to values that are expressed through relationships with community, the environment, and themselves that are consistent with the mission of the College of Agriculture and Life Sciences and the University of Vermont campus compact known as "Our Common Ground."

1. **Citizenship & Social Responsibility:** Students develop an understanding, appreciation and empathy for the diversity of human experience and perspectives. Students are exposed to solving problems for a community and contributing to the common good. Competency may be met by satisfactory completion of EDSS 11 (or equivalent) and one other course or series of courses that exposes students to these values.
2. **Environmental Stewardship:** Students develop a sensitivity for the interconnected relationship between human beings and the natural world and the responsibility for stewardship of the environment. Competency may

be met by satisfactory completion of two courses or a series of courses that expose students to these values.

3. Personal Growth: Students develop an understanding and appreciation of a healthy lifestyle and a love for learning that will lead to continuous growth and development throughout their life-span. Students continue to improve self by developing and affirming the values of respect, integrity, innovation, openness, justice, and responsibility. Competency may be met by satisfactory completion of AGRI 195, two credits of physical education, and one other course or series of courses that exposes students to these values.

APPLY

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- College of Engineering & Mathematics
- College of Nursing & Health Sciences
- Rubenstein School of Environment and Natural Resources
- School of Business Administration
- Graduate College

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College of Arts and Sciences

Contact Information:

University of Vermont
 College of Arts and Sciences
 300 Waterman Building
 85 South Prospect St
 Burlington, VT 05405

Dean's Office Phone: (802) 656-3166
 Student Affairs Office Phone: (802) 656-3344
 Fax: (802) 656-4529
 Administrative Office E-mail: a-sdean.admin@uvm.edu
 Student Affairs Office E-mail: a-sdean.student@uvm.edu
 Web Site: <http://asweb.uvm.edu/>

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(Governing Independent Study, College Honors, Study Abroad, Transfer into the College, Academic Standards)

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The College of Arts and Sciences at UVM combines the advantages of a small liberal arts college and the resources of a major research institution. It provides students with a sound liberal education through close interaction with nationally and internationally noted scholars. This close interaction helps students acquire knowledge and scholarly discipline that enables them to think critically about issues they will confront in their professional and personal lives. The College's academic programs acquaint students with the intellectual, cultural and aesthetic heritage of our complex world. Our programs also seek to prepare students for entry into rewarding careers in a variety of fields and for advanced study that may be prerequisite to other opportunities. More and more professional schools, corporate managers and graduate schools seek individuals who have a fine liberal arts background.

In UVM's College of Arts and Sciences students are encouraged to develop depth and breadth of knowledge, and critical thinking and communication skills that are the hallmarks of a liberal education. Students begin developing these skills in a first-year seminar, and as they complete degree requirements they have the opportunity to explore a wide range of disciplines spanning literature, the humanities, the fine arts, foreign languages, the natural and social sciences and mathematics. The College offers over forty majors from which students may choose.

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- [Sociology Department](#)
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Departments and Programs

ALANA U.S. / Ethnic Studies Program

Colleges: Arts and Sciences

Faculty: ALANA U.S. / Ethnic Studies

Course: ALANA U.S. / Ethnic Studies (ALAN)

Contact Information:

*University of Vermont
ALANA Studies Program
A504 Old Mill Annex
94 University Place
Burlington, VT 05405-0114*

Phone: (802) 656-2263

Fax: (802) 656-8653

Email: Stella.Moyser@uvm.edu

Web Site: <http://www.uvm.edu/~alana/>

Academic Offerings

- Undergraduate Minors
 - ALANA U.S. Ethnic Studies

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Courses in ALANA U.S.Ethnic Studies

ALAN 051 - Intr to ALANA US Ethnic Studies

Survey of the experience of ALANA peoples in the U.S. as well as a theoretical analysis of issues of race, culture, gender, and diverse traditions in the American multicultural setting.

Credits: 3.

ALAN 055 - Racism and American Culture

Survey and analysis of racism in the development of American institutions and its effects upon ALANA groups and societies.

Credits: 3.

ALAN 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

ALAN 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

ALAN 158 - American Multicultrl Heritage

History and culture of ALANA groups, their role in and contributions to the American cultural heritage. Prerequisites: ALAN 051 or ALAN 055 or having previously satisfied the College of Arts and Sciences Race and Ethnicity requirement.

Credits: 3.

ALAN 159 - Am Cultrl Images ALANA Peoples

Comparative study of ALANA groups and the stereotypical and archetypal impressions projected on peoples of color in American society. Prerequisites: ALAN 051 or ALAN 055 or having previously satisfied the College of Arts and Sciences Race and Ethnicity requirement.

Credits: 3.

ALAN 191 - Field Experience: Internship

contract must be obtained from and returned to the ALANA Studies program during preregistration.

Credits: 3.

ALAN 192 - Field Experience Seminar

courses in appropriate field and program permission. A contract must be obtained from and returned to the ALANA

Credits: 3.

ALAN 195 - Intermediate Special Topics

Intermediate courses or seminars beyond the scope of existing ALANA offerings. See Schedule of Courses for specific titles. Prerequisite: Sophomore standing.

Credits: 3.

ALAN 196 - Intermediate Special Topics

Intermediate courses or seminars beyond the scope of existing ALANA offerings. See Schedule of Courses for specific titles. Prerequisite: Sophomore standing.

Credits: 3.

ALAN 197 - Readings and Research

Credits: 1-12.

ALAN 198 - Readings and Research

Credits: 1-12.

ALAN 269 - Cross-Cultural Psyc:Clin Persp

Introduction to issues posed for psychologists in their work with ALANA (African, Latino/a, Native and Asian American) and international populations. Critical appraisal of readings, research and case studies. Prerequisites: PSYC 1, 109. (Same as PSYC 269)

Credits: 3.

ALAN 277 - Sem in ALANA US Ethnic Studies

Interdisciplinary examination of theories on the position of ALANA peoples in U.S. culture and society. Emphasis on relationship between race, class, gender, and ethnicity. Prerequisites: Six hours in ALANA U.S. Ethnic Studies; admission to ALANA U.S. Ethnic Studies minor program. Not offered for graduate credit.)

Credits: 3.

ALAN 295 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departments. See Schedule of Courses for specific titles. Prerequisite: Junior standing. (Not offered for graduate credit.)

Credits: 3.

ALAN 296 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departments. See Schedule of Courses for specific titles. Prerequisite: Junior standing. (Not offered for graduate credit.)

Credits: 3.

ALAN 297 - Independent Study

Special topics in consultation with ALANA U.S. Ethnic Studies faculty. Prerequisites: Permission of program director; junior standing. (Not offered for graduate credit.)

Credits: 3.

ALAN 298 - Independent Study

Special topics in consultation with ALANA U.S. Ethnic Studies faculty. Prerequisites: Permission of program director; junior standing. (Not offered for graduate credit.)

Credits: 3.

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Minor in ALANA U.S. Ethnic Studies

College: [Arts and Sciences](#)

Department(s): [ALANA U.S. Ethnic Studies Program](#)

Requirements

In selecting courses from the ALANA U.S. Ethnic Studies listing for a minor, students should consult with an appropriate ALANA U.S. Ethnic Studies advisor and demonstrate that their course of study will have a U.S. multicultural dimension.

A total of 18 credit hours to include ALANA Studies 277, at least 12 hours of which must be at the 100 level or above, selected from the following: ALANA U.S. Ethnic Studies 51, 55, 95, 96, 158, 159, 191, 192, 195, 196, 277, 295, 296, 297, 298; Anthropology 160, 164, 169, 187; Economics 153; English 57, 66, 167, 170; Geography 60; History 60, 68, 168, 169, 187, 188, 189; Music 42, 44; Natural Resources 6; Political Science 129; Religion 80; Social Work 167; Sociology 19, 31, 119, 219; World Literature 16, 116, or appropriate Special Topics or seminar courses chosen in consultation with an ALANA U.S. Ethnic Studies advisor.

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Departments and Programs

Anthropology Department

Colleges: [Arts and Sciences](#)

Faculty: Anthropology

Courses: [Anthropology \(ANTH\)](#)

Contact Information:

University of Vermont

Anthropology Department

509 Williams Hall

72 University Place

Burlington, VT 05405-0168

Phone: (802) 656-3884

Fax: (802) 656-4406

Email: clongwel@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~anthro/>

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Courses in Anthropology

ANTH 021 - Human Cultures

Introduction to cultural anthropology focusing on the life ways of non-Western societies and how anthropologists study them.

Credits: 3.

ANTH 023 - Anthropology Third World Dev

A survey of the role of applied anthropology in the understanding and analysis of development efforts to alleviate (mostly) third world problems.

Credits: 3.

ANTH 024 - Prehistoric Archaeology

Examination of the origins and development of culture from the earliest human fossils through the appearance of civilization; the nature of archaeological data and interpretations.

Credits: 3.

ANTH 026 - Biological Anthropology

Introduction to the study of the evolution and physical variation of humanity from a biocultural perspective.

Credits: 3.

ANTH 028 - Linguistic Anthropology

human culture and human social interaction.

Credits: 3.

ANTH 064 - Native Americans of Vermont

Vermont's native peoples from their earliest appearance in the region until today. Archaeological and ethnographic data reviewed in the broader perspective of aboriginal Northeastern cultural history. Alternate years.

Credits: 3.

ANTH 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

ANTH 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

ANTH 160 - North American Indians

Ethnographic survey of major Native American cultures of Mesoamerica and the U.S. against background of aboriginal culture history, and problems of contact with European cultures. Prerequisite: ANTH 021. Alternate years.

Credits: 3.

ANTH 161 - Cultures of South America

Ethnographic survey of major native American cultures south of Mesoamerica against background of aboriginal culture history, and their relation to present day culture spheres. Prerequisite: 21. Alternate years.

Credits: 3.

ANTH 162 - Cultures of Africa

Ethnographic survey of representative native societies of sub-Saharan Africa and major colonial/immigrant minorities emphasizing changes resulting from colonialism, independence, and modernization. Prerequisite: ANTH 021. Alternate years.

Credits: 3.

ANTH 163 - South Pacific Cultures

Survey of major cultural areas of the South Pacific including problems of prehistory, contact with Western colonialism, and contemporary life. Prerequisite: ANTH 021. Alternate years.

Credits: 3.

ANTH 165 - Peoples of South Asia

Culture and social organization of peoples of Pakistan, India, Bangladesh, and Sri Lanka. Theoretical issues in anthropological analysis of these societies discussed. Prerequisite: ANTH 021. Alternate years.

Credits: 3.

ANTH 166 - Peoples of the Middle East

Culture and social organization of peoples living in lands from Morocco to Afghanistan, including a consideration of Islam. Prerequisite: ANTH 021. Alternate years.

Credits: 3.

ANTH 167 - Native Peoples of Canada

Traditional life-ways of the native peoples of Canada, Indian, and Inuit; contemporary issues in native life in Canada. Prerequisites: ANTH 021 or GEOG 052 or HST 065 or HST 066. Alternate years.

Credits: 3.

ANTH 169 - Latinos in the United States

Survey of peoples of Latino/Hispanic descent living in the U.S. Course examines their similarities and differences in history, ethnic identification, and cultural practices. Prerequisite: ANTH 021.

Credits: 3.

ANTH 172 - Women, Society & Culture

Cross-cultural treatment of women which emphasizes the interrelationships between female status, social organization, and ideological systems. Prerequisite: 21. Alternate years.

Credits: 3.

ANTH 178 - Sociolinguistics

Exploration of language and nonverbal interactions as cultural activities. Focus on rules and patterns people display appropriate to communication and social interaction. Prerequisite: 28.

Credits: 3.

ANTH 179 - Cultural Ecology

(Same as Geography 179.) Interrelationships of social groups and their natural environments and resource bases, with primary emphasis on nonindustrial cultures. Prerequisite: 21 or Geography 1. (taught on a rotating basis). Alternate years.

Credits: 3.

ANTH 180 - Psychological Anthropology

Cross-cultural study of the individual in a sociocultural context examining cognition and culture, symbols, alternative states of consciousness, human sexuality, deviance and madness, and ethnotherapy. Prerequisite: 21. Alternate years.

Credits: 3.

ANTH 181 - Law, War and Disorder

Introduction to the anthropology of law and conflict management emphasizing the cultural fora and social organization of disputes and efforts to deal with conflict.

Prerequisite: ANTH 021.

Credits: 3.

ANTH 187 - Race and Ethnicity

ANTH 021. Cross-listed with: SOC 119.

Credits: 3.

ANTH 188 - Historical Archaeology

Survey of field, lab, and archival research methods; specialized studies of material culture; selected topics on ethnicity in the Americas, gender and status.

Prerequisites: ANTH 024. Alternate years.

Credits: 3.

ANTH 189 - Aging in Cross-Cultural Persp

Aging from an anthropological perspective. Topics include the biology of aging; aging in hunting, pastoral, fishing, and horticultural societies; aging in contemporary ethnic America. Prerequisites: 21 or Sociology 20. Alternate years.

Credits: 3.

ANTH 190 - ISSP Thesis

Independent study for students enrolled in Integrated Social Sciences Program; final product is thesis. Prerequisite: Enrollment in ISSP courses.

Credits: 3.

ANTH 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 0-6.

ANTH 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

ANTH 197 - Readings & Research

Credits: 1-6.

ANTH 198 - Readings & Research

Credits: 1-12.

ANTH 200 - Field Work in Archaeology

Methods and techniques of archaeological investigation in field situations and the laboratory analysis of data. Prerequisites: 24, one 100-level course in anthropology or history, instructor's permission. Summers only.

Credits: 3-6.

ANTH 201 - Practicum & Internship

Supervised service or research integrating theoretical and practical anthropological issues. Prerequisite: Nine hours of anthropology. UG only.

Credits: 1-12.

ANTH 210 - Archaeological Theory

one 100-level

Credits: 3.

ANTH 220 - Develop & Applied Anthropology

politics of expertise. Prerequisites: ANTH 23, three Seminar examines the application of anthropological knowledge and methodologies to alleviate social problems around the world, with a special focus on the cultural 100-level courses, or instructor's permission. Alternate years.

Credits: 3.

ANTH 225 - Anthropological Theory

Schools of anthropological thought examined in relation to data on non-Western societies and the historical and social context in which the anthropologist works.

Prerequisites: ANTH 021, one 100-level course.

Credits: 3.

ANTH 228 - Social Organization

Examination of the basic anthropological concepts and theories used in the cross-cultural analysis of kinship and marriage. Prerequisites: ANTH 021, one 100-level course.

Credits: 3.

ANTH 250 - Museum Anthropology

The cultural context of selected archaeological and ethnographic collections at Fleming Museum; cataloguing, conservation, research, and interpretation of objects; exhibition design and ethical issues. Prerequisites: Junior standing; Anthropology, Art History, Studio Art majors and minors. Alternate years.

Credits: 3.

ANTH 283 - Colonialism

course, or ANTH 021, six hours in the social sciences. Alternate years.

Credits: 3.

ANTH 284 - Microethnography

Tape recorders and video cameras used to explore human patterns of communication; specifically phonemic, paralinguistic, haptic and kinesic detail, as well as ethnographic semantics. Prerequisite: 28 or Linguistics 101.

Credits: 3.

ANTH 290 - Meth of Ethnographic Field Wrk

Examination of theoretical and ethical premises of field work methodology with practical experience in participant observation, interviewing, the genealogical

method, and the recording of data. Prerequisite: Twelve hours of Anthropology.
Alternate years.

Credits: 3.

ANTH 295 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisites: ANTH 021, one 100-level course.

Credits: 1-6.

ANTH 296 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisites: ANTH 021, one 100-level course.

Credits: 1-6.

ANTH 297 - Advanced Readings & Research

Prerequisite: Junior/Senior standing.

Credits: 1-3.

ANTH 298 - Advanced Readings & Research

Prerequisite: Junior/Senior standing.

Credits: 1-3.

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Anthropology (B. A.)

College: [Arts and Sciences](#)

Department(s): [Anthropology](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours in Anthropology including 21, 24, 26, and 28; 225 or 228 (recommended for the junior year) and five additional courses, of which three should be at the 100 level and at least one at the 200 level.

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Minor in Archaeology

College: [Arts and Sciences](#)

Department(s): [Anthropology](#)

Requirements

This minor is not available to students pursuing degree programs not offered by the College of Arts and Sciences.

Archaeology: 24; 210; three from the following: 160, 161, 188, 200, 250.

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Minor in Social Anthropology

College: [Arts and Sciences](#)

Department(s): [Anthropology](#)

Requirements

This minor is not available to students pursuing degree programs not offered by the College of Arts and Sciences.

21; two topical courses plus one "peoples" course, or one topical and two "peoples" courses; and any 200-level course, except 200, 210, 297, 298.

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Minor in Sociolinguistics

College: [Arts and Sciences](#)

Department(s): [Anthropology](#)

Requirements

Sociolinguistics: 28; 178; two "peoples" courses from 160, 161, 162, 163, 165, or 166; 284 or Psychology 237.

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Departments and Programs

Area and International Studies Program

Colleges: [Arts and Sciences](#)

Faculty: Area and International Studies

Courses: [Area and International Studies \(AIS\)](#)

Contact Information:

University of Vermont

Area and International Studies Program

A507 Old Mill

94 University Place

Burlington, VT 05405

Phone: (802) 656-8665

Fax: (802) 656-1376

Email: kmckenna@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~global/> ↻

Academic Offerings

- Undergraduate Majors
 - Bachelor of Arts (B. A.)
 - [Area and International Studies](#)
 - [Asian Studies Concentration](#)
 - [Canadian Studies Concentration](#)
 - [European Studies \(Northern, Western, Mediterranean\) Concentration](#)
 - [Latin American Studies Concentration](#)
 - [Russian/East European Studies Concentration](#)
- Undergraduate Minors
 - Area and International Studies
 - [African Studies](#)

- [Asian Studies](#)
- [Canadian Studies](#)
- [European Studies](#)
- [Latin American Studies](#)
- [Middle East Studies](#)
- [Russia/East European Studies](#)

Overview

Entering students are invited to consider the option of concentrating in Area and International Studies. Courses in several academic disciplines can be combined so as to focus on a particular area of the world, thus providing an opportunity to test generalizations against the particular reality of a geographical area and its people.

Undergraduates who major in Area and International Studies usually accumulate sufficient credit to enable them also to fulfill department requirements in one of the social sciences, humanities, or foreign languages.

Major programs are available in the following five areas: Asia, Canada, Latin America, Russia/East Europe, Europe (Western, Northern, Mediterranean). Minor programs are also available in these areas, as well as in Africa and the Middle East.

The approach to undergraduate education combines exposure to the traditional disciplines with integrative knowledge and appreciation of a foreign culture and thus combines the broad liberal arts education with a more specific area competence.

During their first and sophomore years, students who plan to major in Area and International Studies should take the required foreign language courses as well as beginning courses in the humanities and social sciences which are prerequisites for subsequent required courses and also meet the general distribution requirements.

Students interested in concentrating in Area and International Studies are urged to contact the Director.

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Courses in Area & International Studies

AIS 007 - Directed Language Study
Credits: 3.

AIS 008 - Directed Language Study
Credits: 3.

AIS 009 - Directed Language Study
Credits: 3.

AIS 010 - Directed Language Study
Credits: 3.

AIS 091 - Introduction to Area
(A) Introduction to Canada: A team-taught introduction to Canada through interdisciplinary perspective. (B) Introduction to Russia and East Europe: An interdisciplinary overview from the perspectives of economics, fine arts, geography, history, political science, Russian language and literature, and sociology. (C) Introduction to Western Europe. Primarily designed for first-year students.
Credits: 3.

AIS 093 - So Africa: Politic/Race&Culture
An interdisciplinary introduction analyzing the forces that led to creation of that system of government known as Apartheid. Assessment of strategies and tactics of change.
Credits: 3.

AIS 095 - Introductory Special Topics
See Schedule of Courses for specific titles.
Credits: 1-3.

AIS 096 - Introductory Special Topics
See Schedule of Courses for specific titles.
Credits: 1-6.

AIS 191 - Internships
Approved programs of learning outside the classroom. Internships must be undertaken directly in the field and involve activity in which substantive learning about the program area can take place.
Credits: 1-6.

AIS 192 - Internships

Approved programs of learning outside the classroom. Internships must be undertaken directly in the field and involve activity in which substantive learning about the program area can take place.

Credits: 1-6.

AIS 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

AIS 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

AIS 197 - Readings & Research

Credits: 1-3.

AIS 198 - Readings & Research

Credits: 1-3.

AIS 291 - European Studies Seminar

Multidisciplinary study of Europe as a geocultural area primarily for European Studies majors. Content will vary by instructor from departments including, for example, Classics, History, Political Science. Prerequisite: Permission of instructor.

Credits: 3.

AIS 295 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: Permission by Executive Committee of International Studies. Other area courses offered by individual academic departments.

Credits: 1-3.

AIS 296 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: Permission by Executive Committee of International Studies. Other area courses offered by individual academic departments.

Credits: 1-3.

AIS 297 - Advanced Readings & Research

Independent study of a specific area subject or theme with an approved instructor.

Prerequisites: Junior/senior standing, and permission of area Program Director.

Credits: 1-6.

AIS 298 - Advanced Readings & Research

Independent study of a specific area subject or theme with an approved instructor.

Prerequisites: Junior/senior standing, and permission of area Program Director.

Credits: 1-6.

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Area and International Studies: Asian Studies Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Overview

In selecting courses from the Asian Studies listing, students must consult with an appropriate Asian Studies advisor and demonstrate in their choices thematic and/or geographic coherence.

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

[Asian Studies Course Offerings](#)

The Asian Studies major consists of at least 33 credit hours in courses from the Asian Studies listing (see Courses of Instruction; Asian Studies) to include the following:

- Completion of two years' (normally 16 hours) study of a language of the geographic subarea of concentration. No more than 16 hours of language study may be counted toward the major. For students who have demonstrated fluency in the language of the subarea of concentration (for instance, native speakers of the language), the language requirement will be waived. Such students will still be required to complete the 33-credit hour requirement.
- The remaining credit hours must include at least nine hours at the 100 level and three hours at the 200 level. These hours must be selected from at least three academic disciplines. Language courses may not be used to fulfill this requirement.

Note: Courses significantly but not entirely on Asia may be counted toward a

student's major requirements only if papers or projects relevant to their Asian subarea or their Asian thematic focus have been completed. The Dean's Office must receive written approval from the advisor in order for these courses to be counted toward the major.

Students who major in Asian Studies and minor in an Asian language may overlap only one course as is stipulated in the College of Arts and Sciences [Bachelor of Arts Degree](#) description.

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Asian Studies Course Offerings

The following courses are among the course offerings. **E, S**, indicates courses on East and South, subareas of Asian respectively. Also see Area and International Studies for special topic listings.

Courses Entirely on Asia

- [165 ANTH \(S\) Peoples of South Asia.](#)
- [8 ART \(E,S\) Asian Art.](#)
- [185 ART \(E\) Japanese Art.](#)
- [187 ART \(E\) Chinese Painting.](#)
- [188 ART \(S\) Indian Painting.](#)
- [192 ART \(E,S\) Intermediate Special Topics in Asian Art.](#)
- [285 ART \(E,S\) Seminar in Asian Art.](#)
- [1 CHIN \(E\) Elementary Chinese.](#)
- [2 CHIN \(E\) Elementary Chinese.](#)
- [51 CHIN \(E\) Intermediate Chinese.](#)
- [52 CHIN \(E\) Intermediate Chinese.](#)
- [101 CHIN \(E\) Advanced Chinese.](#)
- [102 CHIN \(E\) Advanced Chinese.](#)
- [201 CHIN \(E\) Advanced Conversation and Composition.](#)
- [202 CHIN \(E\) Advanced Conversation and Composition.](#)
- [50 HST \(E\) China and Japan to 1800.](#)
- [51 HST \(E\) China and Japan since 1800.](#)
- [150 HST \(E\) China: The 19th and 20th Centuries.](#)
- [151 HST \(E\) Modern Japan.](#)
- [152 HST \(E\) The Chinese Revolution.](#)
- [250 HST \(E\) Seminar in East Asian History.](#)
- [252 HST \(E\) Seminar on China.](#)
- [1 JAPN \(E\) Elementary Japanese.](#)

- [2 JAPN \(E\) Elementary Japanese.](#)
 - [51 JAPN \(E\) Intermediate Japanese.](#)
 - [52 JAPN \(E\) Intermediate Japanese.](#)
 - [101 JAPN \(E\) Advanced Japanese.](#)
 - [102 JAPN \(E\) Advanced Japanese.](#)
 - [201 JAPN \(E\) Studies of Japanese Texts.](#)
 - [202 JAPN \(E\) Studies of Japanese Texts.](#)
-
- [3 PHIL \(E\) Introduction to Philosophy: East and West.](#)
 - [121 PHIL \(E\) Chinese Philosophy I.](#)
 - [122 PHIL \(E\) Chinese Philosophy II.](#)
 - [221 PHIL \(E\) Topics in Chinese Philosophy.](#)
-
- [170 POLS \(S\) Politics and Social Change in India.](#)
 - [175 POLS \(E\) Government and Politics of China.](#)
-
- [21 REL \(E,S\) Introduction to the Study of Religion: Asian Traditions.](#)
 - [131 REL \(S\) Studies in the Hindu Tradition.](#)
 - [132 REL \(E,S\) Buddhism in India and East Asia: Classical and Mahayana Texts and Teachings.](#)
 - [134 REL \(S\) Buddhism in Sri Lanka: Elite and Popular Interactions.](#)
 - [141 REL \(E\) Religion in Japan.](#)
 - [145 REL \(E\) Religion in China.](#)
 - [240 REL \(E,S\) Studies in Asian Religions.](#)
-
- [110 WLIT \(E\) Chinese Literature in Translation.](#)

Courses Significantly on Asia

- [163 ANTH \(S\) South Pacific Cultures.](#)
-
- [206 EDFS \(E,S\) Comparative Education.](#)
-
- [1 GEOG \(E,S,W\) World Regional Geography.](#)
-
- [15 MUS \(E,S\) World Music Cultures.](#)
-
- [237 PSYC \(E,S\) Cross-Cultural Communication.](#)
-
- [20 REL \(E,S\) Introduction to the Study of Religion: Comparative.](#)
 - [101 REL \(E,S\) The Social Dimension of Religious Life.](#)
 - [104 REL \(E,S\) Mysticism, Shamanism, and Possession.](#)
 - [108 REL \(E,S\) Myth, Symbol, and Ritual.](#)
 - [168 REL \(E,S\) Contemporary Spiritual Life.](#)

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Area and International Studies: Canadian Studies Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Canadian Studies Course Offerings

The Canadian Studies major requires at least 30 credit hours to consist of the following:

- Three required courses: Area and International Studies 91, Introduction to Canada; History 66, Canadian History: 1867 to the Present; Area and International Studies 296, Seminar on Modern Canada.
- Seven additional courses, of which at least six must be at the 100 level or above, and of which at least five must be chosen from the following 100 percent Canadian content list: AIS 195, 196, 295; Anthropology 167; Art 180, 282 (when topic is Canadian); Bus. Admin. 234; English 157, 158; French 293, 285; Geography 52, 210; Geology 272, 273 (when this field course goes to Canada); History 65, 265, 165; Pol. Sci. 173.
- Majors will study French language through the intermediate level (French 52) or higher.

Majors are strongly encouraged to acquire an intermediate/advanced proficiency by completing at least French 201. Majors pursuing intermediate/advanced proficiency should consult with the Canadian Studies faculty of the Romance Languages Department to determine an appropriate plan of study.

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Canadian Studies Course Offerings

The following courses are among the course offerings. Also see Area and International Studies for special topic listings.

- [128 ANTH Linguistic Anthropology.](#)
- [167 ANTH Native Peoples of Canada.](#)
- [178 ANTH Sociolinguistics.](#)

- [180 ART North American Art: 1600-1900.](#)
- [282 ART Seminar in Western Art.](#)

- [91 AIS Introduction to Area \(Canada\).](#)
- [197 AIS Readings and Research.](#)
- [198 AIS Readings and Research.](#)
- [295 AIS Advanced Special Topics.](#)
- [296 AIS Advanced Special Topics.](#)

- [157 ENG Canadian Literature.](#)
- [158 ENG Contemporary Canadian Literature.](#)

- [285 FREN Québec Literature.](#)
- [293 FREN Québec Culture.](#)

- [52 GEOG Canada.](#)

- [273 GEOL Geology of the Appalachians.](#)

- [65 HST History of Canada.](#)
- [165 HST Canadian-American Relations.](#)
- [265 HST Seminar in Canadian History.](#)

- [71 POLS Comparative Political Systems.](#)
- [173 POLS Canadian Political System.](#)

- [31 SOC Race and Ethnicity in Canada and the United States.](#)
- [96 SOC Introductory Special Topics.](#)
- [132 SOC Affluence and Poverty in Modern Society.](#)

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Area and International Studies: European Studies (B. A.)

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

[European Studies Course Offerings](#)

A total of 33 hours in approved European Studies courses to include nine hours at the 200 level. No more than 12 hours may be taken from any one discipline. Only 15 hours of transfer credit may be applied toward the major. Students must consult closely with their European Studies advisor in the development of a coherent program of courses.

- European Studies seminar: Senior research project: All seniors must complete a research project for at least three credits on a subject focused on northern, western, or Mediterranean Europe and approved by the European Studies subcommittee. This requirement can be fulfilled by International Studies 291 (European Studies Seminar); International Studies 234 and 235 (Honors/International Studies); International Studies 297 or 298 (Advanced Readings and Research). Students should expect to use their competency in a European language (other than English) in this research project where relevant. Upon request, the European Studies subcommittee may approve a research project done in conjunction with a 200-level seminar offered by one of the college's departments.
- European culture and thought: Twelve hours from the approved list to include six hours at the 100 level or above. Art: 5, 6, 148, 149, 155, 158, 161, 164, 165, 170, 172, 174, 177, and 179 or 282 (when the content is European); Classics: 24, 33, 35, 37, 42, 153-159; English: 21, 22, 25-28, 85, 86, 102, 103, 121, 122, 124, 125, 127, 128, 129, 130, 133, 134, 141, 142, 146, 152, 153, 154, 221, 222, 241, 242; Film: 5, 6, 107, 161; French: 111, 112, 225, 226, 235, 245, 246, 247, 255, 256,

265, 266, 275, 276, 290, 291, 292; German: 104, 121, 122, 155, 156, 201, 213, 214, 225, 226, 237, 238, 247, 248, 251, 252, 263, 264, 271, 273, 275, 276, 278, 279, 281, 282; Greek: all courses above 100 level; Italian: 121, 122, 157, 158; Latin: all courses above 100 level; Music: 11, 12, 111-114; Philosophy: 101, 102, 105, 107, 133, 140, 151, 160, 260; Political Science: 141, 142, 146; Religion: 22, 111, 116, 122, 124, 173, 224, 226, 228, 280; Spanish: 141, 235, 236, 237, 245, 246, 265, 276, 277, 291, 292; Theatre: 136, 137, 138, World Literature 11, 14, 17, 18, 24, 35, 87, 95, 96, 111, 114, 117, 118, 122, 153-156.

- C. European history and society: Twelve hours from the approved list to include six hours at the 100 level or above. BSAD: 236; Economics: 113; Geography: 55, 155; History: 13, 14, 19, 21-27, 85, 86, 120-136, 139, 185, 186, 190, 191, 221, 222, 224-228, 285; Political Science: 171, 257, 276, 287.
- D. European language: Six hours of a European language other than English at or above the 100 level. Students who fulfill nine or more hours of their "Culture and Thought" requirement through the study of any one such language must fulfill this requirement in a second European language other than English.

Note: Other equivalent courses within each area may be accepted with permission of the Director of European Studies.

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European Studies Course Offerings

The following courses are among the course offerings. Also see Area and International Studies for special topic listings.

- [291 AIS European Studies Seminar](#)
- [5 ART Western Art: Ancient - Medieval](#)
- [6 ART Western Art: Renaissance-Modern](#)
- [148 ART Greek Art](#)
- [149 ART Roman Art](#)
- [155 ART Topics in Medieval Art](#)
- [158 ART Northern European 1400 - 1600](#)
- [161 ART Italian Renaissance Painting](#)
- [164 ART Italian Renaissance Sculpture](#)
- [165 ART Topics European Art, 1600-1800](#)
- [170 ART Topics in Modern Art](#)
- [172 ART 19th Cent European Painting](#)
- [174 ART 20th Century Art](#)
- [177 ART 19th&20th Cent Arch & Design](#)
- [179 ART* Issues in Contemporary Art](#)
- [282 ART* Seminar in Western Art](#)
- [24 CLAS Myths/Legends Trojan War](#)
- [35 CLAS The End of the Roman Republic](#)
- [37 CLAS Early Roman Empire: Lit Trans](#)
- [42 CLAS Mythology](#)
- [153 CLAS Greek Drama](#)
- [154 CLAS Stories and Histories](#)
- [155 CLAS Ancient Epic](#)
- [156 CLAS Satiric Spirit](#)
- [157 CLAS Greek Feminism](#)
- [158 CLAS Greco-Roman Political Thought](#)
- [170 EC Economic Methods](#)

- [21 ENG British Literature](#)
- [22 ENG British Literature](#)
- [25 ENG World Literature](#)
- [26 ENG World Literature](#)
- [27 ENG Lit of Western Trad: Int Humn](#)
- [28 ENG Lit of Western Trad: Int Humn](#)
- [85 ENG Text & Context: 1st Yr Prosp Mjrs](#)
- [86 ENG Critical Approaches to Lit](#)
- [102 ENG History of the English Lang](#)
- [103 ENG Old English](#)
- [121 ENG Bible as Literature](#)
- [122 ENG Dante's Comedy](#)
- [124 ENG Chaucer](#)
- [125 ENG Medieval Literature](#)
- [127 ENG Shakespeare](#)
- [128 ENG Shakespeare & Renaissance Drama](#)
- [129 ENG Survey of Renaissance Lit](#)
- [130 ENG The Age of Milton](#)
- [133 ENG Res & 18 C Prose, Poetry & Drama](#)
- [134 ENG 18th Century British Novel](#)
- [141 ENG Romanticisms](#)
- [142 ENG Victorian Prose, Poetry & Drama](#)
- [146 ENG 19th Century British Novel](#)
- [152 ENG Modern British Drama](#)
- [153 ENG Modern British Novel](#)
- [154 ENG Modern Irish Literature](#)
- [221 ENG Seminar in Literature to 1800](#)
- [222 ENG Seminar in Literature to 1800](#)

- [5 FILM Dev of Motion Picture I](#)
- [6 FILM Dev of Motion Picture II](#)
- [107 FILM Film Criticism](#)
- [161 FILM Contemporary Cinema](#)

- [104 FREN Contemporary France](#)
- [105 FREN French Culture](#)
- [225 FREN Medieval French Literature](#)
- [226 FREN Medieval French Literature](#)
- [235 FREN Lit of French Renaissance](#)
- [245 FREN The Baroque Age, 1600-1650](#)
- [246 FREN 17th Century Prose](#)
- [247 FREN 17th Century Theatre](#)
- [255 FREN 18th Century Literature](#)
- [256 FREN 18th C Literature](#)
- [265 FREN Rom, Symb, Decadence: 19th C Lit](#)

- [266 FREN Rev&React in 19th C Narrative](#)
- [275 FREN 20th Century Literature](#)
- [276 FREN 20th C Literature](#)
- [290 FREN Cntmp Fr Thght:Linguistic Modl](#)
- [291 FREN Civilization of France](#)

- [55 GEOG Europe](#)
- [155 GEOG Historical Geography of Europe](#)

- [104 GERM German News Media](#)
- [121 GERM Culture & Civilization to 1900](#)
- [122 GERM 20th C Culture & Civilization](#)
- [155 GERM Survey of German Lit to 1830](#)
- [156 GERM Survey of German Lit from 1830](#)
- [201 GERM Methods Research&Bibliography](#)
- [213 GERM History of the German Language](#)
- [214 GERM Middle Ages](#)
- [225 GERM Goethe](#)
- [226 GERM Schiller](#)
- [237 GERM 19th Century Prose](#)
- [238 GERM 19th Century Drama](#)
- [247 GERM German Lit from 1890 to 1945](#)
- [248 GERM Contemporary German Literature](#)
- [251 GERM German Folkore](#)
- [252 GERM Faust](#)
- [263 GERM German Romanticism](#)
- [264 GERM German Lyric Poetry](#)
- [271 GERM Proverbs](#)
- [273 GERM German Intellectual Movements](#)
- [275 GERM Fin-de-Siecle](#)
- [276 GERM Brecht & the Modern Drama](#)
- [278 GERM GDR Fiction](#)
- [279 GERM German Short Story after 1945](#)
- [281 GERM Sem in Lit Genre,Period,Theme](#)
- [282 GERM Sem on Particular Author](#)

- [GRK \(all course above 100 level\)](#)

- [13 HST Ideas in West Trad](#)
- [14 HST Ideas in the Western Tradition](#)
- [22 HST Classical Roman Civilization](#)
- [23 HST Birth of Europe](#)
- [24 HST High & Later Middle Ages](#)
- [25 HST European Civilization to 1815](#)
- [26 HST Europe 1815 - 1945](#)

27 HST Modern Eastern Europe

- 85 HST History of Science
 - 86 HST History of Science
 - 120 HST History of Geography of Europe
 - 121 HST History of Greece
 - 122 HST History of Rome
 - 125 HST The Renaissance
 - 126 HST The Reformation
 - 128 HST Eur Soc & Culture 1880-1920
 - 130 HST European Intellectual History
 - 132 HST Modern Irish History
 - 133 HST Early English History
 - 134 HST Tudor-Stuart English
 - 135 HST France 1700-1851
 - 136 HST Topics in History of France
 - 139 HST Modern Germany
 - 185 HST Science & Culture
 - 186 HST The Scientific Revolution
 - 190 HST The Holocaust
 - 191 HST World War II
 - 221 HST Seminar in Ancient History
 - 222 HST Seminar in Ancient History
 - 224 HST Seminar in Medieval Europe
 - 225 HST Seminar in Early Modern Europe
 - 226 HST Seminar in Modern Europe
 - 227 HST Seminar in Modern Europe
 - 228 HST Seminar in Popular Culture
 - 285 HST Seminar in History of Science
-
- 121 ITAL Issues in Italian Culture
 - 122 ITAL Italian Literature & Film
 - 157 ITAL Modern Italian Fictions
 - 158 ITAL Early Italian Lit in Context
-
- LAT (all course above 100 level)
-
- 11 MUS Survey of Western Music
 - 12 MUS Survey of Western Music
 - 111 MUS Classical, Romantic
 - 112 MUS Contemporary Music
 - 113 MUS Medieval, Renaissance
 - 114 MUS Baroque Music
-
- 101 PHIL History of Ancient Philosophy
 - 102 PHIL History of Modern Philosophy
 - 105 PHIL History of Medieval Philosophy

- [107 PHIL 19th Century Philosophy](#)
- [133 PHIL Marxism](#)
- [140 PHIL Social & Political Philosophy](#)
- [151 PHIL Phil Ideas in Literature](#)
- [160 PHIL Recent Continental Philosophy](#)
- [260 PHIL Topics in Continental Phil](#)

- [141 POLS History of Political Thought](#)
- [142 POLS History of Political Thought](#)
- [146 POLS Marxist Political Theory](#)
- [171 POLS Western European Political Sys](#)
- [257 POLS Pol of European Integration](#)
- [276 POLS British Politics](#)

- [22 REL Intro Rel:Western Traditions](#)
- [111 REL Western Religious Thought](#)
- [116 REL Judaism](#)
- [122 REL Christian Origins](#)
- [124 REL Christianity](#)
- [173 REL Studies in Gender & Religion](#)
- [224 REL Studies in Christianity](#)
- [226 REL Studies in Hellenistic Rel](#)
- [228 REL Studies in Western Rel Thought](#)
- [280 REL Symbol & Archetype](#)

- [141 SPAN Intro To Literature of Spain](#)
- [235 SPAN Perform Early Cult'l Identity](#)
- [236 SPAN Poetic Voices/Cultural Change](#)
- [237 SPAN Tricksters/Knights&Wayward Wmn](#)
- [245 SPAN Cervante's Voices & Portraits](#)
- [246 SPAN Cervante's Don Quixote](#)
- [251 SPAN Personal and National Identity in Modern Spanish Literature](#)
- [252 SPAN Spanish Literature from Dictatorship to Democracy](#)
- [291 SPAN Early Cultures of Spain](#)
- [292 SPAN Modern Cultures of Spain](#)

- [136 THE Classical & Medieval Theatre](#)
- [137 THE Renaissance,Baroque&Neo-Class](#)
- [138 THE 19th & 20th Century Theatre](#)

- [11 WLIT French Lit in Translation](#)
- [14 WLIT Spanish Lit in Translation](#)
- [17 WLIT German Lit in Translation](#)
- [18 WLIT Russian Lit in Translation](#)
- [24 WLIT Myths & Legends of Trojan War](#)

- [35 WLIT The End of the Roman Republic](#)
- [37 WLIT Early Roman Emp:Lit&Translat'n](#)
- [95 WLIT Special Topics](#)
- [96 WLIT Special Topics](#)
- [114 WLIT Spanish Lit in Translation](#)
- [117 WLIT German Lit in Translation](#)
- [118 WLIT Russian Lit in Translation](#)
- [153 WLIT Greek Drama](#)
- [154 WLIT Stories and Histories](#)
- [155 WLIT Ancient Epic](#)
- [156 WLIT Greek & Roman Satiric Spirit](#)
- [195 WLIT Special Topics](#)
- [196 WLIT Special Topics](#)

* When the content is European.

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Area and International Studies: Latin American Studies (B. A.)

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Latin American Studies Course Offerings

- Twelve hours selected from the following five courses: Anthropology 161; History 62, 63; Geography 56; Political Science 174. □
Two additional semester courses selected from Area and International Studies, 193, 194, 195, 196, 197, 198; History 161, 163, 164, 262; or from courses recommended by the Program of Latin American Studies. □
- Plus six hours of advanced Spanish (Spanish 142, 279, 281, 286, 287, 293, 294).
- An additional 12 hours from related courses chosen in consultation with advisor.

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Latin American Studies Course Offerings

The following courses are among the course offerings. Also see Area and International Studies for special topic listings.

- [161 ANTH Cultures of South America.](#)
- [195 AIS Intermediate Special Topics.](#)
- [196 AIS Intermediate Special Topics.](#)
- [197 AIS Readings and Research.](#)
- [198 AIS Readings and Research.](#)
- [56 GEOG Latin America.](#)
- [62 HST Colonial Latin American History.](#)
- [63 HST Modern Latin American History.](#)
- [161 HST Topics in Caribbean and Latin American History.](#)
- [163 HST Early Caribbean History: Swashbucklers, Slaves, and Servants.](#)
- [164 HST Modern Caribbean History: Cannons to Cricket.](#)
- [262 HST Seminar in Caribbean and Latin American History.](#)
- [174 POLS Latin American Politics.](#)
- [279 SPAN Acting Out: Performing Cultural Politics in Latin America.](#)
- [281 SPAN Spanish-American Prose Fiction of the 20th Century.](#)
- [286 SPAN Spanish-American Literature of Social Protest.](#)
- [287 SPAN Early Spanish Narratives of the Americas.](#)
- [293 SPAN Early Latin American Cultures.](#)
- [294 SPAN Modern Latin American Cultures.](#)

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Area and International Studies: Russian/East European Studies (B. A.)

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Russian/East European Studies Course Offerings

1. 30 hours of required courses to include the following: Two courses from HIST 27, 137, 138; ECON 116; POLS 172; WLIT 118; two courses at the 100 level or above in Russian; three additional courses in the major, chosen in consultation with an advisor in the major.
2. Recommended courses: Area and Int'l Studies 91.

The program also offers an interdisciplinary Individual Design Major in Russian/East European Studies and Business. The program of study must be planned with a member of the Russian/East European Studies faculty.

Required courses (35 hours): Two courses in Russian at the intermediate level; four courses in Economics including 116; one Russian/East European Area Studies course other than those in Economics; two courses in Business Administration; two approved electives at the 100 level or above.

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Russian and East European Studies Course Offerings

The following courses are among the course offerings.

- [11 EC Principles of Macroeconomics.](#)
- [12 EC Principles of Microeconomics.](#)

- [27 HST Modern Eastern Europe.](#)
- [137 HST History of Russia.](#)
- [138 HST History of the Soviet Union.](#)
- [237 HST Seminar in Russian History before 1917.](#)
- [238 HST Seminar in Soviet History.](#)

- [172 POLS Politics and Society in the Russian Federation.](#)
- [272 POLS Eastern European Political Systems.](#)

- [52 RUSS Intermediate Russian.](#)

- [18 WLIT Russian Literature in Translation.](#)
- [118 WLIT Russian Literature in Translation.](#)

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Minor in African Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Requirements

A total of 18 credit hours (six courses), at least nine of which must be at the 100 level or above, and which must include the following:

- A. Anthropology 162
Geography 51
History 40
- B. Two courses chosen from among the following:
Community Development and Applied Economics 2, 272
*Anthropology 177, 179, 283
BSAD 237
*Education (EDFS) 206
French 289
*Geography 177
History 140
or appropriate Special Topics or seminar courses, chosen in consultation with the African Studies Program advisor.

*Students may count these courses towards fulfillment of the minor requirements only if individual projects, relevant to the African area, have been arranged in consultation with the African Studies advisor.

International Studies 197 (Readings and Research on an African Topic under the direction of participating faculty members - to be arranged in consultation with the African Studies advisor) or International Studies 195 (Special Topics Seminars, taught by participating faculty members).

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Minor in Asian Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Requirements

In selecting courses from the Asian Studies listing, students must consult with an appropriate Asian Studies advisor and demonstrate in their choices thematic and/or geographic coherence. Such courses must also accord with the following requirements:

Eighteen hours in courses from the Asian Studies listing (see Courses of Instruction; Asian Studies) including at least two courses in an Asian language, and at least one course in each of two other academic disciplines. At least eight credit hours must be at the 100 level or above. For students who have demonstrated fluency in an Asian language relevant to the other courses they have chosen for their minor concentration (for instance, native speakers of the language) the language requirement will be waived, and courses from a third academic discipline will be substituted.

APPLY

SEARCH ▾

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Minor in Canadian Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Requirements

Eighteen hours to include International Studies 91 or History 66 (History 65 upon approval of advisor), and 15 hours to be chosen from the Canadian content list (see major listing for approved courses) of which at least 12 hours must be at the 100 level or above. Students will fulfill the language requirement with French.

APPLY

SEARCH ▾

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Minor in European Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies](#)

Requirements

Eighteen hours to include three hours at the 200 level from both European culture and thought and European history and society areas; and six hours at the 100 level or above from the European language area.

Note: See the [European Studies major](#) requirements for list of approved courses.

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Minor in Latin American Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Requirements

- A. Students who are not Spanish majors: 18 hours (six courses)
 1. Completion of Spanish 52 or above (three hours).
 2. Completion of five of the following courses: Anthropology 161; History 62 or 63, 161, 163, 164 or 262; Geography 56; Political Science 174; Spanish 142, 279, 281, 286, 287, 293, or 294; International Studies 195 or 196.
- B. Students who are Spanish majors: 18 hours (six courses)
 1. Completion of one of the following courses: Spanish 279, 281, 286, 287, 293, or 294.
 2. Completion of five of the following courses: Anthropology 161; History 62 or 63, 161, 163, 164 or 262; Geography 56; Political Science 174; International Studies 195 or 196.

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Minor in Middle East Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Requirements

Eighteen hours (six courses) to include: Completion of the College language distribution option or the transfer of equivalent credits. Familiarity with an appropriate Middle East language, e.g. Hebrew, Arabic, Turkish, Farsi, etc., is strongly recommended; History 45; four courses taken from the following groupings, but no more than one course from Group B and no more than one course below the 100 level:

- Group A: Anthropology 166, 170; Art 146, 188; Economics 180; Geography 158; History 123, 149; Religion 114, 116; Political Science 157, 259, 279 (when the topic is Middle East).
- Group B: English 172; Geography 51; History 40, 140; Math. 161.

APPLY

SEARCH ▾

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Minor in Russian/East European Studies

College: [Arts and Sciences](#)

Department(s): [Area and International Studies Program](#)

Requirements

Twenty hours to include: Russian 51, 52 or its equivalent and four courses from the following: Economics 116; World Literature 118; History 27, 137, 138; Political Science 172.

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Departments and Programs

Art Department

Colleges: [Arts and Sciences](#)

Faculty: Art

Courses: [Art \(ART\)](#)

Contact Information:

University of Vermont

Art Department

Williams Hall

72 University Place

Burlington, VT 05405-0168

Phone: (802) 656-2014

Fax: (802) 656-2064

Email: Nadine.Carpenter@uvm.edu

Web Site: <http://www.uvm.edu/~artdept/>

Related Programs:

- [Art Education \(B. S.\), College of Education and Social Services](#)

Academic Offerings

- Undergraduate Majors
 - Bachelor of Arts (B. A.)
 - [Art History](#)
 - [Studio Art](#)
- Undergraduate Minors
 - [Art History](#)
 - [Studio Art](#)

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Courses in Art

ART 001 - Drawing

Introductory study of visual experience through drawing and its transformation of the three-dimensional visual world onto a two-dimensional surface. Emphasis varies with instructor.

Credits: 3.

ART 002 - Two-Dimensional Studies

A studio course exploring through classroom projects how we perceive space and how we work with materials and concepts to organize two-dimensional surfaces.

Credits: 3.

ART 003 - Three-Dimensional Studies

Introductory study of the manipulation of actual space in diverse media. Emphasis varies with instructor.

Credits: 3.

ART 004 - Intro to Film/Video Production

Introductory study of the principles and properties of four-dimensional media, including the mechanical and electronic phenomena behind the creation of a moving image.

Credits: 3.

ART 005 - Western Art:Ancient - Medieval

Introduction to the visual arts, primarily painting, sculpture, and architecture in the Western world from prehistoric through Gothic.

Credits: 3.

ART 006 - Western Art:Renaissance-Modern

Introduction to the visual arts, primarily painting, sculpture, and architecture in the Western world from Renaissance to present. Prerequisite: It is recommended that ART 005 be taken before ART 006.

Credits: 3.

ART 008 - Asian Art

Introduction to the artistic traditions and major architectural monuments of India, China, Japan, and Southeast Asia.

Credits: 3.

ART 011 - Introduction to Fine Metals

Emphasizes design in the third dimension. Basic metal fabrication techniques, soldering, forming, forging, fusing, and casting. Drawing required. Fall semester only.

Credits: 3.

ART 095 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

ART 096 - Introduction to Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

ART 111 - Fine Metals

complex

Credits: 0-3.

ART 113 - Clay: Hand Building

Investigation of surfaces and three-dimensional forms. Focus on variety of construction methods, surface treatment, and firing techniques. Related clay and glaze technology. Prerequisites: ART 001 or ART 002, and ART 003.

Credits: 3.

ART 114 - Clay: Wheel Throwing

Development of throwing skills and the capacity to create a range of forms. Investigation of surface treatment techniques such as slip painting and glazing. Low-fire and stoneware firing. Related clay and glaze technology. Prerequisites: ART 001 or ART 002, and ART 003.

Credits: 3.

ART 115 - Intermediate Drawing

Intense investigation of drawing and elements related to the discipline. The figure used to introduce drawing exercises dealing with contour, gesture, color, and compositional geometry. Prerequisite: ART 001 and ART 002.

Credits: 3.

ART 116 - Drawing From the Figure

Drawing from the model, emphasizing in-depth studies in different media. Prerequisite: ART 001 and ART 002.

Credits: 3.

ART 121 - Painting

Painting as an investigation of color, space, and visual perception using traditional motifs and exploring individually developed directions. Prerequisites: 1, 2.

Credits: 3.

ART 131 - Printmaking: Etching

Basic procedures in zinc plate printing, stressing design and technical control of aquatint, etching, drypoint and embossment. Prerequisites: ART 001 and ART 002. Offered alternate semesters. Credits 3.

Credits: 3.

ART 132 - Printmaking: Silkscreen

Basic procedures in stencil printing, stressing design and technical control of stencil cutting, glue and tusche resist and photo-silkscreening. Prerequisites: ART

001 and ART 002. Offered alternate semesters.

Credits: 3.

ART 133 - Printmaking: Lithography

Basic procedures in planographic printing from stone, stressing design and technical competence. Intensity of investigation varies with individual student.

Prerequisites: ART 001 and ART 002.

Credits: 3.

ART 137 - Photography

materials relating to photographic realities. Prerequisite: Photographic processes as methods of seeing, emphasizing visual discovery through informed manipulation of materials. Students explore light, camera, photosensitive one of the following: ART 001, ART 002, ART 004.

Credits: 3.

ART 138 - Color Photography

Exploration of color films, cameras, and color printing processes as a means for recording, enhancing and expressing students' subjective experiences.

Prerequisite: one of the following: ART 001, ART 002, ART 004. Credits 3.

Credits: 3.

ART 139 - Animation

ART 003, ART 004.

Credits: 3.

ART 140 - Hist of Optical Media as Art

Theory and development of the art of "optical media:" photography, film, and video. Emphasis on discovery and explication of technical, aesthetic, and expressive properties. Prerequisite: one of the following: ART 006, FILM 005, FILM 006.

Credits: 3.

ART 141 - Sculpture

Exploration of manipulative materials. Prerequisite: ART 003.

Credits: 3.

ART 142 - Art from Scraps

Prerequisite: ART 002 and ART 003. Students explore in a series of projects how discarded objects and materials from everyday life, the "found object" tradition, can become materials for sculpture.

Credits: 3.

ART 143 - Intermed Film/Video Production

or instructor permission.

Credits: 3.

ART 144 - Digital Art

Exploration of the computer as an artistic medium, focusing on a variety of approaches for creating and displaying imagery. Prerequisite: ART 002.

Credits: 3.

ART 145 - Graphic Design

The application of graphic design principles to practical problems, including the impact of popular design on society, and the exploration of visual elements in contemporary printing processes. Prerequisite: ART 001 or ART 002.

Credits: 3.

ART 146 - Egypt & the Ancient Near East

The development of sculpture, painting, and architecture in Mesopotamia and Egypt 3000-300 B.C. Prerequisite: ART 005.

Credits: 3.

ART 147 - Visual Environment

Exploration of public spaces, structures, architectural detail, landscaping, roadways, lighting, etc. Field trips; meetings with planners and architects; projects. Prerequisites: ART 001, ART 002, or ART 003.

Credits: 3.

ART 148 - Greek Art

Development of painting, sculpture, architecture, and related arts in Greek lands 3000-30 B.C. Prerequisite: ART 005.

Credits: 3.

ART 149 - Roman Art

Examination of the artistic experiments made by Roman painters, sculptors, and architects from 3rd century B.C. to 5th century A.D. Prerequisite: ART 005.

Credits: 3.

ART 155 - Topics in Medieval Art

Selected aspects of European art from the end of the Roman Empire through the Gothic period. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: ART 005.

Credits: 3.

ART 158 - Northern European 1400-1600

Netherlandish and German art of the period. Special attention to Jan van Eyck, Rogier van der Weyden, Hugo van der Goes, Durer, Bosch, and Bruegel. Prerequisite: ART 005.

Credits: 3.

ART 161 - Italian Renaissance Painting

Painting in Italy from Gothic innovations of Giotto and Duccio through establishment of 15th-century Renaissance style to the High Renaissance works of Leonardo da Vinci, Raphael, Michelangelo and Titian. The development of Venetian painting. Prerequisite: ART 005.

Credits: 3.

ART 164 - Italian Renaissance Sculpture

Sculpture in Italy from its Gothic sources through the Renaissance. Special attention to Ghiberti, Donatello, and Michelangelo. Prerequisite: ART 005.

Credits: 3.

ART 165 - Topics European Art 1600-1800

Selected aspects of the painting, sculpture, and architecture of the Baroque, Rococo, and/or Neo-Classical periods. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: ART 006.

Credits: 3.

ART 170 - Topics in Modern Art

Selected aspects of the painting, sculpture, and architecture of Europe and North America during the 19th and 20th centuries. Material and emphasis vary with

- instructor. May be repeated for credit with instructor's permission. Prerequisite: ART 006.
Credits: 3.
- ART 172 - 19th-Century European Painting
Examination of major movements in European painting from Neo-Classicism and Romanticism through Post-Impressionism. Prerequisite: ART 006.
Credits: 3.
- ART 174 - 20th-Century Art
A survey of movements and new media in European and American painting, sculpture, mixed media, performance, and the influences of film and photography on traditional media. Prerequisites: three hours of art history and preferably ART 172 or ART 181. Alternate years.
Credits: 3.
- ART 177 - 19th&20th Cent Arch & Design
The theory and practice of building and design from the early 19th century to the recent past. Prerequisites: ART 006 or a course in Historic Preservation.
Credits: 3.
- ART 179 - Issues in Contemporary Art
A study of selected examples of recent and current art and/or architecture. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: three hours of Art History.
Credits: 3.
- ART 180 - N. American Art 1600-1900
Painting, sculpture, and architecture in the U.S. and Canada from colonial beginnings (Hispanic, Franco, Anglo) to WWI. Emphasis on the development of nationalist sensibilities as they emerge from European sources. Prerequisites: ART 006 or International Studies 91 (Canada).
Credits: 3.
- ART 185 - Japanese Art
Architecture, sculpture, painting, prints, and decorative arts and their relationship to Japanese culture. Prerequisites: three hours in art history or one of the following Asian Studies courses: GEOG 058, HST 151, REL 021, REL 132, REL 141. Alternate years.
Credits: 3.
- ART 187 - Chinese Painting
History of Chinese painting, emphasizing the landscape painting of the 11th to 17th centuries. Prerequisite: Six hours in art history, three at the 100 level or instructor's permission. Alternate years.
Credits: 3.
- ART 188 - Indian Painting
Mural, manuscript, and miniature painting from India from the 5th to 19th centuries. Topics to include: courtly and religious patronage and regional styles. Prerequisites: Three hours of art history or instructor's permission.
Credits: 3.
- ART 189 - Topics in Non-Western Art
Selected aspects of the art of an area not covered in our regular European,

American, and Asian courses. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: three hours in Art History.

Credits: 3.

ART 190 - Internship:Art History

Prerequisites: junior standing, six hours of 100-level course work in appropriate field, departmental permission (a contract must be obtained from and returned to the Department of Art during preregistration).

Credits: 3.

ART 191 - Internship: Field Experience

Prerequisites: junior standing, six hours of 100-level courses in appropriate field, departmental permission (a contract must be obtained from and returned to the Department of Art during preregistration).

Credits: 3.

ART 192 - Inter Spec Topics in Asian Art

See Schedule of Courses for specific titles. Prerequisite: three hours in Art History or Asian Studies.

Credits: 3.

ART 195 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Credits 1-4.

Credits: 0-4.

ART 196 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

ART 197 - Rdgs & Rsch:Tutorial in Studio

Independent/individual research in studio art. Prerequisites: junior standing, six hours of studio art courses at 100 level, departmental permission (a contract must be obtained from and returned to the Department of Art during preregistration).

Credits: 3.

ART 198 - Readings & Research

Prerequisite: departmental permission.

Credits: 3.

ART 199 - Topics:Gender,Race,Ethn in Art

Study of selected aspects of gender, "race," or ethnicity in art, and/or of the contributions of women or ethnically diverse people to the visual arts. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: three hours in Art History.

Credits: 3.

ART 201 - Arch, Landscape & History

(See Historic Preservation 201.) Prerequisites: six hours advanced studies in art and architecture, permission. UG only.

Credits: 3.

ART 213 - Advanced Ceramics

Advanced investigations of methods exploring content, form, surface, and color of

ceramics and elements related to the discipline. Prerequisite: ART 113 or ART 114.

Credits: 3.

ART 215 - Advanced Drawing

Intense investigation of drawing and elements that relate to that discipline.

Emphasis on conceptual method, contemporary techniques, and both objective and non-objective source material. Prerequisite: ART 115 or ART 116.

Credits: 3.

ART 221 - Advanced Painting

Advanced explorations of painting emphasizing issues of scale, materials, and techniques both traditional and contemporary, and their relationship to both the discipline and current issues. Prerequisites: ART 121.

Credits: 3.

ART 237 - Advanced Photography

Continuation of 137, further exploring the implications of photography and encouraging students to use the medium to better understand their relationships to the world. Prerequisite: ART 137 or ART 138.

Credits: 3.

ART 241 - Advanced Sculpture

Advanced investigation of sculpture. Students work on individual projects under supervision of instructor. Periodic group discussion and analyses of work in progress. Prerequisite: ART 141.

Credits: 3.

ART 244 - Advanced Digital Art

Advanced exploration of the computer as an artistic medium for creating imagery. Focus on using the computer to animate images and integrate sound. Emphasis on conceptual issues in digital art. Prerequisite: ART 144.

Credits: 3.

ART 281 - Advanced Studies in Studio Art

Work in close consultation with faculty sponsor on a specific and advanced project. Prerequisites: senior standing, major or qualified minor in studio art, departmental permission (a contract must be obtained from and returned to the Department of Art during preregistration), six hours of 100-level courses in topic of contract.

Credits: 3.

ART 282 - Seminar in Western Art

Selected topics in Western Art. See Schedule of Courses for specific offerings each semester. Prerequisites: six hours of 100-level Art History courses, including three hours in the area of the seminar; junior or senior standing. UG only.

Credits: 3.

ART 283 - Advanced Seminar in Studio Art

Advanced seminar for senior studio art majors covering a range of topics.

Prerequisites: senior standing, major in studio art, instructor's permission. (Not offered for graduate credit.)

Credits: 3.

ART 285 - Seminar in Asian Art

Prerequisites: One of the following: ART 008, ART 185, ART 187, ART 188, or ART 196 (Asian); three additional hours of 100-level courses either in art history or Asian Studies.

Credits: 3.

ART 295 - Special Topics in Studio Art

Advanced work in existing departmental offerings. Prerequisite: instructor's permission only. UG only.

Credits: 3.

ART 296 - Adv Special Topics:Art History

See Schedule of Courses for specific titles.

Credits: 3.

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Art History (B. A.)

College: [Arts and Sciences](#)

Department(s): [Art](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours in Art History, including six hours from 5, 6 and 8; 12 hours to include three hours from each of four different categories (196 courses in these categories also qualify): Ancient and Medieval (146, 148, 149, 155), Early Modern European (158, 161, 164, 165), Modern, American, and Canadian (170, 172, 174, 177, 180), Asian (185, 187, 188, 192), Other Non-Western Traditions, New Approaches to Art History, and Contemporary Art (140, 179, 189, 199); 12 additional Art History hours, to include at least one course (three hours) numbered 282 or above to be taken during the junior or senior year, preferably during the senior year. Six hours of Studio Art; the study of a foreign language through 51-52. French or German is strongly recommended for students considering eventual graduate work in Art History.

For Art Education, see [College of Education and Social Services](#).

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Studio Art (B. A., Art-Studio)

College: [Arts and Sciences](#)

Department(s): [Art](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours in Studio Art, including nine hours in foundation courses (to include Art 3 and two from 1, 2, 4) with three different instructors; 15 hours at the 100 level (only three of which may be 197; six of which may be 195) with two different instructors, including courses in the areas of two-dimensional study (drawing, painting, printmaking, photography, film, and video) and of three-dimensional study (sculpture, ceramics, fine metals); and six hours at the 200 level, three of them in the senior year; nine hours of Art History, including two of the following: 5, 6, or 8; and one of the following: 140, 170, 172, 174, 177, 179, 180, and 199 when approved for this requirement (permission depends upon topic; check with Art Department).

Note: A Studio Art major may not take more than one Evening Division course per semester in Studio Art.

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Minor in Art History

College: [Arts and Sciences](#)

Department(s): [Art](#)

Requirements

Eighteen hours, including six hours from 5, 6, and 8; 12 hours of 100-level courses or above.

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Minor in Studio Art

College: [Arts and Sciences](#)

Department(s): [Art](#)

Requirements

This minor is not available to students pursuing degree programs not offered by the College of Arts and Sciences.

Eighteen hours, including six hours at introductory level of which at least three hours must be in 1, 2, 3, or 4. Twelve hours at the 100 level or above.

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Departments and Programs

Biochemistry Program (Undergraduate)

Colleges: [Agriculture and Life Sciences](#), [Arts and Sciences](#), [College of Medicine](#)

Faculty: Biochemistry, Chemistry, Microbiology and Molecular Genetics

Courses: [Biochemistry \(BIOC\)](#), [Biochemistry \(BICM\)](#), [Chemistry \(CHEM\)](#), [Microbiology and Molecular Genetics \(MMG\)](#)

Contact Information:

University of Vermont

Undergraduate Biochemistry Program

Department of Chemistry

Cook Physical Sciences Building

82 University Place

Burlington, VT 05405-0125

Phone: (802) 656-2594

Fax: (802) 656-8705

Email: Christopher.Landry@uvm.edu

Web Site: <http://biochem.uvm.edu/undergraduate/>

Related Programs:

- [Biochemistry Department \(Graduate Programs\)](#)
- [Chemistry](#)
- [Microbiology and Molecular Genetics](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - [Biochemistry](#)

Overview

Biochemistry is the basic science that explores the chemical and physical properties of living organisms and the chemical changes that occur in these organisms. It is integral to the study of a variety of scientific disciplines, including biology, chemistry, microbiology, genetics, anatomy, physiology, and pharmacology. The Bachelor of Science degree in Biochemistry is an interdisciplinary undergraduate degree program offered through the College of Arts and Sciences (CAS), the College of Agriculture and Life Sciences (CALs) and the College of Medicine (COM). It draws upon a broad set of University resources from all three colleges to provide students with a modern science-based education designed to emphasize fundamental knowledge of chemistry and biology along with advanced courses specializing in biochemistry and biomedical sciences. The Biochemistry curriculum is challenging, offering students with strong academic abilities in science an opportunity to explore upper-level courses in areas of modern biochemistry. It is designed to meet the needs of students wishing to compete in the job market at the B.S. degree level as well as students planning to continue with advanced studies in a graduate or professional degree program.

Students may apply to the program either through CAS or CALs, which vary in their college distribution requirements. The distribution categories and the number of required courses in each category differ slightly. In CAS, students are required to fulfill distribution requirements in six of the following seven categories: foreign languages, fine arts, literature, humanities, social sciences, physical sciences and mathematics, plus complete the general requirements in non-European cultures and race relations and ethnicity in the U.S. In CALs, students are required to fulfill distribution requirements in science, humanities and fine arts, communication skills, information technology skills, quantitative skills, critical thinking skills, interpersonal skills, citizenship & social responsibility values, environmental stewardship values, and personal growth values. Regardless of the College through which students choose to apply, all students must take a core set of basic courses in chemistry, biology, and mathematics in their first two years followed by advanced courses in biochemistry, chemistry, and/or molecular biology in their third and fourth years. Since biochemistry is a "hands-on" science, involvement of students in undergraduate research projects, most of which qualify as honors projects in either College, is strongly encouraged. For more information contact either of the co-directors of the program: Christopher Landry (Christopher.Landry@uvm.edu) or Christopher Francklyn (Christopher.Francklyn@uvm.edu).

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Courses in Biochemistry

BIOC 191 - Undergraduate Research

Participation in a research program currently being pursued by a faculty member of department. Written report due at end of each semester. Prerequisites: Chemistry 31, 32 or chemistry. Credit as arranged, up to four hours per semester. Credits: 1-4.

BIOC 192 - Undergraduate Research

Participation in a research program currently being pursued by a faculty member of department. Written report due at end of each semester. Prerequisites: Chemistry 31, 32 or 35, 36. Some programs may require additional courses in chemistry. Credit as arranged, up to four hours per semester. Credits: 1-4.

BIOC 196 - Intermediate Special Topics

Credits: 1-6.

BIOC 205 - Biochemistry I

CHEM 205 and MMG 205. UG only. Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisites: CHEM 142 or 144. Crosslisted with Credits: 3.

BIOC 206 - Biochemistry II

Continuation of Biochemistry I. Biochemistry of nucleic acids; nucleic acid based processes, such as replication and transcription; cellular Prerequisite: 205. Crosslisted with CHEM 206 and MMG 206. information transfer, genomics, and proteomics. UG only. Credits: 3.

BIOC 207 - Biochemistry Lab

with CHEM 207 and MMG 207. UG only. Introduction to biochemical tools, including spectrometry, chromatography, and electrophoresis; DNA-modifying enzymes; computer-based structure/function exercises. Corequisites: 205 or 206. Crosslisted natural and recombinant enzyme isolation; assays of Credits: 2.

BIOC 212 - Biochemistry of Human Disease

Molecular approach to genetic, metabolic, and infectious diseases; recombinant DNA technology and medicine; 141.

Credits: 3.

BIOC 240 - Macromol Struct Prot&Nucl Acid

Introduction to structural biology and macromolecular structure with an emphasis on protein-protein and protein-nucleic acids interactions. Prerequisites: Biology 1,2; Organic Chemistry; Junior standing recommended; (Crosslisted with MMG 240) Alternate years; not approved for graduate credit.

Credits: 3.

BIOC 301 - General Biochemistry

Survey for science majors. Chemistry, structure, metabolism, and function of proteins, carbohydrates, lipids; enzymes, bioenergetics and respiratory processes. Prerequisites: Chemistry 141, 142 or 143, 144, and departmental permission.

Credits: 3.

BIOC 302 - General Biochemistry

Survey for science majors. Amino acids, nucleic acids, protein synthesis, cellular and physiological control mechanisms. Prerequisites: Chemistry 141, 142 or 143, 144, and departmental permission.

Credits: 3.

BIOC 305 - Medical Biochemistry

A survey course in human biochemistry, with particular emphasis on medical applications. Prerequisite: For medical students only.

Credits: 3.

BIOC 306 - Medical Biochemistry

A survey course in human biochemistry, with particular emphasis on medical applications. Prerequisite: For medical students only.

Credits: 3.

BIOC 307 - Special Topics in Biochemistry

Areas of biochemistry not treated in concurrent advanced course offerings. Prerequisites: 301, 302 or 305-306; Chemistry 162.

Credits: 1-3.

BIOC 308 - Special Topics

Areas of biochemistry not treated in concurrent advanced course offerings. Prerequisites: 301, 302 or 305-306; Chemistry 162.

Credits: 1-3.

BIOC 309 - Laboratory Research Rotations

Two sequential research projects in departmental faculty laboratories, composed of experimental work, an oral presentation, and a written report. (First semester).

Credits: 3.

BIOC 310 - Laboratory Research Rotations

presentation and a written report. (Second semester). faculty laboratories, composed of experimental work, an oral

Credits: 3.

BIOC 351 - Proteins I: Structure&Function

Special Topics: Introduction to concepts in protein structure and chemistry as well as exploration of ideas in a "hands on" fashion using computational resources.

Credits: 3.

BIOC 352 - Protein:Nucleic Acid Interact

Structure of DNA and RNA, and the structure and assembly of nucleoprotein complexes will be described using examples from prokaryotes, yeast, viruses, and mammalian cells in culture. Prerequisites: MMG 211 or equivalent, AGBI 201 or BIOC 301 and 302 or equivalent. Crosslisting: MMG 352. Alternate years.

Credits: 3.

BIOC 353 - Proteins II: Enzymology

General consideration of enzyme nomenclature, purification, assay, kinetics, mechanisms, cofactors, active sites, subunit structure, allosteric and regulatory properties, and control of multienzyme systems. Prerequisites: 301, 302, or 305-306; Chemistry 162.

Credits: 3.

BIOC 354 - Nucleic Acids II

The study of structure, composition, organization, function, synthesis, and metabolism of nucleic acids and nucleoprotein particles and matrices in eukaryotic organisms. Prerequisites: 301-302, 305-306.

Credits: 3.

BIOC 370 - Physical Biochemistry

related topics. Prerequisites: 301, 302 or 306; Chemistry 160 or 162.

Credits: 3.

BIOC 372 - Cancer Biology

Prerequisites: 301-302 or 305-306; under special circumstances , 212.

Credits: 3.

BIOC 381 - Seminar

A review of recent developments and current literature in the various fields of biochemistry. Prerequisite: Department permission.

Credits: 1.

BIOC 391 - Master's Thesis Research

Credit as arranged.

Credits: 1-12.

BIOC 392 - Independent Literature Rsch

Reading and literature research culminating in a paper on a topic of current interest in biochemistry.

Credits: 1-12.

BIOC 395 - Special Topics

Credits: 1-12.

BIOC 396 - Advanced Special Topics

Credits: 1-12.

BIOC 491 - Doctoral Dissertation Research

Credit as arranged.

Credits: 1-12.

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Courses in Chemistry

CHEM 020 - Principles & Contemporary Appl

Lecture plus lab. Designed for nonscience majors. An integrated approach to principles of chemistry within context of contemporary technological issues.

Credits: 4.

CHEM 023 - Outline of General Chemistry

One-semester survey of principles and concepts of general chemistry, designed primarily to meet needs of students in agricultural and health sciences. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 25, 31 or 35.

Credits: 4.

CHEM 025 - Outline of General Chemistry

One-semester survey of principles and concepts of general chemistry, designed primarily to meet the needs of students in agricultural and health sciences. NO LABORATORY. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 23, 31 or 35.

Credits: 3.

CHEM 026 - Outline of Organic & Biochem

Broad overview of most important facts and principles of organic and biochemistry and interrelationships between these branches of chemistry. Prerequisite: 31 or 23. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 28, 42 or 44.

Credits: 4.

CHEM 028 - Outline of Organic & Biochem

Broad overview of most important facts and principles of organic and biochemistry and of interrelationships between these branches of chemistry. NO LABORATORY. Prerequisite: 31 or 23 or 25. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 26, 42 or 44.

Credits: 3.

CHEM 031 - Introductory Chemistry

Basic course in principles and concepts of general chemistry. These courses, or Chemistry 35, 36 serve as suitable prerequisites for 100-level courses in Chemistry. Prerequisite: 31 or 35 for 32.

Credits: 4.

CHEM 032 - Introductory Chemistry

Basic course in principles and concepts of general chemistry. These courses, or Chemistry 35, 36 serve as suitable prerequisites for 100-level courses in Chemistry. Prerequisite: 31 or 35 for 32.

Credits: 4.

CHEM 035 - General Chemistry

General chemistry for students with a strong background in physical sciences. Recommended for students concentrating in physical sciences. Prerequisites: One year of high school chemistry, concurrent enrollment or background in calculus. High school physics recommended; 31 or 35 required for 36.

Credits: 4.

CHEM 036 - General Chemistry

General chemistry for students with a strong background in physical sciences. Recommended for students concentrating in physical sciences. Prerequisites: One year of high school chemistry, concurrent enrollment or background in calculus. High school physics recommended; 31 or 35 required for 36.

Credits: 4.

CHEM 039 - Introduction to Research

Overview of methods, areas, and instrumentation of modern chemical research, including hands-on laboratory experiences and written and oral presentations of a research project. Prerequisite: score of 4 or 5 on the AP Chemistry examination or Department permission.

Credits: 2.

CHEM 040 - Introduction to Research

Overview of methods, areas, and instrumentation of modern chemical research, including hands-on laboratory experiences and written and oral presentations of a research project. Prerequisite: score of 4 or 5 on the AP Chemistry examination or permission of department.

Credits: 2.

CHEM 042 - Intro Organic Chemistry

Concepts for understanding chemistry of structurally simple organic compounds of everyday importance. These principles applied to more complex molecules such as polymers and biologically important compounds such as proteins, lipids, and carbohydrates. (Does not satisfy medical school entrance requirements for undergraduate preparation in organic chemistry.) Prerequisite: 31 or 23. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 26, 28, 44, 141 or 143.

Credits: 4.

CHEM 044 - Intro Organic Chemistry

Concepts for understanding chemistry of structurally simple organic compounds of everyday importance. These principles applied to more complex molecules such as polymers and biologically important compounds such as proteins, lipids, and carbohydrates. (Does not satisfy medical school entrance requirements for undergraduate preparation in organic chemistry.) NO LABORATORY.

Prerequisite: 31 or 23 or 25. May not be taken for credit concurrently with, or

following receipt of, credit for CHEM 26, 28, 42, 141 or 143.

Credits: 3.

CHEM 095 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 1-4.

CHEM 096 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 1-4.

CHEM 121 - Quantitative Analysis

Theory and practice of volumetric and gravimetric analysis. Theoretical discussion of indicators, buffers, pH, etc. Introduction to data analysis, spectrophotometry, and chromatography. Prerequisite: CHEM 032 or CHEM 036.

Credits: 4.

CHEM 131 - Inorganic Chemistry

Symmetry, group theory, molecular structure; valence shell; MO, crystal field, and ligand field bonding models; solid state, electron deficient, acid-base, and simple organo-metallic systems. Prerequisite: 142 or 144.

Credits: 3.

CHEM 141 - Organic Chemistry

Survey of properties and reactions of organic compounds with consideration of bonding, stereochemistry, mechanisms, principles of reactivity, spectroscopy, syntheses, and utilization. Designed for premedical, pre dental, and preveterinary students and for those majoring in biological and physical sciences. Prerequisites: 31, 32 or 35, 36; 141 for 142.

Credits: 4.

CHEM 142 - Organic Chemistry

Survey of properties and reactions of organic compounds with consideration of bonding, stereochemistry, mechanisms, principles of reactivity, spectroscopy, syntheses, and utilization. Designed for premedical, pre dental, and preveterinary students and for those majoring in biological and physical sciences. Prerequisites: 31, 32 or 35, 36; 141 for 142.

Credits: 4.

CHEM 143 - Organic Chemistry for Majors

Survey of principles and reactions of organic chemistry for chemistry majors. Prerequisites: 31, 32 or 35, 36; 143 for 144.

Credits: 4.

CHEM 144 - Organic Chemistry for Majors

Survey of principles and reactions of organic chemistry for chemistry majors. Prerequisites: 31, 32 or 35, 36; 143 for 144.

Credits: 4.

CHEM 146 - Adv Organic Laboratory

Laboratory practice in separation, purification, synthesis, identification, spectroscopy, and physical organic techniques as applied to organic compounds. For Chemistry majors. Prerequisite: 144.

Credits: 2.

CHEM 160 - Phys Chem for Bio Sci Students

Aspects of physical chemistry most pertinent to work in biological sciences: acid-base equilibrium, theory of solutions, thermodynamics and kinetics. Prerequisites: 32 or 36, Physics 42.

Credits: 3.

CHEM 161 - Physical Chemistry

Elementary quantum chemistry, bonding, spectroscopy, and statistical mechanics.

Prerequisites: 32 or 36; Physics 42, Math. 121 or Chem. 167.

Credits: 3.

CHEM 162 - Physical Chemistry

Properties of gases and solutions; thermodynamics and kinetics. Prerequisites: 32 or 36; PHYS 42, MATH 121 or CHEM 167. Note: CHEM 162 may be taken before 161. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 160.

Credits: 0-3.

CHEM 167 - Physical Chemistry Preparation

Review of relevant mathematical and physical concepts as applied to physical chemistry. Prerequisite: CHEM 032 or CHEM 036; MATH 022. Cross-listed with: MATH 167.

Credits: 1.

CHEM 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

CHEM 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

CHEM 198 - Readings & Research

Credits: 1-6.

CHEM 201 - Advanced Chemistry Lab

Laboratory and discussion only. Laboratory problems requiring modern analytical, physical, and inorganic synthetic techniques. Prerequisites: 146, credit for or concurrent enrollment in 161 or 162 and 221.

Credits: 3.

CHEM 202 - Advanced Chemistry Lab

Laboratory only. Laboratory problems requiring modern analytical, physical, and inorganic synthetic techniques. Prerequisites: 201.

Credits: 2.

CHEM 205 - Biochemistry I

Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisite: CHEM 142 or CHEM 144. Cross-listed with: BIOC 205 and MMG 205.

Credits: 3.

CHEM 206 - Biochemistry II

acids; nucleic acid based processes, such as replication and transcription; cellular information transfer, genomics, and proteomics. with: BIOC 206 and MMG 206.

Credits: 3.

CHEM 207 - Biochemistry Lab

Introduction to biochemical tools, including spectrometry, chromatography, and electrophoresis; natural and recombinant enzyme isolation; assays of DNA-modifying enzymes; computer-based structure/function exercises. Co-requisite: CHEM 205 or CHEM 206. Cross-listed with: BIOC 207 and MMG 207.

Credits: 2.

CHEM 214 - Polymer Chemistry

Polymer size and weight distributions. Kinetic models for step polymerization, addition polymerization, copolymerization. Physical properties, characterization of polymers in the solid state and in solution. Prerequisites: 144, 162. Alternate years.

Credits: 3.

CHEM 221 - Instrumental Analysis

Systematic survey of modern methods of chemical analysis. Fundamental principles and applications of spectroscopy, electrochemistry, and separation techniques. Prerequisites: Credit for or concurrent enrollment in 161 or 162.

Credits: 3.

CHEM 222 - Advanced Analytical Chemistry

In-depth coverage of selected modern instrumental methods of chemical analysis, emphasizing most recent developments in spectroscopy, electrochemistry, and separation techniques. Prerequisite: CHEM 221.

Credits: 3.

CHEM 223 - Mass Spectrometry

students in the course. Prerequisites: 142 or 144 and 221 or instructor's permission.

Credits: 3.

CHEM 224 - Chemical Separations

Theory and practice of chromatographic separations. Emphasis on gas-liquid, liquid-liquid, and liquid-solid chromatography. Prerequisite: CHEM 221. Alternate years.

Credits: 3.

CHEM 225 - Electroanalytical Chemistry

Principles of modern electrochemical analysis focusing mainly on finite current methods - voltammetry, polarography, chronoamperometry, cyclic voltammetry, etc. Introductory to modern operational amplifier instrumentation. Double layer theory and electron transfer kinetics. Prerequisite: 161. Alternate years.

Credits: 3.

CHEM 226 - Analytical Spectroscopy

Principles of optical spectroscopic methods of analysis. Emphasis on theory and practice of atomic spectroscopy and new molecular spectroscopic methods. Prerequisite: CHEM 221. Alternate years.

Credits: 3.

CHEM 227 - Spec Topics in Analytical Chem

Selected topics of current interest in analytical chemistry. New techniques and methodologies, especially in chemical instrumentation. Credit as arranged.

Credits: 1-3.

CHEM 228 - Spec Topics in Analytical Chem

Selected topics of current interest in analytical chemistry. New techniques and methodologies, especially in chemical instrumentation. Credit as arranged.

Credits: 1-4.

CHEM 231 - Adv Inorganic Chemistry

Advanced group theory; electronic transitions in metal complexes and spectroscopic analysis; inorganic substitution and electron transfer mechanisms; homogeneous and heterogeneous catalytic processes; bioinorganic chemistry.

Prerequisite: 131.

Credits: 3.

CHEM 234 - Organometallic Chemistry

Systematic survey of synthesis, properties, structures, bonding, and reactions of both main group and transition series organometallic compounds. Variation of structure and metal-carbon bond stability throughout periodic system. Prerequisite: 231. Alternate years.

Credits: 3.

CHEM 236 - Physical Inorganic Chemistry

magnetic resonance, Mossbauer spectroscopy, and optical activity. Prerequisites: 161, 231. Alternate years.

Credits: 3.

CHEM 237 - SpecTopic: Inorganic Chemistry

Areas of current interest involving inorganic systems such as bioinorganic, solid state and polymers with unusual properties. Credit as arranged.

Credits: 1-3.

CHEM 238 - SpecTopic: Inorganic Chemistry

Areas of current interest involving inorganic systems such as bioinorganic, solid state and polymers with unusual properties. Credit as arranged.

Credits: 1-3.

CHEM 241 - Advanced Organic Chemistry

Stereochemistry, reactivity criteria, reaction mechanisms, and synthetic methods stressed. Reactive intermediates such as carbanions, carbocations, carbenes, and free radicals used to systematize mechanistic discussions. Prerequisites: 142, 162.

Credits: 3.

CHEM 242 - Advanced Organic Chemistry

Detailed mechanistic descriptions of processes which may include enolate reactions and stereochemical considerations, addition processes such as halogenation, cycloadditions, hydroboration, hydride and metal-ammonia reductions, annulations such as biomimetic cyclizations, oxidation processes, rearrangements, eliminations, and examinations of approaches to multistep syntheses. Prerequisite: CHEM 241.

Credits: 3.

CHEM 251 - Physical Organic Chemistry

Structure-reactivity relationships, molecular properties and their interpretation. Methods and results of investigations of mechanisms of common organic reactions. Prerequisites: 142, 162. Alternate years.

Credits: 3.

CHEM 253 - Practical NMR Spectroscopy

Introduction to high resolution pulsed Fourier transform nuclear magnetic resonance spectroscopy. Chemical shifts, scalar coupling, relaxation, molecular symmetry considerations, chemical exchange effects. Prerequisite: CHEM 142 or CHEM 144, CHEM 161. Undergraduate only.

Credits: 3.

CHEM 257 - Special Topics in Organic Chem

Advanced level discussion of specific topics in organic chemistry of current interest such as photochemistry, carbenes, bioorganic chemistry, magnetic resonance, etc. Credit as arranged.

Credits: 1-3.

CHEM 258 - Special Topics in Organic Chem

Advanced level discussion of specific topics in organic chemistry of current interest such as photochemistry, carbenes, bioorganic chemistry, magnetic resonance, etc. Credit as arranged.

Credits: 1-3.

CHEM 262 - Chemical Thermodynamics

Systematic study of application of thermodynamics to chemical problems. Concepts of statistical thermodynamics introduced. Prerequisites: 161, 162. Alternate years.

Credits: 3.

CHEM 263 - Intro to Quantum Mechanics

General considerations of quantum mechanics. Development of techniques pertinent to application of quantum mechanics to chemical problems. Prerequisite: CHEM 161, CHEM 162. Alternate years.

Credits: 3.

CHEM 264 - Fundamentals of Spectroscopy

In-depth discussion of the theory of molecular states and transitions between them, with applications to electronic spectroscopy. Explicit treatment of vibrations in molecules. Prerequisites: 161, Math.121. Alternate years.

Credits: 3.

CHEM 265 - Statistical Mechanics

CHEM 161, CHEM 162; CHEM 263

Credits: 3.

CHEM 266 - Molecular Orbital Theory

Introduction to Huckel molecular orbital method. Energy levels and orbitals, molecular properties and their interpretation. Effects of substituents on electronic structure. Extensions of Huckel method. Prerequisites: 142, 161. Alternate years. UG only.

Credits: 3.

CHEM 267 - Special Topics in Phys Chem

Advanced discussion of physical chemistry and chemical physics, group theory, solid state, molecular orbital theory, irreversible thermodynamics, kinetics and mechanisms, solution theory, calculations, spectroscopy. Credit as arranged.

Credits: 1-4.

CHEM 268 - Special Topics in Phys Chem

physics, group theory, solid state, molecular orbital theory, irreversible thermodynamics, kinetics and mechanisms, solution theory, calculations, spectroscopy. Credit as arranged.

Credits: 1-4.

CHEM 282 - Senior Seminar

Oral and written presentation of a subject of current chemical interest.

Prerequisite: Audit of CHEM 381.

Credits: 1.

CHEM 285 - Special Topics

Credits: 1-3.

CHEM 286 - Special Topics

Credits: 1-3.

CHEM 291 - Undergrad Research

Special study in inorganic, analytical, physical, or organic chemistry with an assigned staff member. Findings submitted in written form. Prerequisite: Departmental permission. Credit as arranged with maximum of four hours per semester and 12 hours for the undergraduate program.

Credits: 1-4.

CHEM 295 - Advanced Special Topics

See Schedule of Courses for specific titles. UG only.

Credits: 1-3.

CHEM 296 - Advanced Special Topics

See Schedule of Courses for specific titles. UG only.

Credits: 1-3.

CHEM 342 - Natural Products: Alkaloids

The major classes of alkaloids surveyed from a biogenetic point of view. Classical and modern degradation methods, total syntheses and biosynthetic incorporation of labeled compounds. Prerequisite: Credit or concurrent enrollment in CHEM 242. Alternate years.

Credits: 3.

CHEM 344 - Natural Products: Terpenes

The chemistry of mono, sesqui, di and triterpenes, including degradations, structure proofs, total syntheses, rearrangement reactions, and biogenesis.

Prerequisite: Credit or concurrent enrollment in CHEM 242. Alternate years.

Credits: 3.

CHEM 363 - Quantum Chemistry

Applications of quantum mechanical techniques to problems of chemical interest.

Prerequisite: CHEM 263. Offered as occasion warrants.

Credits: 3.

CHEM 381 - Grad Seminar

Current problems and literature.

Credits: 1.

CHEM 382 - Grad Seminar

Current problems and literature.

Credits: 1.

CHEM 388 - Rsch Prob Conception&Solution

Independent origination of research problems and the methods of their solution.
Required of all doctoral course shall be completed at least six months in advance of the Ph.D. dissertation defense, and in no case later than the end of the seventh semester of Graduate studies at UVM.

Credits: 1.

CHEM 391 - Master's Thesis Research

Credits: 1-18.

CHEM 395 - Independent Lit Rsch Project

Reading and literature research culminating in the preparation of a comprehensive and critical review of a topic of current interest in chemistry.

Credits: 1-12.

CHEM 491 - Doctoral Dissertation Research

Credits: 1-18.

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Courses in Micr & Molecular Genetics

MMG 065 - Microbiology & Pathogenesis

Overview of microbiology, emphasizing the relationships between the structure, metabolism, and genetics of pathogenesis. Prerequisite: One semester chemistry. Not intended for students who have completed BIOL 001 and BIOL 002 or equivalent. Fall.
Credits: 4.

MMG 095 - Special Topics

Credits: 1-3.

MMG 096 - Special Topics

Credits: 1-3.

MMG 101 - Biology of Microorganisms

An introduction to the biology of microorganisms, encompassing their diversity, metabolism, pathogenesis, and ecology. Prerequisites: One semester of chemistry and biology, or equivalent, or instructor's permission. Fall.
Credits: 4.

MMG 102 - Molecular Genetics

Modern molecular genetics. Topics include: mechanisms of gene expression in prokaryotes and eukaryotes; retroviruses; cancer biology; human genetic diseases. Emphasis on experimental and conceptual aspects. Prerequisite: MMG 101, BOT 132, or Instructor permission. Spring.
Credits: 4.

MMG 195 - Special Topics

Prerequisite: Instructor's permission. Credits negotiable.
Credits: 1-6.

MMG 196 - Special Topics

Prerequisite: Instructor's permission. Credits negotiable.
Credits: 0-6.

MMG 197 - Undergrad Research

Undergraduate honors students accommodated in individual research projects sponsored by department member. Arrangement with individual department member and department chairperson approval. Credits negotiable.
Credits: 1-6.

MMG 198 - Undergrad Research

Undergraduate honors students accommodated in individual research projects sponsored by department member. Arrangement with individual department member and department chairperson approval. Credits negotiable.

Credits: 1-6.

MMG 201 - Molecular Cloning Lab

Intensive advanced laboratory course in the fundamentals of recombinant DNA technology through the isolation and characterization of a unique gene.

Prerequisite: 102 or equivalent. Fall.

Credits: 3.

MMG 203 - Mamm Cell Cult:Molecular Biol

The basic principles and techniques of mammalian cell culture, as well as cell and mammalian molecular genetics. Prerequisite: Permission of coordinator. Alternate years, Spring.

Credits: 4.

MMG 205 - Biochemistry I

Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems, including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisites: CHEM 142 or 144. Crosslisted with BIOC 205 and CHEM 205. UG only. Fall.

Credits: 3.

MMG 206 - Biochemistry II

with BIOC 206 and CHEM 206. UG only. Spring.

Credits: 3.

MMG 207 - Biochemistry Lab

spectrometry, chromatography, and electrophoresis;

Credits: 2.

MMG 211 - Prokaryotic Molecular Genetics

The organization, replication, and expression of genes in prokaryotes, focusing on the genetics of Escherichia coli and its viruses. Prerequisite: Introductory microbiology, biochemistry, genetics, and/or cell biology courses. Fall.

Credits: 3.

MMG 220 - Environmental Microbiology

The activities of microorganisms, primarily bacteria, in air, soil, and water.

Prerequisite: A previous course in microbiology. Alternate years.

Credits: 3.

MMG 222 - Clinical Microbiology

Comprehensive study of human pathogenic microorganisms and their disease states in humans, which includes pathogenic bacteriology, medical mycology, and virology. Laboratory sessions provide practical experience in handling and identifying these pathogens. Prerequisite: 65 or 101 or equivalent. Spring.

Credits: 4.

MMG 223 - Immunology

Analysis of the immune response with respect to structure and function of immunoglobulins and the T-cell receptor, tolerance, innate and adaptive immunity, the Major Histocompatibility Complex, hypersensitivity states, transplantation,

cancer, and AIDS. Prerequisite: Instructor's permission. Alternate years. Fall.
Credits: 3.

MMG 225 - Eukaryotic Virology

An in-depth analysis of eukaryotic virus-mammalian cell interactions emphasizing mechanisms by which viruses modulate gene expression in infected cells.
Prerequisite: 101 or 102 or equivalent. Alternate years. Fall.
Credits: 3.

MMG 231 - Bioinformatics

Fall.
Credits: 3.

MMG 240 - Macromol Struct Prot&Nucl Acid

Introduction to structural biology and macromolecular structure with an emphasis on protein-protein and protein-nucleic acids interactions. Prerequisites: Biology 1, 2; Organic Chemistry; Junior standing recommended; concentration in Physics. (Cross-listed with BIOC 240) Alternate years, not approved for graduate credit.
Spring.
Credits: 3.

MMG 295 - Special Topics

Supervised investigations in microbiology or molecular genetics. Prerequisite: Instructor permission. Credit as arranged.
Credits: 1-6.

MMG 296 - Special Topics

Supervised investigations in microbiology or molecular genetics. Prerequisite: Instructor permission. Credit as arranged.
Credits: 0-6.

MMG 302 - Medical Microbiology

Fundamentals of pathogenic microbiology emphasizing mechanisms of disease production and mechanisms of resistance to infection. The ecologic rather than taxonomic approach is stressed. Primarily for Medical students.
Credits: 8.

MMG 310 - Current Topics in MMG

Seminar to focus on specific issues at the forefront of current research in molecular genetics. Meetings will involve student presentation and discussion of research articles. Prerequisite: Permission of Coordinator.
Credits: 2.

MMG 312 - Eukaryotic Molecular Genetics

The use of lower eukaryotes, such as the yeasts *Saccharomyces cerevisiae* and *Schizosaccharomyces pombe*, as model genetic systems to answer questions of basic biological importance. Prerequisites: Instructor permission; MMG 233 and CLBI 301, or equivalent.
Credits: 3.

MMG 320 - Cellular Microbiology

Utilizes primary literature to explore the cellular and molecular basis of microbial pathogenesis caused by viruses, pathogenic bacteria and protozoan parasites. Alternate years. Spring.
Credits: 4.

MMG 332 - Critical Reading

Students will participate in group discussions to critically evaluate and interpret the experimental data from one assigned paper from the scientific literature per week.

Prerequisite: Permission of Coordinator. Fall.

Credits: 1.

MMG 352 - Protein:Nucleic Acid Interact

Structure of DNA and RNA, and the structure and assembly of nucleoprotein complexes will be described using examples from prokaryotes, yeast, viruses, and mammalian cells in culture. Prerequisite: MMG 211 or equivalent; AGBI 201 or BIOC 301; BIOC 302 or equivalent. Cross-listed with: BIOC 352. Alternate years. Spring.

Credits: 3.

MMG 391 - Master's Thesis Research

Credits: 1-18.

MMG 491 - Doctoral Dissertation Research

Credits: 1-18.

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Biochemistry (B. S.)

College: [Agriculture and Life Sciences](#), [Arts and Sciences](#)

Department(s): [Biochemistry Program](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Arts and Sciences B. S. Requirements](#)

Specific Requirements

The Biochemistry core requires satisfactory completion of BIOL 1, 2 or BIOL 11, 12 (Introductory Biology); MATH 21, 22 (Calculus); PHYS 31, 42 with 21/22 (Physics); CHEM 35, 36 (Introductory Chemistry); CHEM 143, 144 (Organic Chemistry); CHEM 162 (Thermodynamics); BIOC/CHEM/MMG 205 (Biochemistry I); BIOC/CHEM/MMG 206 (Biochemistry II); BIOC/CHEM/MMG 207 (Biochemistry Lab); CHEM 221 (Instrumental Analysis); CHEM 282 (Senior Thesis); BOT 132 or BIO 101 (Genetics); MMG 102 or BIOL 103 (Cell Biology); and advanced Biochemistry electives.

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Departments and Programs

Biology Department

Colleges: [Arts and Sciences](#), [Graduate College](#)

Faculty: [Biology](#)

Courses: [Biology \(BIOL\)](#)

Contact Information:

University of Vermont

Biology Department

Marsh Life Science Building, Room 120A

109 Carrigan Drive

Burlington, VT 05405-0086

Phone: (802) 656-2922

Fax: (802) 656-2914

Email: Biology@uvm.edu

Web Site: <http://www.uvm.edu/~biology/>

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 - Bachelor of Arts (B. A.)
 - [Biology](#)
 - [Cell and Molecular Biology Concentration](#)
 - [Environmental Biology Concentration](#)
 - [Forensic Biology Concentration](#)
 - [General Biology Concentration](#)
 - [Neurobiology Concentration](#)
 - [Professional Biology Concentration](#)
 - [Zoology](#)
 - Bachelor of Science (B. S.)
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Courses in Biology

BIOL 001 - Principles of Biology

Principles of cellular biochemistry, cell biology, genetics and evolution. Topics presented: biochemistry; metabolism, cell structure and function; respiration; photosynthesis; molecular, Mendelian and population genetics; microevolution. Credit not given for both 1 and 11.

Credits: 4.

BIOL 002 - Principles of Biology

Principles of organismal biology; nature of scientific inquiry, plant form and function, pollination ecology, animal phylogeny illustrated by comparative anatomy and physiology; animal behavior. Credit not given for both 2 and 12.

Credits: 4.

BIOL 003 - Human Biology

For nonscience majors. Selected biological topics relevant to humans, such as cancer, human genetics, environmental toxicants; biological concepts necessary for understanding these problems.

Credits: 3.

BIOL 004 - The Human Body

Introduction to basic human anatomy and organ system physiology emphasizing normal homeostatic mechanisms and the changes that accompany common disorders and diseases. For nonscience majors.

Credits: 3.

BIOL 006 - Evolutionary Biology

For nonscience majors. The process of biological evolution, evidence for evolution, mechanisms of evolutionary change, origin of adaptations, evolution of behavior, social and reproductive behavior.

Credits: 3.

BIOL 009 - Science As a Way of Knowing

History of scientific method and its application to generation of knowledge. How science seeks to understand

Credits: 3.

BIOL 011 - Exploring Biology

Exploring biology from cells to organisms. Topics include origin of life; ancestral

organisms; uni- and multicellular energetics; evolution of respiration and metabolism; and the genetic code. Prerequisites: Biology/Zoology, Environmental Sciences (A&S) majors only, others by permission; concurrent enrollment or credit in Chemistry 31 or 32. Credit not given for both 1 and 11.

Credits: 4.

BIOL 012 - Exploring Biology

An evolutionary perspective to exploring biology. Topics include patterns of inheritance; Darwinian evolution; evolution of biodiversity; ecology of organisms; human effects on biological systems. Prerequisites: Biology/Zoology, Environmental Sciences (A&S) majors only, others by permission; enrollment or credit in Chemistry 31 or 32. Credit not given for both 2 and 12.

Credits: 4.

BIOL 095 - Special Topics

See Schedule of Courses for specific titles.

Credits: 0-6.

BIOL 096 - Special Topics

See Schedule of Courses for specific titles.

Credits: 0-6.

BIOL 101 - Genetics

Study of the basis of inheritance, covering topics from classical genetics to modern molecular studies. Analysis of genetic data emphasized. Prerequisites: 1, 2 or 11, 12; Chem 31, 32, organic chemistry recommended.

Credits: 3.

BIOL 102 - Environmental Biology

Ecosystem and community structure; population growth; species interactions and niche dynamics; population and chromosomal genetics; speciation in fossil records; ecology of animal behavior; applied ecology. Prerequisites: 1, 2; or 11,12; Math. 19 or 21.

Credits: 4.

BIOL 103 - Cell Function & Structure

BIOL 012; CHEM 031, CHEM 032,

Credits: 4.

BIOL 104 - Comparative Animal Physiology

103 recommended.

Credits: 4.

BIOL 191 - Research Apprenticeship

Participation in a faculty research project. Suitable for students in first through junior years. Students must follow all departmental guidelines. Prerequisite: Departmental permission.

Credits: 1-3.

BIOL 192 - Research Apprenticeship

Participation in a faculty research project. Suitable for students in first through junior years. Students must follow all departmental guidelines. Prerequisite: Departmental permission.

Credits: 1-3.

BIOL 193 - Internship in Biology

- permission.
Credits: 3.
- BIOL 194 - Internship in Biology
permission.
Credits: 3.
- BIOL 195 - Special Topics
See Schedule of Courses for specific titles.
Credits: 0-6.
- BIOL 196 - Special Topics
See Schedule of Courses for specific titles.
Credits: 0-6.
- BIOL 197 - Undergraduate Research
Individual laboratory research under faculty guidance. Students must follow departmental guidelines or be disenrolled. Six credits given only with presentation in department Research Day or approved venue. Prerequisite: Junior or senior standing, departmental permission.
Credits: 3 or 6.
- BIOL 198 - Undergraduate Research
Individual laboratory research under faculty guidance. Students must follow departmental guidelines or be disenrolled. Six credits given only with presentation in department Research Day or approved venue. Prerequisite: Junior or senior standing, departmental permission.
Credits: 3 or 6.
- BIOL 202 - Quantitative Biology
Mathematical concepts applied to biological problems such as growth, metabolism, temperature effects, kinetics, and graphic interpretation of data. Statistics not treated. Prerequisite: At least one intermediate level course in biology, Math. 9, or instructor's permission.
Credits: 3.
- BIOL 203 - Population Ecology
Analysis of growth, regulation, and interrelations of biological populations in theoretical, laboratory, and natural systems. Prerequisite: Biology 102.
Credits: 3.
- BIOL 205 - Adv Genetics Lab
Lecture/discussions alternated with laboratories to provide experiences with genetic techniques. Bench work and data analysis emphasized. Prerequisite: 101.
Credits: 2 or 4.
- BIOL 206 - Immature Insects
Evolution, morphology, taxonomy, and natural history of immature insects. Laboratory covers some morphology, but is predominantly identification. Prerequisites: Junior standing; major or minor in Biology. UG only.
Credits: 4.
- BIOL 208 - Morphology&Evolution Insects
Interrelationships, fossil history, comparative anatomy of major insect groups. Morphology and way of life of representatives of important insect orders and classes of arthropods. Prerequisite: 102 or 104.

Credits: 4.

BIOL 209 - Field Zoology

Collection, identification of invertebrates; September field work. Half of student's collection is general, identified to family; half is one or two groups identified to species. Prerequisite: 102 or 104.

Credits: 4.

BIOL 212 - Comparative Histology

Anatomy of tissues, chiefly vertebrate. Tissue similarities and specializations of organs among the various groups of animals in relation to function. Prerequisite: 104.

Credits: 4.

BIOL 217 - Mammalogy

Classification, identification, morphology, evolution, and distribution of mammals. Prerequisite: 102.

Credits: 4.

BIOL 219 - Compar/Func Vertebrate Anatomy

(2-4) Structure, function, and phylogeny; survey of evolutionary and functional trends; investigation of the structure of all chordate groups. Prerequisite: 104. Alternate years, 2000-01.

Credits: 4.

BIOL 223 - Developmental Biology

An analysis of the cellular, subcellular, molecular, and genetic mechanisms that operate during oogenesis and embryogenesis in invertebrate and vertebrate organisms. Prerequisites: 101, 103.

Credits: 3.

BIOL 225 - Physiological Ecology

Processes by which animals cope with moderate, changing, and extreme environments. Prerequisites: 102, 104.

Credits: 3.

BIOL 238 - Winter Ecology

Natural history and winter adaptation of plants and animals of western Maine. Field work during winter break; oral and written report completed during spring semester. Prerequisite: Instructor permission.

Credits: 3.

BIOL 246 - Ecological Parasitology

Parasite-host interactions examined with evolutionary perspective. Topics include the origin of parasites, evolution of virulence, and ecological consequences of parasitism. Laboratory includes original experiments. Prerequisite: 102.

Credits: 3-4.

BIOL 254 - Population Genetics

The forces that change gene frequencies in populations are examined. Topics include Hardy-Weinberg-Castle equilibrium, selection, mutation, migration, genetic drift, and quantitative genetics. Prerequisites: 102; calculus and statistics recommended.

Credits: 4.

BIOL 255 - Compar Reproductive Physiology

Various means by which animals reproduce. Special emphasis on the embryological origin and evolutionary relationships of sex cell differentiation.

Prerequisite: 104.

Credits: 3.

BIOL 261 - Neurobiology

Focus on molecular and cellular aspects of the nervous system. Electrical signaling, synaptic transmission, signal transduction, neural development, plasticity and disease. Prerequisite: 103. Cross-listing: ANNB 26.

Credits: 3.

BIOL 263 - Genetics Cell Cycle Regulation

Molecular events during the cell cycle; mutants defective in cell cycling; comparison of normal and transformed (cancer) cell cycling. Prerequisite: 101 or instructor's permission. Alternate years, 1999-00.

Credits: 3.

BIOL 264 - Community Ecology

Theoretical and empirical analyses of community structure. Topics include population growth, metapopulation dynamics, competition, predation, species diversity, niches, disturbance succession, island biogeography, and conservation biology. Prerequisites: 102; at least junior standing.

Credits: 3.

BIOL 265 - Developmental Molecular Genetics

Current topics in developmental genetics explored through lectures and discussions of current literature; emphasis on molecular approaches.

Prerequisites: 101. Alternate years, 2000-01.

Credits: 3.

BIOL 267 - Molecular Endocrinology

Study of hormone action at the cellular and molecular level. Prerequisite: 101.

Credits: 4.

BIOL 268 - Medical Entomology

permission. UG only. Examines the arthropod vectors of temperate and tropical diseases that affect human health, using an ecological and a systematics approach. Prerequisites: 102 or instructor

Credits: 3-4.

BIOL 269 - Plant-Animal Interactions

plants and animals. Topics include herbivory, pollination, seed predation, biocontrol, and effects of global climate change. Prerequisites: Biology 1,2 or 11,12; Biology 102 recommended. UG only.

Credits: 3.

BIOL 270 - Speciation and Phylogeny

Contributions of modern research in such fields as genetics, systematics, distribution, and serology to problems of evolutionary change. Prerequisite: 101 (102 recommended). Alternate years, 1999-00.

Credits: 3.

BIOL 276 - Behavioral Ecology

Adaptive significance of behavior in natural environments. Evolutionary theory applied to behavior and tested with field data. Prerequisites: 102 or instructor

- permission. UG only.
Credits: 3.
- BIOL 281 - Biology Seminar
Credits 0-1.
Credits: 0.
- BIOL 282 - Eco Lunch
Review and discussion of current zoological research. Attendance required of Biology graduate students. Seniors in research programs may enroll for 0 credits.
Credits: 0-1.
- BIOL 283 - Ecology-Evolution Journal Club
Review and discussion of current zoological research. Attendance required of Biology graduate students. Seniors in zoological research programs may enroll.
Credits: 0.
- BIOL 284 - Cell Lunch
Review and discussion of current zoological research. Attendance required of Biology graduate students. Seniors in research programs may enroll for 0 credits.
Credits: 1.
- BIOL 285 - John Dewey Honors Crs: Biology
Advanced Biology course for John Dewey Honors Students with Biology/Zoology/Environmental Sciences Majors. Requires enrollment in approved 200-level course and includes additional assignments. Prerequisites: Departmental permission. UG only.
Credits: 0.
- BIOL 288 - Seminar in Forensic Biology
Capstone course in seminar format for undergraduates concentrating in Forensic Biology in the Biology major; discussions, readings, guest speakers.
Pre/corequisites:
Credits: 1.
- BIOL 295 - Special Topics
See Schedule of Courses for specific titles.
Credits: 0-4.
- BIOL 296 - Advanced Special Topics
See Schedule of Courses for specific titles.
Credits: 2-4.
- BIOL 297 - Advanced Special Topics
See Schedule of Courses for specific titles. UG only.
Credits: 1-6.
- BIOL 298 - Advanced Special Topics
See Schedule of Courses for specific titles. UG only.
Credits: 1-6.
- BIOL 299 - Advanced Special Topics
See Schedule of Courses for specific titles. UG only.
Credits: 1-6.
- BIOL 301 - Cell Biology
with: CLBI 301.
Credits: 3.

BIOL 302 - Specialized Cells & Cell Proc

Current issues and research in the field of plant, invertebrate, mammalian cell, and molecular biology. Prerequisite: BIOL 301. Cross-listed with: CLBI 302.

Credits: 3.

BIOL 371 - Graduate Colloquium

Topics of current faculty and graduate student interest presented in a seminar-discussion format. Specific titles for colloquia will be listed in the course schedule.

Credits: 1.

BIOL 381 - Special Topics

Readings with conferences, small seminar groups, or laboratories intended to contribute to the programs of graduate students in phases of zoology for which formal courses are not available. Prerequisite: An undergraduate major in life science.

Credits: 0-4.

BIOL 391 - Master's Thesis Rsch

Credit as arranged.

Credits: 1-10.

BIOL 491 - Doctoral Dissertation Research

Credits: 1-10.

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Biology: Cell and Molecular Biology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration serves students with interests in Cell, Molecular, and Developmental Biology.

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Bachelor of Arts in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional 200-level or other advanced courses approved by the department (including at least one course with laboratory). One course may be taken from outside the Department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the required advanced courses. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: Students may choose from: Biology 205, 212, 223, 231, 263, 265, 267, and Honors 208, 209. In addition, students may take approved courses offered by other biologically-oriented departments.

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Biology: Environmental Biology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration is appropriate for students with interests in Ecology, Evolution, Conservation Biology, or Animal Behavior.

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Bachelor of Arts in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional 200-level or other advanced courses approved by the department (including at least one course with laboratory). One course may be taken from outside the Department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the required advanced courses. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: Biology 102 is required of all Biology majors. Other recommended courses in this concentration include, but are not restricted to: Biology 203, 206, 208, 217, 238, 246, 254, 255, 264, 270, 295.

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Biology: Forensic Biology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration is appropriate for students wishing to explore the fast growing discipline of criminal forensics and prepares students for government positions and for entry into graduate programs.

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Bachelor of Arts in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional 200 level or other advanced courses approved by the department (including at least one course with laboratory). One course may be taken from outside the Department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the required advanced courses. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: Biology 288 (a one-credit Forensic Biology seminar) and Chemistry 121. Students should also take 3 courses from Pharmacology 272, Biology 205, 209, 212, 254, 268, 296 (Self-Designed Genetics Laboratory).

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Biology: General Biology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration serves students who wish a very broad training in life science, including zoology.

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Bachelor of Arts in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional 200-level or other advanced courses approved by the department (including at least one course with laboratory). One course may be taken from outside the Department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the required advanced courses. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: After consultation with their Biology Department faculty advisor, students take a variety of courses drawn from the approximately three dozen offered by the Biology Department or from other approved courses in life science. Consult the [Biology Department](#) for a listing.

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Biology: Neurobiology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration focuses on molecular and cellular aspects of the nervous system. Funding from the Howard Hughes Medical Institute allows students to take courses offered by faculty of three departments. Three courses are the core: Biology 261 and 295 (Neurobiology Lecture and Neurobiology Laboratory) and PSYC 221 (Physiological Psychology). Students may also take ANNB 202, PSYC 121, 220, 223, PHRM 290 as well as other advanced courses in cell and molecular biology.

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Bachelor of Arts in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional 200-level or other advanced courses approved by the department (including at least one course with laboratory). One course may be taken from outside the Department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the required advanced courses. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: Three courses are the core, Biology 261 and 295 (Neurobiology Lecture and Neurobiology Laboratory) and PSYC 221 (Physiological Psychology). Students may also take ANNB 202, PSYC 121, 220, 223, PHRM 290 as well as other

advanced courses in cell and molecular biology.

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Biology: Professional Biology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration is appropriate for students with interests in the medical, veterinary, dental, and allied health fields

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Bachelor of Arts in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional 200-level or other advanced courses approved by the department (including at least one course with laboratory). One course may be taken from outside the Department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the required advanced courses. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: Biology 205, 212, 217, 219, 223, 246, 254, 265, 295, and Honors 208, 209. In addition, students may take approved courses offered by other biologically-oriented departments.

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Zoology (B. A.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Chemistry 31, 32 or 35, 36, to be taken the first year if possible; 141, 142; Math. 19, 20 or 21; Physics 21, 22 in combination with 11, 12 or preferably 31, 42. Thirty-three hours of Biology including Biology 1, 2, 101, 102, 103, 104, and three advanced courses (including one with lab).

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Biology: Cell and Molecular Biology Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration serves students with interests in Cell, Molecular, and Developmental Biology.

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Bachelor of Science in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; Chemistry 141, 142; Physics 21, 22 in combination with 11, 12, or preferably 31, 42; Math. 19, 20 or 21, 22. Statistics 141 or 211. Forty-six hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, and 104. Of the remaining 23 hours in 200-level courses, no more than 11 hours may be taken outside the department from the list of approved courses. Up to six hours of Biochemistry 301, 302 and/or up to six hours for Biology 197, 198 or Honors 208, 209 will be accepted as credit toward the 23 hours in 200-level courses. For a list of approved offerings in other biologically-oriented departments, consult the Biology Department Office.

Concentration Courses: Students may choose from: Biology 205, 212, 223, 231, 263, 265, 267, and Honors 208, 209. In addition, students may take approved courses offered by other biologically-oriented departments.

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Biology: Environmental Biology Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration is appropriate for students with interests in Ecology, Evolution, Conservation Biology, or Animal Behavior.

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Bachelor of Science in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; Chemistry 141, 142; Physics 21, 22 in combination with 11, 12, or preferably 31, 42; Math. 19, 20 or 21, 22. Statistics 141 or 211. Forty-six hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, and 104. Of the remaining 23 hours in 200-level courses, no more than 11 hours may be taken outside the department from the list of approved courses. Up to six hours of Biochemistry 301, 302 and/or up to six hours for Biology 197, 198 or Honors 208, 209 will be accepted as credit toward the 23 hours in 200-level courses. For a list of approved offerings in other biologically-oriented departments, consult the Biology Department Office.

Concentration Courses: Biology 102 is required of all Biology majors. Other recommended courses in this concentration include, but are not restricted to: Biology 203, 206, 208, 217, 238, 246, 254, 255, 264, 270, 295.

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Biology: General Biology Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration serves students who wish a very broad training in life science, including zoology.

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Bachelor of Science in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; Chemistry 141, 142; Physics 21, 22 in combination with 11, 12, or preferably 31, 42; Math. 19, 20 or 21, 22. Statistics 141 or 211. Forty-six hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, and 104. Of the remaining 23 hours in 200-level courses, no more than 11 hours may be taken outside the department from the list of approved courses. Up to six hours of Biochemistry 301, 302 and/or up to six hours for Biology 197, 198 or Honors 208, 209 will be accepted as credit toward the 23 hours in 200-level courses. For a list of approved offerings in other biologically-oriented departments, consult the Biology Department Office.

Concentration Courses: After consultation with their Biology Department faculty advisor, students take a variety of courses drawn from the approximately three dozen offered by the Biology Department or from other approved courses in life science. Consult the [Biology Department](#) ↻ for a listing.

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Biology: Neurobiology Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration focuses on molecular and cellular aspects of the nervous system. Funding from Howard Hughes Medical Institute allows students to take courses offered by faculty of three departments. Three courses are the core: Biology 261 and 295 (Neurobiology Lecture and Neurobiology Laboratory) and PSYC 221 (Physiological Psychology). Students may also take ANNB 202, PSYC 121, 220, 223, PHRM 290 as well as other advanced courses in cell and molecular biology.

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Bachelor of Science in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; 141, 142; Physics 11 or 31 in combination with 21 (and Physics 12 or 42 in combination with 22 recommended); Math. 19, 20; or 21, 22. Thirty-two hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, 104 and three additional courses (including at least one course with laboratory) in one of several concentrations. One course may be taken from outside the department from approved offerings of the biologically-oriented departments. For a list of approved offerings in other departments, consult the Biology Department Office. College honors will not count toward the major. NOTE: Most professional schools (e.g. medicine, dentistry, veterinary, physical therapy) require the equivalent of Physics 12 or 42 in combination with 22.

Concentration Courses: Three courses are the core, Biology 261 and 295 (Neurobiology Lecture and Neurobiology Laboratory) and PSYC 221 (Physiological Psychology). Students may also take ANNB 202, PSYC 121, 220, 223, PHRM 290 as well as other

advanced courses in cell and molecular biology.

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Biology: Professional Biology Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Overview

This concentration is appropriate for students with interests in the medical, veterinary, dental, and allied health fields

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Bachelor of Science in Biology: Chemistry 31, 32 or 35, 36 to be taken the first year if possible; Chemistry 141, 142; Physics 21, 22 in combination with 11, 12, or preferably 31, 42; Math. 19, 20 or 21, 22. Statistics 141 or 211. Forty-six hours of biology including introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted), 101, 102, 103, and 104. Of the remaining 23 hours in 200-level courses, no more than 11 hours may be taken outside the department from the list of approved courses. Up to six hours of Biochemistry 301, 302 and/or up to six hours for Biology 197, 198 or Honors 208, 209 will be accepted as credit toward the 23 hours in 200-level courses. For a list of approved offerings in other biologically-oriented departments, consult the Biology Department Office.

Concentration Courses: Biology 205, 212, 217, 219, 223, 246, 254, 265, 295, and Honors 208, 209. In addition, students may take approved courses offered by other biologically-oriented departments.

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Zoology (B. S.)

College: [Arts and Sciences](#)

Department(s): [Biology](#)

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Chemistry 31, 32 or 35, 36, to be taken the first year if possible; Chemistry 141, 142; Physics 21, 22 in combination with 11, 12 or preferably 31, 42; Math. 19, 20 or 21, 22; Statistics 141 or 211. Forty-three hours of Biology and Zoology courses including Biology 1, 2, 101, 102, 103, and 104. The remaining credits may be chosen from Biology 203, 205, and 200-level Biology courses. Three hours of Biology undergraduate research or honors may be counted toward the total of the 43 required credits.

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Minor in Biology

College: [Arts and Sciences](#)Department(s): [Biology](#)

Requirements

Biology 1, 2; three courses at the 100 level or higher chosen from courses acceptable for the Biology major, at least one of which must include a laboratory. One course may be taken from the advanced offerings of other biologically-oriented departments. Consult the Biology Department for a list of approved courses.

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Minor in Zoology

College: [Arts and Sciences](#)

Department(s): [Biology](#)

Requirements

Biology 1 and 2; three courses at the level of 100 or above, chosen from courses within the Biology department, at least one of which must include a laboratory.

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Departments and Programs

Chemistry Department

Colleges: [Arts and Sciences](#), [Graduate College](#)

Faculty: Chemistry

Courses: [Chemistry \(CHEM\)](#)

Contact Information:

*University of Vermont
Chemistry Department
Cook Physical Sciences Building
82 University Place
Burlington, VT 05405-0125*

Phone: (802) 656-0198

Fax: (802) 656-8705

Email: alucey@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~chem/>

Academic Offerings

- Undergraduate Majors
 - [Chemistry \(B. A., B. S.\)](#)
 - [General Concentration \(B. A.\)](#)
 - [Biomolecular Concentration \(B. A.\)](#)
 - [Environmental Concentration \(B. A.\)](#)
- Undergraduate Minors
 - [Chemistry](#)

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Chemistry: General Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Chemistry](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Chemistry 35, 36 (or 31, 32; or 31, 36), 121, 131, 143, 144 (or 141, 142; or 141, 144), 146, 161, 162, 167, 201, 202, 221, 282; Math. 21, 22; Physics 21, 22, 31, 42.

Biomolecular Concentration: Chemistry 35, 36 (or 31, 32; or 31, 36), 121, 131, 143, 144 (or 141, 142; or 141, 144), 162, 167, 201, 204, 282; Math. 21, 22; Physics 21, 22, 31, 42; Biology 1, 2 (or 11, 12), 103; and one of the following: Biochemistry 212, 320, 321 or Pharmacology 328.

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Chemistry: Biomolecular Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Chemistry](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Chemistry 35, 36 (or 31, 32; or 31, 36), 121, 131, 143, 144 (or 141, 142; or 141, 144), 162, 167, 201, 204, 282; Math. 21, 22; Physics 21, 22, 31, 42; Biology 1, 2 (or 11, 12), 103; and one of the following: Biochemistry 212, 320, 321 or Pharmacology 328.

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Chemistry: Environmental Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Chemistry](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Chemistry 35, 36 (or 31, 32; or 31, 36), 121, 131, 143, 144 (or 141, 142; or 141, 144), 161 or 162, 167, 201, 221, 282; Math. 21, 22; Physics 21, 22, 31, 42; and two courses from the following, at least one of which must be Civil and Environmental Engineering 252 or 253: Civil and Environmental Engineering 150, 252, 253, Geology 233, 234, 235, or 255.

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Chemistry (B. S.)

 College: [Arts and Sciences](#)

 Department(s): [Chemistry](#)

Overview

Students pursuing a Bachelor of Science degree in Chemistry complete an extensive set of courses including research and biochemistry, providing them with a degree which is certified by the American Chemical Society. The B. S. degree is particularly good preparation for graduate school in Chemistry.

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Chemistry 35, 36 (or 31, 32; or 31, 36), 121, 131, 143, 144 (or 141, 142; or 141, 144), 146, 161, 162, 167, 201, 202, 204, 221, 282; six hours of advanced chemistry-related course work, which must include 3 hours of Chemistry 291 or equivalent; Math. 21, 22; Physics 21, 22, 31, 42.

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Minor in Chemistry

College: [Arts and Sciences](#)

Department(s): [Chemistry](#)

Requirements

Chemistry 31, 32 or 35, 36.

One of the two following sequences:

- Chemistry 141, 142* and one of the following: 121, 131, 160, 161, 162, 221 (with instructor permission).
- Chemistry 161, 162, and one of the following: 42, 141.

*143, 144 can be used in place of 141, 142.

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Departments and Programs

Classics Department

Colleges: [Arts and Sciences](#), [Graduate College](#)

Faculty: Classics

Courses: [Classics \(CLAS\)](#), [Greek \(GRK\)](#), [Greek & Latin \(GKLT\)](#), [Latin \(LAT\)](#)

Contact Information:

University of Vermont

Classics Department

481 Main St

Burlington, VT 05405-0218

Phone: (802) 656-3210

Email: classics@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~classics/>

Academic Offerings

- Undergraduate Majors
 - Bachelor of Arts (B. A.)
 - [Classical Civilization](#)
 - [Greek](#)
 - [Latin](#)
- Undergraduate Minors
 - [Classical Civilization](#)
 - [Greek Language and Literature](#)
 - [Latin Language and Literature](#)

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Courses in Classics

CLAS 015 - From Letters to Literature

Topics in script, literacy, books, libraries, cultural expression, preservation, and access from ancient Mesopotamia to the age of printing and the era of electronic information.

Credits: 3.

CLAS 021 - Classical Greek Civilization

Cross-listed with: HST 021.

Credits: 3.

CLAS 022 - Etymology

Derivation of English words from Greek and Latin bases. Training in analysis of unfamiliar words, special attention to scientific vocabulary.

Credits: 3.

CLAS 023 - Classical Roman Civilization

Cross-listed with: HST 022.

Credits: 3.

CLAS 024 - Myths/Legends Trojan War

Homeric epics, Virgil's Aeneid, selections from tragedy dealing with the Trojan War and Greco-Roman cultural identity. Examples from art and archaeology supplement the literary theme. Cross-listed with: WLIT 024.

Credits: 3.

CLAS 035 - The End of the Roman Republic

Participants describe the Republic's end: Caesar justifies conquest and civil war; Catullus and Sallust reveal a society in turmoil; Cicero documents first-century politics: political gangs, bribery, and violence. Cross-listed with: WLIT 035.

Credits: 3.

CLAS 037 - Early Roman Empire: Lit Trans

Poetry and prose in the first century C.E. (the age of Augustus, Nero, Trajan), emphasizing varieties and limitations of political and literary freedom. Cross-listed with: WLIT 037.

Credits: 3.

CLAS 042 - Mythology

Greek myth in literature, art, and music from antiquity to modern times. No

- prerequisites. Spring semester. Cross-listed with: WLIT 042.
Credits: 3.
- CLAS 095 - Special Topics
See Schedule of Courses for specific titles.
Credits: 1-3.
- CLAS 096 - Special Topics
See Schedule of Courses for specific titles.
Credits: 1-3.
- CLAS 121 - History of Greece
Cross-listed with: HST 121.
Credits: 3.
- CLAS 122 - History of Rome
HST 122.
Credits: 3.
- CLAS 145 - Comparative Epic
Interdisciplinary introduction to epic poetry and performance, from Gilgamesh and the Homeric poems to the Kalevala traditions of Finland to the griot poetry and music of West Africa. Prerequisite: Sophomore standing. Cross-listed with: WLIT 145.
Credits: 3.
- CLAS 149 - History of Ancient Near East
with: HST 149.
Credits: 3.
- CLAS 153 - Greek Drama
Plays of Aeschylus, Sophocles, Euripides, and Aristophanes in their historical and cultural setting. Prerequisite: Sophomore standing. Cross-listed with: WLIT 153.
Credits: 3.
- CLAS 154 - Stories and Histories
standing.
Credits: 3.
- CLAS 155 - Ancient Epic
Homer, Apollonius, and Vergil, as well as readings selected from other Greek and Latin epic (including epyllia) and didactic poetry. Prerequisite: Sophomore standing. Cross-listed with: WLIT 155.
Credits: 3.
- CLAS 156 - Satiric Spirit
Prerequisite: Sophomore standing.
Credits: 3.
- CLAS 157 - Greek Feminism
Cross-listed with: HST 157, WLIT 157, WST 157.
Credits: 3.
- CLAS 158 - Greco-Roman Political Thought
History of Greco-Roman political thought and political reality, as revealed by lawgivers, philosophers, politicians, and historians. Prerequisite: Sophomore standing.
Credits: 3.

CLAS 161 - Plato

A survey of Plato's works, including the "early," "middle," and parts of the "late" dialogues. Emphasis will be laid on reading the dialogues themselves.

Prerequisite: One course in Philosophy, or one course in Classics (Greek Culture or Greek). Cross-listed with: PHIL 108.

Credits: 3.

CLAS 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

CLAS 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

CLAS 197 - Readings & Research

Credits: 1-6.

CLAS 198 - Readings & Research

Credits: 1-6.

CLAS 221 - Seminar in Ancient History

Selected aspects of Near Eastern, Greek, or Roman History (e.g. trade and colonization, imperialism, social and political institutions, cultural and intellectual developments). Prerequisite: Minimum Junior standing; Twelve hours of History.

Credits: 3.

CLAS 222 - Seminar in Ancient History

Selected aspects of Near Eastern, Greek, or Roman History (e.g. trade and colonization, imperialism, social and political institutions, cultural and intellectual developments). Prerequisites: Junior, senior, or graduate standing, 12 hours of history. UG only.

Credits: 3.

CLAS 295 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

CLAS 296 - Advanced Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

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Courses in Greek

GRK 001 - Elementary

Credits: 4.

GRK 002 - Elementary

Credits: 4.

GRK 003 - Self-Paced Greek

Fundamentals of Classical Greek through tutorial instruction, credit dependent on amount of material learned. May be repeated for credit. No credit with GRK 001 and GRK 002.

Credits: 1-8.

GRK 051 - Intermediate

Review of syntax. Fall semester: Readings from Plato, Herodotus, and Euripides. Spring semester: Readings from Homer.

Credits: 3.

GRK 052 - Intermediate

Review of syntax. Fall semester: Readings from Plato, Herodotus, and Euripides. Spring semester: Readings from Homer.

Credits: 3.

GRK 095 - Introductory Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-8.

GRK 096 - Introductory Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-9.

GRK 111 - Greek Prose Style

Readings in literary prose analyzed stylistically and imitated in composition. Required of Greek majors.

Credits: 3.

GRK 112 - Greek Prose Style

Readings in literary prose analyzed stylistically and imitated in composition. Required of Greek majors.

Credits: 3.

GRK 195 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

GRK 196 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

GRK 197 - Readings & Research

Credits: 1-3.

GRK 198 - Readings & Research

Credits: 1-6.

GRK 201 - Greek Orators

Selected speeches of Lysias and Demosthenes. B. Saylor Rodgers. Alternate years, as needed.

Credits: 3.

GRK 202 - Greek Comedy

Two plays of Aristophanes. Alternate years, as needed.

Credits: 3.

GRK 203 - Greek Historians

Thucydides, Books I and II; selections from Herodotus and Xenophon's Hellenica. Alternate years, as needed.

Credits: 3.

GRK 204 - Greek Tragedy

Sophocles' Antigone, and Euripides' Medea, or two equivalent plays. Alternate years, as needed.

Credits: 3.

GRK 205 - Greek Philosophers

Dialogues of Plato with attention to language and dialectical method; Aristotle, Xenophon or Presocratic philosophers may be read. Alternate years, as needed.

Credits: 3.

GRK 206 - Greek Epic

Reading in the Iliad and Odyssey. Problems of epic composition and language together with mythological and historical background. Alternate years, as needed.

Credits: 3.

GRK 227 - Greek Lyric Poetry

A study of early Greek personal, elegiac, and choral poetry from Archilochus to Pindar, including Sappho and Alcaeus, Simonides and Bacchylides. Prerequisites: Two years of college Greek or equivalent. Alternate years, as needed.

Credits: 3.

GRK 295 - Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

GRK 296 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

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Courses in Greek & Latin

GKLT 295 - Special Topics

UG only.

Credits: 1-3.

GKLT 300 - Proseminar

Introduction to philology. Students will normally take this their first semester.

Credits: 3.

GKLT 381 - Seminar

Intensive study at the graduate level of Greek and Latin authors not read in the candidate's undergraduate program.

Credits: 3.

GKLT 391 - Master's Thesis Research

Credits: 1-6.

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Courses in Latin

LAT 001 - Elementary

For students who present less than two years of high school Latin.

Credits: 4.

LAT 002 - Elementary Latin

For students who present less than two years of high school Latin.

Credits: 4.

LAT 003 - Self-Paced Latin

Fundamentals of Classical Latin through tutorial instruction, credit dependent on amount of material learned. May be repeated for credit. No credit with LAT 001 and LAT 002.

Credits: 1-8.

LAT 051 - Intermediate

Fall semester: Selections from Cicero and other prose authors. Spring semester: Selections from Vergil and Ovid.

Credits: 3.

LAT 052 - Intermediate Latin

Fall semester: Selections from Cicero and other prose authors. Spring semester: Selections from Vergil and Ovid.

Credits: 3.

LAT 095 - Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-8.

LAT 096 - Elementary Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

LAT 101 - Survey Latin Literature

Selections from principal Roman authors.

Credits: 3.

LAT 102 - Survey Latin Literature

Selections from principal Roman authors.

Credits: 3.

LAT 111 - Latin Prose Style

Readings in literary prose analyzed stylistically and imitated in composition.

Required of B.A. and B.Ed. Latin majors.

Credits: 3.

LAT 112 - Latin Prose Style

Readings in literary prose analyzed stylistically and imitated in composition.

Required of B.A. and B.Ed. Latin majors.

Credits: 3.

LAT 195 - Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.

LAT 196 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

LAT 197 - Readings & Research

Credits: 1-6.

LAT 198 - Readings & Research

Credits: 1-6.

LAT 203 - Republican Prose

Extensive reading in Caesar and Sallust, and in the speeches of Cicero. Alternate years, as needed.

Credits: 3.

LAT 204 - Epic Poets

Extensive reading in Lucretius, Vergil, Ovid, and others. Alternate years, as needed.

Credits: 3.

LAT 227 - Roman Lyric Poets

Selections from the works of Catullus, Horace, Propertius, and Tibullus. Alternate years, as needed.

Credits: 3.

LAT 251 - Roman Letters

Letters of Cicero, Horace, and Pliny. Alternate years, as needed.

Credits: 3.

LAT 252 - Comedy

Two plays of Plautus and Terence. Study of the precursors of this literary form. Alternate years, as needed.

Credits: 3.

LAT 253 - Roman Oratory

Selections from Cicero's De Oratore, Orator, Brutus, and from his speeches.

Historical development of forensic and other rhetorical canons. Alternate years, as needed.

Credits: 3.

LAT 255 - Historians of the Empire

Historians of the Empire. Augustus, *Res Gestae*; Tacitus, *Annals*, I-IV; selections from Suetonius and Ammianus Marcellinus. Alternate years, as needed.

Credits: 3.

LAT 256 - Satire

Selections from Horace, Persius, Juvenal, Petronius. Study of the development of this literary form. Alternate years, as needed.

Credits: 3.

LAT 271 - Silver Latin

Extensive reading of post-Augustan authors not included in other advanced courses. Alternate years, as needed.

Credits: 3.

LAT 295 - Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

LAT 296 - Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

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Classical Civilization (B. A.)

College: [Arts and Sciences](#)

Department(s): [Classical Civilization](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

36 hours consisting of 30 in the Major Discipline and 6 in Related Courses. Of these 36 hours, 12 must be at the 100-level or above. Major Discipline. All courses in Classics, Latin, Greek, Ancient History, and Ancient Art are applicable, of which 1 course in Ancient Art (Art 146, 148, or 149) and any 2 courses in Ancient History (Classics 21, 23, 121, 122, 149, 221, 222) are required. Related Courses: For a list of approved related courses in Fine Arts, Humanities, Social Sciences and Natural Sciences, students should consult with the Classics department. Foreign Language: Fulfillment of the language distribution requirement of the College of Arts and Sciences is required, preferably with Latin or Greek.

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Greek (B. A.)

College: [Arts and Sciences](#)

Department(s): [Greek](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours in courses above 50, among which 111, 112, and Classics 121 are required and one course in literature in translation above 100 and one course in Latin above 100 are applicable; a second foreign language, at least through the intermediate level, is recommended.

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Latin (B. A.)

College: [Arts and Sciences](#)

Department(s): [Latin](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours in courses above 100, among which 111, 112, and Classics 122 are required and one course in literature in translation above 100 and one course in Greek above 100 are applicable; a second foreign language, at least through the intermediate level, is recommended.

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Minor in Classical Civilization

College: [Arts and Sciences](#)

Department(s): [Classics](#)

Requirements

Eighteen hours, including six hours of Greek or six hours of Latin at the level of 51 or above, and 12 hours from the following (of which at least nine hours must be above 100): Classics 21, 23, 24, 33, 35, 37, 42, 121, 122, 149, 153, 154, 155, 156, 157, 158, 159; Art 146, 148, 149; all Classics, Latin, or Greek courses to include special topics courses (95, 96, 195, 196, 295, 296).

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Minor in Greek Language and Literature

College: [Arts and Sciences](#)

Department(s): [Classics](#)

Requirements

Fifteen hours of Greek at 51 or above, to which three hours from the following are applicable: Classics 121, 153, 154, 155, 156, 157, 158.

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Minor in Latin Language and Literature

College: [Arts and Sciences](#)

Department(s): [Classics](#)

Requirements

Fifteen hours of Latin at 51 or above, to which three hours from the following are applicable: Classics 122, 153, 154, 155, 156, 158, 159.

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Departments and Programs

Communication Sciences Department

Colleges: [Arts and Sciences](#), [Graduate College](#)

Faculty: Communication Sciences

Courses: [Communication Sciences \(CMSI\)](#)

Contact Information:

University of Vermont

Communication Sciences Department

Pomeroy Hall

489 Main St

Burlington, VT 05405-0130

Phone: (802) 656-3861

Fax: (802) 656-2528

Email: communication.sciences@uvm.edu

Web Site: <http://www.uvm.edu/~cmsi/>

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Arts (B. A.)
 - [Communication Sciences](#)
- Undergraduate Minors
 - [Communication Sciences](#)

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Courses in Communication Sciences

CMSI 001 - Elem American Sign Language 1

Fundamentals of expression and understanding of American Sign Language, including grammar, facial markers, body classifiers, vocabulary, and fingerspelling. Elements of Deaf Culture are also explored.

Credits: 3.

CMSI 002 - Elem American Sign Language II

Continuation of fundamentals of expression and understanding of American Sign Language, including grammar, facial markers, body classifiers, vocabulary, and fingerspelling. Elements of Deaf Culture are also explored. Prerequisites: CMSI 1 or equivalent experience.

Credits: 3.

CMSI 020 - Intro to Disordered Comm

Survey of language, speech, and hearing disorders, emphasizing the importance of understanding such disorders as a part of the fuller understanding of human behavior.

Credits: 3.

CMSI 051 - Intermediate Sign Language

Continuation of 1, 2 designed to foster further development of proficiency in American Sign Language and appreciation of Deaf Culture. Prerequisites: CMSI 2, or equivalent experience.

Credits: 3.

CMSI 080 - Introduction to Linguistics

Introduction to biological, cognitive, and cultural bases of human communication through language, and to modern linguistic theory. Assignments provide opportunities for critical thinking and writing.

Credits: 3.

CMSI 090 - Phonetics

Linguistic, acoustic, and articulatory phonetics applied to the description of speech. Stresses use of the International Phonetic Alphabet with English, foreign languages, and disordered speech.

Credits: 3.

CMSI 094 - Dev of Spoken Language

Speech and language acquisition interpreted in light of current learning and cognitive theory, linguistic theory, and methods of linguistic analysis.

Credits: 3.

CMSI 095 - Introductory Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

CMSI 096 - Introductory Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

CMSI 101 - Speech Science

Structure and function of the respiratory, phonatory, and articulation systems of the vocal tract utilized for production of speech. Models of speech production emphasized.

Credits: 4.

CMSI 125 - Clinical Experience

A supervised exposure to clinical practice in speech-language pathology. Students gain experience as assistants in the University speech-language clinic.

Prerequisite: Six hours in Communication Sciences.

Credits: 3.

CMSI 126 - Clinical Experience

A supervised exposure to clinical practice in speech-language pathology. Students gain experience as assistants in the University speech-language clinic.

Prerequisite: Six hours in Communication Sciences.

Credits: 3.

CMSI 160 - Intercultural Communication

Exploration of communication between individuals of different races, socioeconomic status, ethnic groups, genders, and occupations. Emphasis on culturally-based misunderstanding, conflict, and resolution.

Credits: 3.

CMSI 162 - American English Dialects

Class will examine dialects of American English and the methodology of dialectology with focus on Vermont speech and the social meaning of dialect

Credits: 3.

CMSI 164 - Structure of English Language

Using descriptive linguistic theory, this course examines basics of English grammar with emphasis on hands-on examples. Also includes exploration of politicization of English grammar. Prerequisites: 3 hours English or CMSI.

Credits: 3.

CMSI 195 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 0-3.

CMSI 196 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing

departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-3.

CMSI 197 - Readings & Research

Credits: 1-9.

CMSI 198 - Readings & Research

Credits: 1-6.

CMSI 208 - Cognition & Language

(Same as Psychology 208.) Study of cognition and language in terms of mental representation models; contemporary models of memory, as well as capacity theories of language comprehension and production. Prerequisite: Psychology 109 or 101 or Statistics 101 or 141.

Credits: 3.

CMSI 262 - Measurement of Comm Processes

Introduction to the scientific method and measurement principles used in group and single-case research on communication and as applied to persons with communication disorders. Prerequisites: CMS80, 101, 105; Statistics 111 or 141. UG only.

Credits: 4.

CMSI 271 - Introduction to Audiology

immittance audiometry. Prerequisites: CMSI 101 or Survey of the process of hearing and the nature and causes of hearing impairment. Examination of hearing assessment, including pure-tone, speech and instructor permission.

Credits: 4.

CMSI 272 - Hearing Rehabilitation

Examination of impact of hearing loss on communication and management. Survey of remediation strategies, including speechreading, auditory training, hearing aids, cochlear implants and assistive devices. Prerequisites: CMSI 271 or instructor permission.

Credits: 3.

CMSI 281 - Cognitive Neuroscience

Biology course, such as BIOL 4. Not for graduate credit. The structure and organization of the human central nervous system as related to higher cognitive and linguistic behaviors. Pre/corequisites: a college level Human

Credits: 3.

CMSI 283 - Swallowing Disorders

Introduction to normal and disordered swallowing function across the life span including etiologies, signs/symptoms of dysphagia, diagnostic procedures and treatment within an interdisciplinary model. Prerequisites: Nine hours in Communication Sciences or instructor's permission.

Credits: 3.

CMSI 284 - Augmentative Communication

An introduction to development and selection of augmentative/alternative communication strategies and systems for persons with severe communication challenges. Prerequisites: Nine hours in Communication Sciences or instructor's permission.

Credits: 3.

- CMSI 285 - Collab Intervntn Schl Settings
Introduction to a transdisciplinary approach to collaborative, curriculum-based assessment and intervention for students with special needs in school settings. Prerequisites: Nine hours in Communication Sciences or instructor's permission. Credits: 3.
- CMSI 287 - Early Lang&Communicat'n Interv
Research in normal and disordered language, cognition, and social development is applied to interventions for children, birth to age 5, with language and communication problems. Prerequisite:CMSI 94. Credits: 3.
- CMSI 291 - Clinical Study
Supervised practicum experiences with children and adults presenting disorders of speech, hearing, and language. Prerequisite: Permission Credits: 1-3.
- CMSI 292 - Clinical Study
Supervised practicum experiences with children and adults presenting disorders of speech, hearing, and language. Prerequisite:Permission Credits: 1-3.
- CMSI 293 - Seminar
Prerequisite: Instructor's permission. Variable credit. Credits: 1-3.
- CMSI 294 - Seminar
Prerequisite: Instructor's permission. Variable credit. Credits: 1-3.
- CMSI 295 - Advanced Special Topics
Advanced Special Topics Advanced courses of seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. UG only. Credits: 0-3.
- CMSI 296 - Advanced Special Topics
UG only. Credits: 0-3.
- CMSI 298 - Senior Seminar
Credits: 3.
- CMSI 299 - Autism Spect Dis:Assess&Interv
Assessment and intervention considerations in communication, social interaction and play, selection Credits: 3.
- CMSI 310 - Clinic Preparation&Management
Principles of behavioral observation, analysis and modification as they apply to the assessment and remediation of communication disorders. Prerequisite:permission Credits: 3.
- CMSI 311 - Interdis Ldrshp Tr:Rsrch Sem I
Seminar exploring interdisciplinary process and collaborative teaming, cultural competence, and family-centered care as they relate to neurodevelopmental and related disabilities. Prerequisites: Permission of instructor. Variable Prelock.

Cross-listings: ECHD 295, EDSP 295, NFS 295, GRNU 296, PA 395, PSY 380, PT 381, SWSS 380.

Credits: 1-3.

CMSI 312 - Intrdis Ldrshp Tr:Rsrch Sem II

Seminar exploring interdisciplinary process and collaborative teaming, cultural competence, and family-centered care as they relate to neurodevelopmental and related disabilities. Prerequisites: Permission of instructor. Variable Prelock.

Cross-listings: ECHD 295, EDSP 295, NFS 295, GRNU 296, PA 395, PSY 380, PT 381, SWSS 380.

Credits: 1-3.

CMSI 371 - Audiolog Assess:Spch-Lang Path

Examination of basic hearing parameters designed for SLPs. Orientation to nature and causes of hearing impairment; assessment procedures and rationales; hearing screening and counseling/management issues. Prerequisites: CMSI 101 or instructor permission.

Credits: 3.

CMSI 372 - Mgmt&Habil/Child w/Hearing Imp

Survey effects of hearing impairment on children's communication, academic and psychosocial development. permission. Orientation to amplification, assistive devices, managing listening environments, auditory training, and educational planning. Prerequisites: CMSI 271 or 371 or instructor

Credits: 3.

CMSI 380 - Rsch Methods in Comm Disorders

Empirical research methodology as applied to the study of normal and deficient speech, language, and hearing processes. Students analyze data statistically and write a research proposal.

Credits: 3.

CMSI 381 - Advanced Readings

Readings, with conferences, intended to contribute to the programs of graduate students in phases of communication science and disorders for which formal courses are not available. Credit as arranged, up to three hours each semester.

Credits: 1-3.

CMSI 382 - Advanced Readings

Readings, with conferences, intended to contribute to the programs of graduate students in phases of communication science and disorders for which formal courses are not available. Credit as arranged, up to three hours each semester.

Credits: 1-3.

CMSI 383 - Seminar Lang/Lrng Disabilities

Assessment and intervention issues for school-age children and adolescents with language learning disabilities are discussed emphasizing research to practice an oral language and literacy connections. Prerequisite: 387, permission of instructor or Graduate Standing.

Credits: 3.

CMSI 384 - Articulation-Phonological Dis

Etiology, diagnosis, pathology, and habilitation and rehabilitation of articulation of speech. Prerequisite: Permission.

Credits: 3.

CMSI 385 - Voice Disorders

Study of normal and abnormal laryngeal anatomy and physiology as they relate to diagnoses and treatment of a wide variety of vocal pathologies. Prerequisite: Permission.

Credits: 3.

CMSI 386 - Adult Neuropathologies

Etiology, pathology, diagnosis, and principles of rehabilitation of CNS pathologies affecting communication. Emphasis on motor speech disorders and cognitive consequences of traumatic brain injury. Prerequisites:CMSI

Credits: 3.

CMSI 387 - Language Disorders

94.

Credits: 3.

CMSI 388 - Stuttering

Stuttering Boot Camp (CMSI), admission to CMSI Graduate

Credits: 3.

CMSI 389 - Aphasia in Adults

Study of linguistic and cognitive impairments associated with stroke and other types of neuropathologies in the adult patient. Emphasis on rehabilitation strategies, principles, and procedures. Prerequisite:CMSI 281.

Credits: 3.

CMSI 391 - Master's Thesis Research

Credits: 1-6.

CMSI 392 - Non Thesis Research

Credits: 1-6.

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Communication Sciences (B. A.)

College: [Arts and Sciences](#)

Department(s): [Communication Sciences](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Departmental Requirements: 80, 90, 94, 101, 160 or 162, 164, 208, 262, 271, 272, 281.

Additional Requirements: Biology 4; Psychology 1, 161; Statistics 111 or 141; and one physical science course with lab from Physics, Chemistry, Geology, or Astronomy.

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Minor in Communication Sciences

College: [Arts and Sciences](#)

Department(s): [Communication Sciences](#)

Requirements

This minor is not available to students pursuing degree programs not offered by the College of Arts and Sciences.

CMSI 80, 90, 94, 101, 164, 208.

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Departments and Programs

Computer Science Department

Colleges: [Engineering and Mathematics](#), [Arts and Sciences](#), [Graduate College](#), [Continuing Education](#)

Faculty: Computer Science

Courses: [Computer Science \(CS\)](#)

Contact Information:

University of Vermont

Computer Science Department

351 Votey Building

33 Colchester Avenue

Burlington, VT 05405-0156

Phone: (802) 656-3330

Fax: (802) 656-0696

Email: Computer.Science@uvm.edu

Web Site: <http://www.cs.uvm.edu> ↗

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Arts (B. A.)
 - [Computer Science](#)
 - Bachelor of Science (B. S.)
 - [Computer Science](#)
 - [Computer Science and Information Systems](#)
- Undergraduate Minors
 - [Computer Science](#)

Overview

Computer Science is a multi-faceted discipline requiring the creativity of an artist, the problem-solving ability of a mathematician, the experimental method of a scientist, and the technical skills of an engineer. There are exciting opportunities in many industries, including: communications, health care, manufacturing, finance, entertainment, human services, education, and transportation.

Please view our mission statement and objectives at:

<http://www.cs.uvm.edu/mission.shtml>

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Courses in Computer Science

CS 002 - Microcomputer Appl Software

Popular applications software packages: word processors, spreadsheets, databases. Emphasis on hands-on experience. Prerequisite: Two years high school algebra. May not be taken for credit after receipt of credit for any CS course numbered 11 or higher.

Credits: 3.

CS 003 - Concepts of Computer Systems

Introduction to computer systems, components, system software, editors, utilities and language processors, programming, problem solving, applications. May not be taken for credit concurrently with, or following receipt of credit for, any CS course numbered higher than CS 003. Prerequisite: Two years high school algebra.

Credits: 3.

CS 005 - Introductory Special Topics

Prerequisite: Instructor permission. Hours variable. May not be taken for credit after any Computer Science course numbered CS 016 or higher.

Credits: 0-3.

CS 008 - Introduction: WWW Design (2-2)

site.

Credits: 3.

CS 014 - Visual Basic Programming

Programming in the MS Windows environment using forms,

Credits: 3.

CS 016 - Prog MATLAB Engineers&Science

Problem solving, computer programming, and the use of standard numerical methods in the context of engineering and scientific applications using MATLAB. Prerequisite: Math. 21; or Math. 10 (or equivalent, with instructor permission) and concurrent enrollment in Math. 21.

Credits: 4.

CS 021 - Computer Programming I

Introduction to algorithmic problem solving. Designed to provide a foundation for further studies in computer science. Credit not given for more than one in the pair

CS 11, 21. Prerequisite: Math. 10 or a strong background in secondary school algebra and trigonometry.

Credits: 4.

CS 026 - Computer Programming II

Introduction to more advanced programming concepts that provide a foundation for further study in computer science. Topics include data structures and algorithms, concepts of style, design, documentation, testing and debugging techniques. Prerequisites: 21.

Credits: 3.

CS 031 - Computer Programming II: C

Credits: 3.

CS 095 - Special Topics

Prerequisite: Instructor's permission.

Credits: 1-4.

CS 100 - Object-Oriented Programming

Object-oriented software analysis, design, and programming using a modern object-oriented programming environment. Topics include encapsulation, information hiding, inheritance, and polymorphism. Prerequisite: 26.

Credits: 3.

CS 101 - Computer Organization

Introduction to computer system organization including performance, assembly language, machine-level data representation, arithmetic for computers, processor datapath control, memory, and input/output. Prerequisite: CS 026.

Credits: 3.

CS 103 - Programming Languages

Systematic treatment of principles underlying the features and implementation of programming languages. Contrast of traditional procedural languages and at least one nontraditional language. Prerequisite: CS 026.

Credits: 3.

CS 104 - Data Structures

MATH 052 or MATH 054.

Credits: 3.

CS 148 - Database-Driven Web Design

pages using XML, SQL, ASP, and PHP. Typical project involves creation of e-commerce shopping site. and CS 008(or equivalent knowledge of JavaScript and HTML).

Credits: 3.

CS 195 - Special Topics

Prerequisite: Instructor's permission.

Credits: 1-6.

CS 201 - Operating Systems

Supervisory and control software for multiprogrammed computer systems. Processes synchronization, interprocess communication, scheduling, memory management, resource allocation, performance evaluation, object-oriented systems, case studies. Prerequisites: 103, 104.

Credits: 3.

CS 202 - Compiler Construction

Practice in design and implementation of translators for ALGOL-like languages. Regular and context-free grammars, parsing, code generation for stack and register machines. Interpreters. Run-time storage administration for block-structured languages. Prerequisites: 103, 243.

Credits: 3.

CS 204 - Database Systems

Techniques for processing very large collections of data. Secondary storage. Database design and management. Query languages and optimization. Database recovery. Prerequisites: 101, 104; 201 recommended.

Credits: 3.

CS 205 - Software Engineering

Treatment of software engineering problems and principles, including documentation, information hiding, and module interface specification syntax and semantics. Requires participation in a team project. Students who receive credit for 205 may not receive credit for 208 or 209.

Credits: 3.

CS 208 - Software Requirements&Design

Project management, requirements for software products, design methodologies and formal and informal notations describing designs. Includes developing requirements and design for a substantial software product. Credit not awarded for more than one of 205 and 208. Prerequisites: CS 100, CS 104.

Credits: 3.

CS 209 - Software Implement&Verificat'n

Covers advanced program development methodologies, software performance measuring and tuning and the verification and validation of software. Includes a significant implementation and evaluation project. Credit not awarded for more than one of 205 and 209. Prerequisites: CS 100, CS 104.

Credits: 3.

CS 222 - Computer Architecture

Architecture of computing systems. Control unit logic, input/output processors and devices, asynchronous processing, concurrency, parallelism, and memory hierarchies. Prerequisite: 101.

Credits: 3.

CS 224 - Analysis of Algorithms

Introduction to both analytical and experimental techniques in algorithm analysis. Basic algorithm design strategies. Introduction to complexity theory. Prerequisites: 103, 104. Math. 173 recommended.

Credits: 3.

CS 231 - Bioinformatics

MMG 102 desirable. Crosslisting MMG 231. Introduction to current topics in bioinformatics. Applications may include sequence alignment, dynamic programming, hidden Markov models, phylogenetics trees, microarray data analysis, genomics, and proteomics. Prerequisites: STAT 151, CS 26, and

Credits: 3.

CS 243 - Theory of Computation

Introduction to theoretical foundations of computer science. Models of computation. Church's thesis and noncomputable problems. Formal languages and automata. Syntax and semantics. Prerequisite: 104. (Same as Math 243). Credits: 3.

CS 251 - Artificial Intelligence

Introduction to methods for realizing intelligent behavior in computers. Knowledge representation, planning, and learning. Selected applications such as natural language understanding and vision. Prerequisites: 103, 104, STAT 151. Credits: 3.

CS 256 - Neural Computation

Introduction to artificial neural networks, their computational capabilities and limitations, and the algorithms used to train them. Statistical capacity, convergence theorems, backpropagation, reinforcement learning, generalization. Prerequisites: Math. 124 (or 271), Statistics 151, programming skills, graduate standing or instructor's permission. Credits: 3.

CS 260 - Parallel Algorithms&Prog Tech

Taxonomy of parallel computers, basic concepts for parallel computing, effectiveness and scalability, parallel algorithms for variety of problems, message-passing programming paradigm and data-parallel languages. Prerequisite: 103, 104. MATH 173 and MATH 124 recommended. Credits: 3.

CS 265 - Computer Networks

Introduction to the theoretical and pragmatic principles of computer networking and client-server computing. Topics include: Local Area Networks; the Internet; ATM technology; TCP programming. Prerequisite: 101, 104. MATH 173 and STAT 151 recommended. Credits: 3.

CS 266 - Network Security&Cryptography

Security and secrecy in a networked environment. Cryptography: public and private key. Authentication: trusted agents, tickets. Electronic mail and digital signatures. Privacy and national security. Prerequisites: 104, Math. 124 or 271. Credits: 3.

CS 274 - Computer Graphics

removal, rendering techniques. Prerequisite: 104, Math. Graphical representation of two- and three-dimensional objects on color raster displays. Line generation, region filling, geometric transformations, hidden line and surface 121, Math. 124 or 271. Credits: 3.

CS 283 - Undergraduate Honors Thesis

See description of Honors Thesis Program in the College of EM section of this catalog. Credits: 3.

CS 284 - Undergraduate Honors Thesis

See description of Honors Thesis Program in the College of EM section of this catalog.

Credits: 3.

CS 292 - Senior Seminar

Oral presentations that pertain to the ethical practice of computer science in government, industry, and academia. Topics may include computer security, copyright, and patent law. Prerequisite: Senior standing in Computer Science.

Credits: 1.

CS 294 - Independent Readings&Research

Independent readings and investigation under the direction of faculty member.

Prerequisite: Department permission.

Credits: 1-6.

CS 295 - Special Topic:Computer Science

Subject will vary from year to year. May be repeated for credit.

Credits: 1-6.

CS 296 - Special Topics:Computer Sci

Credits: 1-6.

CS 303 - Adv Top:Prog Environ&Language

Object-oriented, functional, or procedural programming languages, language design, parsing, translation, compilation, interpretation, programming and runtime environments. May be repeated for credit with instructor permission. Prerequisites: 103, 202.

Credits: 3.

CS 316 - Adv Topi:Computational Science

Topics chosen from engineering and scientific applications, visualization, large-scale data analysis. May be repeated for credit with instructor permission.

Prerequisite: Varies by semester. Instructor permission required.

Credits: 3.

CS 321 - Adv Top:Computer Architecture

Prerequisite: CS 222.

Credits: 3.

CS 331 - Adv Tpcs Database&Knwldg Sys

Prerequisite: CS 204, CS 224.

Credits: 3.

CS 346 - Adv Top:Theory of Computation

Topics from complexity theory, analysis of algorithms, formal languages, combinatorial and geometric algorithms, and theory of databases, networks, distributed algorithms. May be repeated with Instructor permission. Prerequisite: CS 224, CS 243.

Credits: 3.

CS 351 - Pattern Anyl&Artificial Intell

Topics chosen from pattern analysis, clustering, neural networks, planning, natural language understanding. May be repeated for credit with instructor permission.

Prerequisites: CS 224, CS 351.

Credits: 3.

CS 361 - Adv Topics:Systems Software

Topics chosen from operating systems, distributed or parallel software systems, real-time systems, experimental systems, software engineering. May be repeated

for credit with Instructor permission. Prerequisite: CS 201, CS 222.

Credits: 3.

CS 363 - Computer System Performance

Topics chosen from models of computer and operating system performance and queuing systems. May be repeated for credit with Instructor permission.

Prerequisite: CS 201, STAT 151.

Credits: 3.

CS 365 - Adv Top:Network Design&Anyl

Topics chosen from network design, network protocols, network algorithms, and network performance. May be repeated for credit with Instructor permission.

Prerequisite: CS 224, CS 265.

Credits: 3.

CS 374 - Computer Graphic&Visualization

Topics chosen from computer graphics and visualization, such as rendering, hidden surface removal, animation, data visualization. May be repeated for credit with Instructor permission. Prerequisite: CS 224, CS 274.

Credits: 3.

CS 381 - Seminar

Presentations by students, faculty, and guest speakers on advanced topics in Computer Science. May be repeated up to three times for credit.

Credits: 1.

CS 391 - Master's Thesis Research

Credits: 1-18.

CS 394 - Independent Study

Independent readings and investigation under the direction of a faculty member.

Prerequisite: Instructor permission.

Credits: 1-6.

CS 395 - Special Topics

Subject will vary from year to year. May be repeated for credit. Prerequisite: Instructor permission.

Credits: 1-6.

CS 491 - Doctoral Dissertation Research

Credits: 1-18.

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Computer Science (B. A.)

College: [Arts and Sciences](#)

Department(s): [Computer Science](#)

Overview

Students may select among three degree programs in Computer Science: the Bachelor of Arts degree, described below, is offered through the College of Arts and Sciences. Additionally, a Bachelor of Science is offered through the College of Engineering and Mathematics, with majors in either Computer Science or in Computer Science and Information Systems (students interested in the Bachelor of Science degree are referred to the descriptions under the College of Engineering and Mathematics).

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Computer Science 21, 26, 100, 101, 103, 104, 224 or 243, 292, and three additional computer science courses at the 200-level or above, for at least nine additional credits, not more than three credits of which may be independent study; Mathematics 19+20 or 21+22 (Math. 21+22 are recommended), 54; Statistics 151; the distribution requirement in natural science must be satisfied, and it is recommended that this requirement be fulfilled with a two-semester laboratory science sequence.

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Computer Science (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Computer Science](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)

Specific Requirements

Bachelor of Science, Computer Science Major: A minimum of 124 credits (122, if the student is exempt from PEAC) are required as follows:

- Computer Science: 21, 26, 100, 101, 103, 104, 201, 224 or 243, 292, plus fifteen additional credits (five courses) of 200-level courses (not more than three credits of which may be independent study)
- Mathematics: 21, 22, 54, two of (121, 124, 173, 271)
- Statistics: 141 or 211 (recommended), 151
- Four courses of laboratory science electives, selected from the following six:
 - Biology: 1, 2
 - Chemistry: 31, 32
 - Physics: 31 (with 21), 42 (with 22)


Note: Specific science courses are required for certain minors.
- English: 1
- Six credits (two courses) of Social Science Electives selected from ALANA, Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology, Women's Studies, or other advisor-approved electives
- Six credits (two courses) of Humanities and Fine Arts Electives selected from: Art, Classics, Drama, Film, Language, Literature, Music, Philosophy, Religion, Speech, or other advisor-approved electives
- 15 additional credits in advisor-approved electives in Humanities, Social Sciences, and Arts, to include either AH 95, AGRI 95, or one course approved by the College of Arts and Sciences as a course in non-European Cultures or Race Relations and Ethnicity, as specified under General Requirements in the College of Arts and

Sciences section of this catalogue

- 12 additional credits in advisor-approved free electives (excluding PEAC)
- Two credits of PEAC (see Academic and General Information for exceptions)
- Completion of a University-approved minor (excluding Computer Science); courses used to fulfill other requirements may be used to satisfy minor requirements

No grade below a C- in any computer science course will be accepted, except as free elective credit.

Possible Curriculum

A sample course sequence can be found on the Computer Science department [web site](#).


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Computer Science and Information Systems (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Computer Science](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)

Specific Requirements

A minimum of 128 credits (126, if the student is exempt from PEAC) are required as follows:


- Computer Science: 14, 21, 26, 100, 101, 103, 104, 292, plus nine additional credits (three courses) of 200-level courses (not more than three credits of which may be independent study)
- Business Administration: 60, 61, 120, 132, 141, 143, 144, 150, 173, 180
- Economics: 11, 12
- Mathematics: 19 and 20, or 21 and 22 (recommended sequence), 54
- Statistics: 141
- One laboratory science sequence, selected from the following three:
 - Biology: 1, 2
 - Chemistry: 31, 32
 - Physics: 31 (with 21), 42 (with 22)
- English: 1
- Nine credits (three courses) of Social Science Electives selected from ALANA, Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology, Women's Studies, or other advisor-approved electives
- Nine credits (three courses) of Humanities and Fine Arts Electives selected from: Art, Classics, Drama, Film, Language, Literature, Music, Philosophy, Religion, Speech, or other advisor-approved electives
- 15 additional credits in advisor-approved free electives (excluding PEAC)
- Two credits of PEAC (see Academic and General Information for exceptions)
- All students must complete either AH 95, AGRI 95, or one course approved by the

College of Arts and Sciences as a course in non-European Cultures or Race Relations and Ethnicity, as specified under General Requirements in the College of Arts and Sciences section of this catalogue; a course used to fulfill other elective or distribution requirements may be used to fulfill this requirement.

No grade below a C- in any computer science or business administration course will be accepted, except as free elective credit.

Note: This program is intended to fulfill the course requirements for eligibility for advanced standing in the MBA program at UVM.

Possible Curriculum

A sample course sequence can be found on the Computer Science department [web site](#) .

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Undergraduate Minor in Computer Science

College: [Arts and Sciences](#), [Engineering and Mathematics](#)

Department(s): [Computer Science](#)

Requirements

A Computer Science Minor consists of 18 credits in computer science to include 100 or 103, 104, and three additional credits at the 100 level or above. Some Computer Science courses require additional prerequisites.

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Departments and Programs

Economics Department

Colleges: Arts and Sciences

Faculty: Economics

Courses: Economics (EC)

Contact Information:

*University of Vermont
Economics Department
Old Mill
94 University Place
Burlington, VT 05405-0114*

Phone: (802) 656-3064

Fax: (802) 656-8405

Email: econ@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~econ/>

Academic Offerings

- Undergraduate Majors
 - Bachelor of Arts (B. A.)
 - Economics
- Undergraduate Minors
 - Economics

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Courses in Economics

EC 011 - Principles of Macroeconomics

Introduction to economic concepts, institutions, and analysis, particularly as related to the economy as a whole.

Credits: 3.

EC 012 - Principles of Microeconomics

Study of individual economic units with particular emphasis on market interactions among firms and households. Prerequisite: EC 011.

Credits: 3.

EC 020 - Economic Problems

Exploration of a current economic issue. Topics vary and may include international trade, debts and deficits, environment, ethnicity, race and gender, and employment and work.

Credits: 3.

EC 060 - Capitalism & Human Welfare

Investigates theories of growth of the capitalist economy and the historical process of the ascendance, domination, and recent relative decline of the U.S. economy.

Credits: 3.

EC 095 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: .5-3.

EC 096 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: .5-3.

EC 110 - American Economic History

Survey of the economic history of the U.S. from colonial origins through early 20th century, emphasizing economic and institutional changes and events promoting economic growth and development. 11, 12 or instructor permission.

Credits: 3.

EC 113 - Evolution of Capitalism

Western Europe to North America. 11, 12 or Origins and development of capitalism; their social-economic institutions and their transference from instructor permission.

Credits: 3.

EC 116 - Comparative Economic Systems

Major economic systems of mixed capitalist and socialist variety, their theoretical models, basic institutions, and policies from a comparative point of view.

Prerequisite: EC 011, EC 012 or Instructor permission.

Credits: 3.

EC 120 - Money and Banking

Commercial and central banking with special attention given to the Federal Reserve system, monetary theory, and policy. 11, 12 or instructor permission.

Credits: 3.

EC 130 - Public Policy

Revenues and expenditures of federal, state, and local governments and intergovernmental relationships; the effects of expenditures and taxation upon individuals, business institutions, and the national economy. Prerequisite: EC 011, EC 012 or Instructor permission.

Credits: 3.

EC 133 - Economics Environmental Policy

Investigation of the relationship of markets and government regulation to environmental quality. Alternative public policies to improve efficiency and equity will be evaluated. 11, 12 or instructor permission.

Credits: 3.

EC 140 - Economic Development

Theories of economic growth applied to developing countries of the con-temporary world including the political and social determinants of economic progress. 11, 12 or instructor permission.

Credits: 3.

EC 143 - International Econ I: Trade

Trade Theory, policy, and history of international trade patterns, terms of trade, protectionism, competitiveness, structural adjustment, and international aspects of microeconomics. 11, 12 or instructor permission.

Credits: 3.

EC 146 - International Econ II: Finance

Finance Theory, policy, and history of foreign-exchange markets, balance of payments, world monetary arrangements, and international aspects of macroeconomics and capital markets. 11, 12 or instructor permission.

Credits: 3.

EC 150 - Labor Economics

The economics of work, including wage determination, unemployment, productivity, discrimination, unions, and policy issues. 11, 12 or instructor permission.

Credits: 3.

EC 153 - Race, Ethnicity & Economy

Courses investigating the economic status and significance of racial and ethnic divisions in historical and contemporary U.S. society. Content varies by instructor.

Prerequisite: Sophomore standing. 11, 12 or instructor permission.

Credits: 3.

EC 156 - Women in US Economy

Historical and theoretical overview of women's participation in the U.S. economy, emphasizing economic controversies surrounding family structure and pay equity issues. 11, 12 or instructor permission.

Credits: 3.

EC 160 - Industrial Organization

The structure, conduct, and performance of U.S. industry and appraisal of its economic efficiency and social impact, including governmental policies. 11, 12 or instructor permission.

Credits: 3.

EC 170 - Economic Methods

for both 170 and any of following STAT courses: 111, Introduces statistical and mathematical methods for understanding economic literature including probability distributions, data sources, statistical concepts, and simple regression, taught using economic examples and applications. Prerequisite: Math 19. Credit not given 140, 141,143.

Credits: 3.

EC 171 - Macroeconomic Theory

Keynesian and other theories of the macroeconomy. Government policies in relation to the problems of employment, price stability, and growth. Prerequisite: Math. 19, 11, 12 or instructor permission.

Credits: 3.

EC 172 - Microeconomic Theory

Analysis of consumer demand, supply, market price under competitive conditions and monopolistic influences, and the theory of income distribution. Prerequisite: Math 19, 11, 12 or instructor permission.

Credits: 3.

EC 194 - ISSP Thesis

Design, research, and writing of a thesis on an economic topic for students in the Integrated Social Sciences Program. 11, 12 or instructor permission.

Credits: 3.

EC 195 - Intermediate Special Topics

See Schedule of Courses for specific titles. 11, 12 or instructor permission.

Credits: 3.

EC 196 - Intermediate Special Topics

See Schedule of Courses for specific titles. 11, 12 or instructor permission.

Credits: 1-3.

EC 200 - Econometrics & Applications

A combination of economic theory, mathematics, and statistics for testing economic hypothesis and developing economic models. Conceptual development and applications. Prerequisite: 170 and either 171 or 172.

Credits: 3.

EC 210 - Sem A:Econ Hst, Systems&Ideas

Economic History, Systems, and Ideas Topics on the evolution of economic systems and ideas. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.

EC 220 - Sem B:Macroeconomics&Finance

Macroeconomics and Finance Topics such as national economic policies, income, wealth and welfare, financial markets and the macroeconomy, central banking, and other issues concerning macroeconomics and money. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.

EC 230 - Sem C:Microeconomics & Appl

Microeconomics and its Applications Topics from microeconomics and fields applying it, such as game theory, health economics, environmental economics, the Vermont economy, and urban and regional economics.

Credits: 3.

EC 240 - Sem D:Intern'l & Dev Economics

International and Development Economics Topics such as the economies of countries or regions, international trade agreements, international debts, deficits and structural adjustment, and aspects of development economics. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.

EC 250 - Sem E:Labor, Race & Gender

Labor, Race, and Gender Topics such as labor-management relations, aspects of contemporary labor markets, discrimination, economics of education, and other aspects of the economics of gender and race. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.

EC 260 - Sem F:Firms, Inst, & Growth

Firms, Institutions, and Growth Topics such as antitrust and regulation, decision making and the firm, technological change and industrial policies, and the economics of growth. Prerequisite: 170 and either 171 or 172 or both.

Credits: 3.

EC 291 - Macro and Micro Applications

Combination of real-world work experience with a related independent study project or readings and research. Pre/corequisites: EC 170 and either EC 171,172, or both.

Credits: 3.

EC 292 - Macro and Micro Applications

Combination of real-world work experience with a related independent study project or readings and research. Pre/corequisites: EC 170 and either EC 171,172, or both.

Credits: 3.

EC 295 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: 170 and either 171 or 172 or both.

Credits: 1-3.

EC 296 - Advanced Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

EC 297 - Readings & Research

prior to registration.Prerequisite: 170 and either 171 or 172 or both.

Credits: 1-3.

EC 298 - Readings & Research

Independent study with permission of supervising professor prior to registration.Prerequisite:

Credits: 1-6.

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Economics (B. A.)

College: [Arts and Sciences](#)

Department(s): [Economics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-three hours in Economics and three hours in Mathematics as follows: Economics 11, 12; Math. 19; three courses numbered Economics 20-160 or 194-196, two of which must be numbered 110 or higher; the methods and theory courses in Economics numbered 170, 171, 172; and three Economics courses numbered 200 or higher. No more than three credits from Economics 218, 219, 291, 292, 297, 298 may be applied towards the major. Students are urged to take Math. 19 early in the program.

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Minor in Economics

College: [Arts and Sciences](#)

Department(s): [Economics](#)

Requirements

Eighteen hours including Economics 11, 12; and four courses numbered 20-196, three of which must be numbered 110-196.

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Departments and Programs

English Department

Colleges: [Arts and Sciences](#), [Graduate College](#), [Continuing Education](#)

Faculty: English

Courses: [English \(ENG\)](#)

Contact Information:

*University of Vermont
English Department
400 Old Mill
94 University Place
Burlington, VT 05405-0114*

Phone: (802)656-3056

Fax: (802)656-3055

E-mail: pfrechet@zoo.uvm.edu



Web Site: <http://www.uvm.edu/~english/>

Academic Offerings

- Undergraduate Majors
 - English ([B.A.](#))
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 - [English](#)
 - [Film Studies](#)

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Courses in English

ENG 001 - Written Expression

A course in writing with some selected readings as examples of style and writing strategies.

Credits: 3.

ENG 004 - Engl for International Stdnts

Review of English grammar, practice in expository writing, vocabulary building, and improvement of speaking and listening skills. Prerequisite: Instructor's permission.

Credits: 3.

ENG 005 - First Year Seminar

Students to write in a variety of forms, styles, and genres in response to selected texts of literary or cultural significance. Themes, texts, and writing assignments to vary by section. Prerequisites: First-year standing in College of Arts and Sciences.

Credits: 3.

ENG 006 - First Year Seminar

Students to write in a variety of forms, styles, and genres in response to selected texts of literary or cultural significance. Themes, texts, and writing assignments to vary by section. Prerequisites: First-year standing in College of Arts and Sciences.

Credits: 3.

ENG 011 - Types of Literature

Introduction to fiction, poetry, and drama - past and present, British and American.

Credits: 3.

ENG 012 - Introduction to Drama

Study of the play as a work of literature and as a dramatic experience. Continental, British, and American drama from all ages.

Credits: 3.

ENG 013 - Introduction to Fiction

Exploration of a variety of fictional forms, including the short story, the novella, and the novel.

Credits: 3.

ENG 014 - Introduction to Poetry

Examination of the forms of poetry, past and present, British and American.

Provides a wide variety of perspectives on the poem.

Credits: 3.

ENG 021 - British Literature

Survey of major figures in British literature such as Chaucer, Milton, Swift, Wordsworth, and Woolf.

Credits: 3.

ENG 022 - British Literature

Survey of major figures in British literature such as Chaucer, Milton, Swift, Wordsworth, and Woolf.

Credits: 3.

ENG 023 - American Literature

Survey of major American writers from the beginning of the 19th century to the present, such as Hawthorne, Melville, Dickinson, Twain, Hemingway, and Faulkner.

Credits: 3.

ENG 024 - American Literature

Survey of major American writers from the beginning of the 19th century to the present, such as Hawthorne, Melville, Dickinson, Twain, Hemingway, and Faulkner.

Credits: 3.

ENG 025 - World Literature

writers of the world, to include Virgil, Dante, Goethe, and similar major figures. Students may not take for credit both English 25 and 27; or both English 26 and 28.

Credits: 3.

ENG 026 - World Literature

Survey in comparative literature dealing with the great writers of the world, to include Virgil, Dante, Goethe, and similar major figures. Students may not take for credit both English 25 and 27; or both English 26 and 28.

Credits: 3.

ENG 027 - Lit of Western Trad: Int Humn

Study of primary authors in the Western cultural tradition from Homer to the modern period with particular reference to history, religion, and philosophy. Students may not take for credit both English 25 and 27; or both English 26 and 28. Prerequisites: Concurrent enrollment in Religion 27, 28; History 13, 14; Integrated Humanities Program.

Credits: 3.

ENG 028 - Lit of Western Trad: Int Humn

Study of primary authors in the Western cultural tradition from Homer to the modern period with particular reference to history, religion, and philosophy. Students may not take for credit both English 25 and 27; or both English 26 and 28. Prerequisites: Concurrent enrollment in Religion 27, 28; History 13, 14; Integrated Humanities Program.

Credits: 3.

ENG 040 - Science Fiction & Fantasy Lit

Representative modern works of fantasy and science fiction, including works by

Asimov, Tolkien, and Clarke. I, II.

Credits: 3.

ENG 041 - Detective Fiction

A study of the historical development of American and British detective fiction from Poe to the present.

Credits: 3.

ENG 042 - Women in Literature

Survey of women's literary tradition in English. Focuses on the ways women have written, read, written about, and been represented in 19th and 20th century literature.

Credits: 3.

ENG 050 - Expository Writing

Writing and analysis of expository (nonfiction) essays. Prerequisite: Sophomore standing.

Credits: 3.

ENG 053 - Writing: Poetry & Fiction

Introductory course in techniques of writing poetry and short prose fiction. Classes organized around discussion of student work; weekly writing assignments.

Prerequisite: Sophomore standing.

Credits: 3.

ENG 057 - Race&Ethnicity Lit Stds:Intro

Introductory courses addressing the representation and construction of "race" in literature and/or the contributions of ethnically diverse writers to the American culture. Focus and readings vary by instructor. May be repeated for credit.

Credits: 3.

ENG 061 - Intro to African Literature

Readings in African literature, concentrating on major human and political themes and literary techniques.

Credits: 3.

ENG 065 - Survey of Folklore

Basic concepts of folklore; development of the discipline; defining the major genres; role of folklore in modern society.

Credits: 3.

ENG 085 - Text&Context:1st Yr Prosp Mjrs

Introduction to the critical work of close reading and close writing. Readings vary by section. Recommended for first-year students planning to major in English.

Credits: 3.

ENG 086 - Critical Approaches to Lit

Several theoretical approaches to literary study applied to specific texts. No prerequisite, but recommended only for students with sophomore standing or first-year students with Advanced Placement. Required of all English majors.

Credits: 3.

ENG 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 0-3.

ENG 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

ENG 101 - Structure of the English Lang

Descriptive study of modern American English. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 102 - History of the English Lang

Principles of historical linguistics and their application to English. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 103 - Old English

The sounds, works, and structure of Old English; simple prose texts and selections from Beowulf. Prerequisites: 3 hours of English numbered 11-96, sophomore standing

Credits: 3.

ENG 104 - Language Awareness

Topics will include consideration of language as part of human behavior, history of the language, dialects of American English, lexicography, language acquisition, gender differences, and cultural diversity. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 105 - American English Dialects

Class will examine dialects of American English and the methodology of dialectology with focus on Vermont speech and the social meaning of dialect variation. (Same as CMSI 162.) Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 106 - Critical Theories

Topics vary by semester and by professor. Representative topic: "Feminist Criticism." May be repeated for credit with departmental permission. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 108 - Tutoring Writing

Explores ways of responding to writers one-on-one, for students who will be tutoring at the Writing Center. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 109 - Exploring Writing Centers

Explores theoretical frameworks for writing centers and ways tutors can respond to student writers. Prerequisite: 108, 3 hours of English numbered 11-96, sophomore standing.

Credits: 2.

ENG 110 - Writing Literary Criticism

Introduction to theory and practice of literary criticism. Students read and write about literary theories representing various approaches to selected works of literature. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 111 - Stds in Composition & Rhetoric

Topics vary by semester and by professor. Representative topic: "The Composing Process." May be repeated for credit with departmental permission. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 112 - Personal Voice

Examination of the authorial voice in nonfiction writing. Reading and writing assignments include work with both traditional and experimental styles, forms, and genres. Portfolio assessment. Prerequisite: 50 or 53, 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 114 - Reading & Writing Autobiography

Study of the autobiographical literary tradition as well as practice writing within this tradition. Prerequisites: 50, permission of instructor, 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 115 - The Art of Nonfiction

Theory, readings, and practice in literary nonfiction, including the essay and/or literary journalism. Prerequisites: 50, permission of instructor, 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 117 - Advanced Writing: Non-Fiction

Students follow their own interests in the writing of

Credits: 3.

ENG 118 - Advanced Writing: Fiction

Students follow their own interests in the writing of fiction. Prerequisites: 53; instructor's permission. 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 119 - Advanced Writing: Poetry

Students follow their own interests in the writing of poetry. Prerequisites: 53; instructor's permission, 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 120 - Writers' Workshop

An intensive two-week workshop with assignments designed to emphasize autobiographical aspects of poetry and fiction writing. Summer only. Prerequisites: 3 hours English numbered 11-96, sophomore standing.

Credits: 3.

ENG 121 - Bible as Literature

Jewish and Christian scripture analyzed as literary documents. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 122 - Dante's Comedy

(Same as World Literature 173.) A study of Dante's Comedy in Modern English translation. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 124 - Chaucer

Study of the principal works of Chaucer, emphasizing Chaucer's literary scope, talents, and position in medieval literature. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 125 - Medieval Literature

Major works of medieval literature in translation, with some principal non-Chaucerian works in Middle English. Works by Dante and works in the Arthurian tradition will be included. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 127 - Shakespeare

A survey of plays in all genres (comedy, history, tragedy, romance) covering the early, middle, and late stages of Shakespeare's career. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 128 - Shakespeare & Renaissance Drama

A survey of drama, including the work of William Shakespeare, from the 16th and early 17th centuries in England. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 129 - Survey of Renaissance Lit

English poetry, prose, and/or drama from the late 16th and 17th centuries. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 130 - The Age of Milton

Paradise Lost, Paradise Regained, Samson Agonistes, some minor poems, and selected prose works. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 133 - Res & 18 C Prose, Poetry & Drama

Significant writers and dramatists from Dryden to Sheridan and Johnson. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 134 - 18th Century British Novel

Fiction from its origin through the 18th century. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 141 - Romanticisms

Late 18th and early 19th century English literature including, for example, works by Wordsworth, the Shelleys, Keats. Occasional special topics. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 142 - Victorian Prose, Poetry & Drama

Literature from 1832 to 1900, including, for example, Tennyson, Browning, Darwin,

- Wilde. Occasional special topics. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.
- ENG 143 - 19th Century American Poetry
The poetry of Walt Whitman, Emily Dickinson, and their contemporaries. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.
- ENG 144 - 19th Century American Non-Fict
Essay, biography, autobiography, history, journals, and letters by such writers as Emerson, Thoreau, Douglass, Chestnut, Twain, Fuller, Parkman, Kete.
Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.
- ENG 145 - 19th Century American Fiction
Short stories, novellas, and novels by such writers as Cooper, Poe, Hawthorne, Melville, Stowe, James, Chopin, Crane, Gilman. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.
- ENG 146 - 19th Century British Novel
British fiction of the 19th century. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.
- ENG 147 - 19th Century Women's Writing
Novels, short stories, and poetry by 19th century women from multiple cultures.
Prerequisites: 3 hours English numbered 11-96, sophomore standing.
Credits: 3.
- ENG 151 - Modern Poetry
Survey of poetry from beginning of modern period to end of World War II, emphasizing poetry of Yeats, Eliot, Stevens, Auden, Frost, Williams, and others.
Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.
- ENG 152 - Modern British Drama
British and continental plays of the 19th and 20th centuries, including plays by Ibsen, Pinter, and Beckett. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.
- ENG 153 - Modern British Novel
British novelists since 1900, including Forster, Conrad, Lawrence, Woolf, and other more recent writers. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.
- ENG 154 - Modern Irish Literature
Irish literature from 1890 to the present, emphasizing Joyce and Yeats.
Prerequisites: 3 hours of English numbered 11-96, sophomore standing.
Credits: 3.
- ENG 157 - Canadian Literature

The development of a national literature. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 158 - Contemporary Canadian Lit

Post-World War II Canadian poetry and fiction in English, including Atwood and Laurence. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 160 - Literature of Vermont

An exploration of Vermont writing from the narratives of the Allen brothers to the poetry and fiction of today. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 161 - Modern Short Fiction

Late 19th and 20th century short fiction by such European and American writers as Chekhov, Kafka, Joyce, Lawrence, Hemingway, Faulkner, O'Connor, Welty, Cheever, and Carver. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 162 - Modern American Novel

American novelists from 1915 to 1945. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 163 - Modern American Drama

Recent and contemporary, including plays by O'Neill, Miller, and Williams. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 166 - Slavery & American Literature

Examines connections between storytelling, bondage, and freedom. Focuses on the struggles of enslaved people to author free stories and free selves.

Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 167 - African-Amer Lit Harlem Ren

A survey of the writing of African Americans from the early poetry and prose of Phillis Wheatley, Frederick Douglass, and Frances Harper through the works of such writers as Nella Larsen, Countee Cullen, and Jean Toomer. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 168 - Afr-Amer Lit Since Harlem Ren

A survey of the writing of African Americans from the poetry and prose of Langston Hughes and Zora Neale Hurston through the works of such contemporaries as Amiri Baraka, Toni Morrison, and Audre Lorde. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 170 - Race&Ethnicity Lit Studies:Int

Courses addressing "race" in literature and/or the contributions of ethnically

diverse writers to American culture. Focus and readings vary by instructor. May be repeated for credit. Topics for 1999-00: American Indian Literature. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 172 - Colonial&Post-Colonial Wld Lit

departmental permission. Prerequisites: 3 hours of English Topics vary by semester and by professor. Representative topics: "African Theater" and "Contemporary Writing from the Non-Western World." May be repeated for credit with numbered 11-96, sophomore standing.

Credits: 3.

ENG 173 - Topics Pan-African Literature

Courses exploring experimental trends in 20th-century Pan-African literature and their relationship to Western and other literary traditions. Representative topics: "African Drama," "Survey of African Literature." Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 175 - Contemporary American Poetry

American poetry since 1950. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 176 - Contemporary American Novel

Significant American novelists since 1945. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 181 - Literary Genre

Representative topics: "Arthurian Literature;" "Medieval Drama;" "Women Writing Autobiography." Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 182 - Historical Periods

Representative topics: Literature of Civil Rights. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 183 - Major Writers

The works of one or two writers. Representative topics: "Mark Twain," "Toni Morrison." Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 184 - Popular Literature & Culture

Representative topics: "Poe's Children: Detective Fiction and Horror;" "Having a Good Cry: The Sentimental Tradition in Literature, Film, and Television;" "Children's Literature." Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 186 - Studies in Folklore

Representative topics: "American Folklore;" "Folklore and Ballad." Prerequisites: 3

hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 187 - American Studies

Interdisciplinary approaches to American literature and culture. Representative topics: "American Literature and American Law;" "The Vietnam War in Literature;" "Jewish-American Literature." Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 190 - Buckham Honors Seminar

Topic and instructor varies. Each seminar includes the participation of a distinguished visiting scholar or writer, such as Stephen Greenblatt, Barbara Johnson, Houston Baker, James Clifford, William Kennedy, and Stephen King. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 3.

ENG 191 - Internship

Prerequisites: Departmental permission, junior or senior standing.

Credits: 1-6.

ENG 192 - Internship

Prerequisites: Departmental permission, junior or senior standing.

Credits: 1-6.

ENG 195 - Intermediate Special Topics

See schedule of courses for specific titles. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 0-6.

ENG 196 - Intermediate Special Topics

See schedule of courses for specific titles. Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: 1-6.

ENG 197 - Rdgs & Rsch

Departmental permission required. Not to exceed three hours per semester.

Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: .5-6.

ENG 198 - Readings & Research

Departmental permission required. Not to exceed three hours per semester.

Prerequisites: 3 hours of English numbered 11-96, sophomore standing.

Credits: .5-6.

ENG 201 - Sem Engl Lang or Critical Thry

Recent topics: "Origins and Development of the English Language;" "Re-disciplining the History of Literature and the Literature of History;" "Women's Texts." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.

ENG 202 - Sem Engl Lang or Critical Thry

Recent topics: "Origins and Development of the English Language;" "Re-disciplining the History of Literature and the Literature of History;" "Women's Texts." Prerequisites: 86, 6 hours at the intermediate level, and instructor

permission.

Credits: 3.

ENG 211 - Sem in Composition & Rhetoric

Recent topics: "Writing the New Yorker;" "Writing Vermont Life;" "Editing and Publishing." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.

ENG 212 - Sem in Composition & Rhetoric

Recent topics: "Writing the New Yorker;" "Writing Vermont Life;" "Editing and Publishing." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.

ENG 221 - Seminar in Literature to 1800

Recent topics: "Women in 17th Century English Poetry;" "Dante and the Experience of Reading;" "Orality and Textuality in Middle English Literature." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.

ENG 222 - Seminar in Literature to 1800

Recent topics: "Women in 17th Century English Poetry;" "Dante and the Experience of Reading;" "Orality and Textuality in Middle English Literature." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.

ENG 241 - Seminar in 19th Century Lit

Recent topics: "Dickens"; "Reader, I Married Him: The Brontes;" "Love, Marriage, and Literary Criticism: Jane Austen;" "Reading Serially: The Victorian Novel;" "Invisible Man and 19th Century American Literature," "The Gothic." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.

ENG 242 - Seminar in 19th Century Lit

Recent topics: "Dickens"; "Reader, I Married Him: The Brontes;" "Love, Marriage, and Literary Criticism: Jane Austen;" "Reading Serially: The Victorian Novel;" "Invisible Man and 19th Century American Literature," "The Gothic." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.

ENG 251 - Seminar in 20th Century Lit

Recent topics: "The Beat Generation;" "Literature and Society in Modern Ireland;" "Dostoevsky's Influence on 20th Century American Literature." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.

ENG 252 - Seminar in 20th Century Lit

Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.

ENG 281 - Sem Lit Themes, Genres, Folklore

Recent topics: "Spiritual Journeys;" "Murder, He Said: Detective Fiction;" "Chekhov to Cheever: The Short Story." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

- Credits: 3.
- ENG 282 - Sem Lit Themes, Genres, Folklore
Recent topics: "Spiritual Journeys;" "Murder, He Said: Detective Fiction;"
"Chekhov to Cheever: The Short Story." Prerequisites: 86, 6 hours at the
intermediate level, and instructor permission.
Credits: 3.
- ENG 290 - Sem Prospective Tchrs of Engl
English language in secondary school. This course does not logical, artistic,
economic, and sociological history of the cinema from its inception through the
1920s. Prerequisites: 86, 6 hours at the intermediate level, and instructor
permission.
Credits: 3.
- ENG 295 - Advanced Special Topics
Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.
Credits: 1-3.
- ENG 296 - Advanced Special Topics
Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.
Credits: 3.
- ENG 297 - Readings and Research
Departmental permission required. Not to exceed three hours per semester. UG
only.
Credits: 1-3.
- ENG 298 - Readings and Research
Departmental permission required. Not to exceed three hours per semester. UG
only.
Credits: 1-3.
- ENG 320 - Seminar: Major Author
In-depth study of the works, critical reception, and context of an author writing in
English. Representative topics: Chaucer; Shakespeare; Milton; Austen; Dickinson;
Credits: 3.
- ENG 330 - Seminar: Literary Period
Advanced survey of authors, themes, genres, and/or cultural
Credits: 3.
- ENG 340 - Studies in Rhetoric & Comp
Introduction to current issues in the field. Representative topics: Rhetorical theory;
gender, class, and composing: writing across the curriculum; collaborative
learning,
Credits: 3.
- ENG 350 - Surv of Lit Theory & Criticism
Theory and Criticism.
Credits: 3.
- ENG 360 - Seminar: Special Topics
Topic varies, based on faculty research. Representative
Credits: 3.
- ENG 370 - Principles of Literary Rsch
including bibliographic, manuscript, and archival work.

Credits: 3.

ENG 391 - Master's Thesis Research

Credits: 1-6.

ENG 392 - Seminar Paper Review

Credits: 0.

ENG 397 - Special Readings & Research

Directed individual study of areas not appropriately covered by existing courses.

Permission of Graduate Director.

Credits: 1-3.

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English (B. A.)

College: [Arts and Sciences](#)

Department(s): [English](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements:

Thirty-three hours at the level of 11 or above, including 86 (85 is recommended for first-year students planning to major in English); at least twenty-one hours at or above the 100 level, at least three of which must be from courses numbered 201-282 (Senior Seminars). A total of nine hours of Film may be counted toward the major. Of the credit hours above 100: (a) at least three hours must be in writing or in critical theory or in study of the English language (listed in Departmental offerings as Category A; usually courses numbered 101-120 and 201-212, but courses with other numbers may also fulfill Category A; check Departmental offerings for each term); (b) at least six hours must be in literature before 1800 (listed in Departmental offerings as Category B; usually courses numbered 121-134 and 221-222, but courses with other numbers may also fulfill Category B; check Departmental offerings for each term); and (c) at least three hours must be in 19th-century literature (listed in Departmental offerings as Category C; usually courses numbered 141-147 and 241-242, but courses with other numbers may also fulfill Category C; check Departmental offerings for each term). One Humanities course approved by the English Department or one World Literature course may count toward the major. No more than nine hours of English 117, 118, 119 and/or 120 will count toward the fulfillment of major requirements.

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Minor in English

College: [Arts and Sciences](#)

Department(s): [English](#)

Requirements

Available only to students majoring in a program in the College of Arts and Sciences.

Eighteen hours including six hours taken from one of the following sequences: 21-22, 23-24, 25-26, 27-28, or 85-86; and a minimum of nine credits at the 100 level or above.

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Minor in Film Studies

College: [Arts and Sciences](#)

Department(s): [English](#)

Requirements

Available only to students majoring in a program in the College of Arts and Sciences.

Eighteen hours, including Art 140; Film 5 or 6; six credits from Film courses at the 100 level to include 107; three credits from English 110, 152, 163, Psychology 163, Sociology 43, Theatre 50; three credits from Film courses at the 200 level.

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Departments and Programs

Environmental Sciences Program (College of Agriculture and Life Sciences or The Rubenstein School of Environment and Natural Resources)

Colleges: [Agriculture and Life Sciences](#), [The Rubenstein School of Environment and Natural Resources](#)

Faculty: Environmental Sciences

Courses: [Environmental Sciences \(ENSC\)](#)

Contact Information

University of Vermont

The Rubenstein School of Environment and Natural Resources

Environmental Sciences Program

George D. Aiken Center

81 Carrigan Drive

Burlington, VT 05405

Phone: (802) 656-2691

Email: Alan.McIntosh@uvm.edu

Web Site (College of Agriculture and Life Sciences): <http://pss.uvm.edu/ENSC/>

Web Site (The Rubenstein School of Environment and Natural Resources):

http://www.uvm.edu/envnr/?Page=undergrads/enviro_sciences.html

Related Programs:

- [Environmental Sciences \(College of Arts and Sciences\)](#)

Academic Offerings

- Undergraduate Majors
 - Bachelor of Science (B. S.)
 - [Environmental Sciences](#)
Concentrations [*College of Agriculture and Life Sciences*]:

- Agriculture and the Environment
- Conservation Biology and Biodiversity
- Ecological Design
- Environmental Analysis and Assessment
- Environmental Resources
- Water Resources

Overview

Students with an aptitude for science and an interest in the quality of the environment can choose alternate pathways in pursuing a major in Environmental Sciences at UVM. The Rubenstein School of Environment and Natural Resources and the College of Agriculture and Life Sciences jointly offer a science-based education emphasizing the application of scientific skills and knowledge in addressing complex environmental problems. The Environmental Sciences major provides students with the fundamental knowledge and hands-on experience to identify, analyze, and solve "real world" environmental problems arising from human activities.

The College of Arts and Sciences offers a science education with an emphasis on basic science approaches to understanding the environment. See the [Environmental Sciences Program in the College of Arts and Sciences](#) for more information.

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Courses in Environmental Sciences

ENSC 001 - Intro Environmental Sciences

Emphasizes the impacts of human activity on the environment. Attention to resources at risk and pollutant fate and effects on ecosystems.

Credits: 3.

ENSC 101 - Pollutant Mvmt/Air, Land & Water

Physical, chemical, and biological aspects of pollutant behavior from source to ultimate fate. Laboratory methodologies for measuring pollutants and predicting their transport, behavior, and fate. Prerequisites: 1; Biology 1, 2; Chemistry 31, 32; Math. 19, 20; co-requisite Chemistry 42.

Credits: 4.

ENSC 130 - Global Environmental Assessment

Assessment of human impacts on the global environment. Hands-on application of satellite remote sensing and geographic information systems to address key environmental issues. Prerequisite: BIOL 001 or BOT 004, CHEM 023, or equivalent, MATH 019.

Credits: 3.

ENSC 185 - Special Topics

See Schedule of Courses for specific titles. Variable credit.

Credits: 1-12.

ENSC 195 - Internship

Professionally-oriented field experience under joint supervision of faculty and business or community representative. Prerequisite: Proposal and permission of ENSC Director; Junior standing; good academic standing; Maximum of six hours. Three can be applied to elected concentration with Director permission.

Credits: 1-6.

ENSC 196 - Independent Research

Special study and research activity under the directory of a faculty member. Prerequisite: Proposal and permission of ENSC Director; Junior standing; good academic standing. Up to six hours. Three can be applied to elected concentration with Director permission.

Credits: 1-6.

ENSC 201 - Recovery & Restor Altered Ecosys

Role of stress and disturbance and the natural process of recovery in aquatic and terrestrial ecosystems. Human efforts to modify, restore, and remediate altered ecosystems. Prerequisites: Natural Resources 103 or an intermediate-level ecology course; or instructor's permission. Environmental Sciences 101 strongly recommended.

Credits: 3.

ENSC 202 - Ecological Risk Assessment

Approaches used to identify, measure, and manage ecological risk. Problem formulation, characterization, uncertainty analysis, and risk management. Case studies. Prerequisite: ENSC 201, NR 140 or STAT 141; Senior standing, or Instructor permission.

Credits: 3.

ENSC 222 - Pollution Ecology

Impacts of pollutants on the structure and function of ecosystems. Examination of how air, land, and water influence ecological fate and effects of pollutants.

Prerequisites: Biology 1; Chemistry 23, Natural Resources 103 or equivalent ecology course. (Not offered for graduate credit.)

Credits: 3.

ENSC 285 - Adv Special Topics ENSC

See Schedule of Courses for specific titles. Prerequisites: Senior standing or instructor's permission. Variable credit. (Not offered for graduate credit.)

Credits: 1-12.

ENSC 299 - Environmental Sciences Honors

Honors project dealing with environmental sciences. Prerequisites: By application only; see program chair.

Credits: 3-6.

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Environmental Sciences (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Environmental Sciences](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)

Specific Requirements

Students may major in Environmental Sciences through the College of Agriculture and Life Sciences, the College of Arts and Sciences, or the School of Natural Resources. For general information about the Environmental Sciences curriculum, see [Studying the Environment](#).

Environmental Sciences majors through the College of Agriculture and Life Sciences must fulfill the following requirements for graduation:

- General CALS distribution requirements.
- Core distribution requirements for major (also fill distribution requirements): Animal Science 1, 230; Community Development and Applied Economics 2; Plant and Soil Science 11; Botany 160; Microbiology and Molecular Genetics 101.
- Environmental Science minimal basic science/quantitative courses (also fill distribution requirements): Biology 1, 2; Chemistry 31, 32; Chemistry 42¹; Geology 55 or Plant and Soil Science 161²; Math 19, 20; Natural Resource 140 or Statistics 141.
- Environmental Sciences foundation courses: ENSC 1, 101, 130, 201, 202.
- Concentration requirement, 14 credit hours in one of the following: **Agriculture and the Environment, Conservation Biology and Biodiversity, Ecological Design, Environmental Analysis and Assessment, Environmental Resources, Water Resources**. Detailed lists of courses for each concentration are available from the Program Director and the Office of the Dean.

¹ Students should consider taking Chemistry 141/142.

² Plant and Soil Science 161 is required for many advanced PSS courses in several curricular concentrations; most students should take this course.

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Departments and Programs

Environmental Studies Program

Colleges: [Agriculture and Life Sciences](#), [Arts and Sciences](#), [Education and Social Services](#), [The Rubenstein School of Environment and Natural Resources](#)

Faculty: Environmental Studies

Courses: [Environmental Studies \(ENVS\)](#)

Contact Information:

*University of Vermont
Environmental Program
Bittersweet
153 South Prospect St.
Burlington, VT 05401*

Phone: (802) 656-4055

Fax: (802) 656-8015

Email: Elizabeth.Getchell@uvm.edu

Web Site: <http://www.uvm.edu/~envprog/>

- [Degree Requirements and Curriculum](#)

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- Undergraduate Majors
 - Bachelor of Arts (B. A.)
 - [Environmental Studies](#)
[College of Arts and Sciences]

- Undergraduate Minors
 - [Environmental Studies](#)

Overview

Environmental Studies is a University-wide undergraduate environmental curricular option directed by the Environmental Program in cooperation with several colleges and professional schools. This option is one of UVM's most distinctive and popular academic programs — unique nationally in its breadth and interdisciplinary nature.

Students entering UVM may apply for admission to Environmental Studies through several of the undergraduate divisions. Choice of the appropriate college or school will depend on the individual's interests, career and educational objectives.

The Environmental Program involves students and faculty from throughout the University, as well as community professionals, recognizing that study of the environment must draw upon all academic disciplines and professional fields. The activities of the Program include undergraduate education, research, and community service programs dedicated to the study and improvement of the cultural and natural environments essential to the quality of life on earth.

The Program serves a wide range of environmental interests, with its primary mission being undergraduate education, and its primary focus the individual student. Working closely with the faculty, each student plans an individualized program that combines a broad, comprehensive understanding of the environment with depth in a specific discipline or profession. Major concentrations can be in the natural or technical sciences, the humanities or arts, the social sciences or professions, or broadly interdisciplinary.

Many graduates continue their education in graduate or professional schools; others work in public and private sectors in highly diverse fields throughout Vermont, the nation, and in countries around the globe.

Students enrolled in Early Childhood, Elementary Education and Physical Education may complete the major concentration in Environmental Studies as a fulfillment of the liberal arts and sciences major requirement. Environmental Studies is not a Vermont State Department of Education approved endorsement area for Secondary Education.

Program offices and a Student Services Center are located in The Bittersweet, where students are encouraged to visit with the staff and faculty regarding their academic plans, to gain assistance with research or action projects, and to seek information about academic programs, internships, international study opportunities, graduate studies, and future careers.

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Courses in Environmental Studies

ENVS 001 - Intro to Environmental Studies

Survey of environmental studies examining ecological, socioeconomic, aesthetic, and technological influences determining quality of life on earth. Prerequisite: First-year/Sophomore standing or Instructor permission.

Credits: 4.

ENVS 002 - Internat'l Environmental Stds

A multidisciplinary analysis of the interaction of global and local variables in understanding and solving pervasive environmental problems. Prerequisite: First-year or sophomore standing.

Credits: 4.

ENVS 007 - Environmental Awareness

Selected current environmental issues from evolving political, religious, scientific, and social perspectives. For non-majors. Cannot receive credit for both ENVS 001 and ENVS 007

Credits: 3.

ENVS 095 - Special Topics

Introductory courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural areas management.

Credits: 1-4.

ENVS 096 - Special Topics

Credits: 1-3.

ENVS 100 - Environmental Theory

Comparative analysis of emerging concepts of human/environment relationships; the history, philosophy, and theoretical framework of environmental studies.

Prerequisites: 1,2.

Credits: 3.

ENVS 151 - Intermed Environmental Studies

Individual investigation of interdisciplinary areas of environmental studies with emphasis on academic and career choices and preparation for senior thesis/project. Prerequisites: Major in Environmental Studies; 1, 2; permission.

Credits: 3.

ENVS 152 - Environment Information Skills

age by teaching information concepts, skills, and broad ranging resources.

Prerequisite: ENVS 151, or concurrently enrolled in ENVS 151.

Credits: 1.

ENVS 156 - Permaculture

Cross-listed with: PSS 156. Design of agriculturally productive environments that have the diversity, stability, and resilience of the natural biosphere to harmoniously integrate landscape and people. Prerequisite: Three hours basic biological or ecological science, or permission.

Credits: 2.

ENVS 173 - Landscape Natural History

Sophomore standing. This field-based course examines patterns and processes on local landscapes from an interdisciplinary perspective, with an emphasis on geology, soil science, plant ecology, and ecosystem geography. Prerequisites:

ENVS 001;

Credits: 3.

ENVS 174 - Nat Areas Conservation&Steward

Prerequisites: ENVS 001, NR 001, or Instructor permission.

Credits: 3.

ENVS 177 - Intro to Landscape Restoration

Introduction to the history, philosophical foundations, and approaches to restoration of natural landscapes damaged by human activity and neglect. Case studies of selected local sites. Prerequisite: ENVS 001, NR 001, or Instructor permission.

Credits: 3.

ENVS 178 - Environmental Ethics

Current approaches and problems in environmental ethics drawing on philosophy and case studies in animal rights, land ethics, deep ecology, wilderness protection, and human rights. Prerequisite: One environmental course; Junior standing.

Credits: 0-3.

ENVS 179 - Ecofeminism

(Cross-listed with Women's Studies 179.) Investigation of the parallel dominations of women and nature, through analysis and reflection on ecofeminist theory, activism, and spirituality. Prerequisites: ENVS 001, ENVS 002 or WST 073, sophomore standing.

Credits: 3.

ENVS 180 - Radical Environmentalism

Survey of radical environmental philosophy and activism from a liberation ethics perspective. Includes deep ecology, ecofeminism, environmental justice, and ecological resistance movements around the world. Prerequisite: ENVS 001, ENVS 002; Sophomore standing.

Credits: 3.

ENVS 181 - Strategic Environmental Leadership

Theory and analysis of strategic environmental leadership as it varies with culture, ethnicity, and gender. Prerequisites: 1, 2, junior standing, permission of instructor.

Credits: 1.

ENVS 182 - Religion and Ecology

Exploration of the greening of major world religious traditions in both practice and philosophy. Includes institutional, activist, and lifestyle initiatives in ecological spirituality. Prerequisites: ENVS 001 or ENVS 002; or NR 002, REL 020 or REL 021 preferred; Sophomore standing.

Credits: 3.

ENVS 190 - Environmental Skills

Workshops to develop applied skills useful for environmental work and/or research. Topics vary by semester. Prerequisite: ENVS 001, ENVS 002.

Credits: 1-3.

ENVS 191 - Environmental Practicum

Individual readings and research, internship, or field-based learning experience under direction of a faculty member or environmental practitioner. Credit arranged. Prerequisite: Permission of course coordinator.

Credits: .5-9.

ENVS 195 - Special Topics

Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course; Sophomore standing.

Credits: 1-6.

ENVS 196 - Special Topics

Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course; Sophomore standing.

Credits: 1-6.

ENVS 197 - Student Designed Course

Course Student-taught courses beyond the scope of existing formal courses in environmental studies. Developed according to Program guidelines, with sponsorship by interested faculty. Prerequisites: 1, 2, permission.

Credits: 1-3.

ENVS 201 - Research Methods

(Not offered for graduate credit.) Planning, design, and methods for the required senior thesis or project. Includes literature review and proposal writing.

Prerequisites: 151, junior standing.

Credits: 3.

ENVS 202 - Senior Project and Thesis

Senior level project or thesis under faculty direction. Prerequisites: 201, permission of Environmental Program. Credits arranged. (Not offered for graduate credit.)

Credits: 1-9.

ENVS 203 - Honors Thesis

Undergraduates only.

Credits: 1-9.

ENVS 204 - Seminar Environmental Studies

Review and discussion of current environmental research and literature.

Prerequisites: 1, 2, junior or senior standing. (Not offered for graduate credit.)

Credits: 1-3.

ENVS 284 - Teaching Assistantship

in ENVS course. Variable credit. May be repeated. UG only. Students gain practical teaching experience through assisting with instruction, evaluation, and reflection. Tasks may include: leading discussion sessions, grading, and developing course materials. Prerequisites: Senior standing or permission of instructor, concurrent teaching assistant

Credits: 1-2.

ENVS 289 - Environmental Economics

Application of economic theory and methods to environmental problems and policies. Includes cost-benefit analysis and economic incentives as tools for environmental problem solving. Prerequisites: 1, three hours intermediate economics. For students in Arts and Sciences: Economics 11-12, intermediate course in ENVS. UG only.

Credits: 3.

ENVS 290 - Environmental Policy

Public policy dimensions of natural resource management and environmental protection; U.S. historical context; policy analyses of contemporary issues; administration of environmental resource institutions. Prerequisites: Six hours of intermediate or advanced courses in ENVS or related areas. UG only.

Credits: 3.

ENVS 291 - Advanced Environmental Pract

Individual readings and research, internship, or field-based learning experience at the advanced level, under direction of faculty member or environmental practitioner. Prerequisite: ENVS 001, ENVS 002; Senior/Graduate standing.

Credits: 1-12.

ENVS 293 - Environmental Law

Principles of environmental law, including legal research methods, threshold issues, case law, trial procedure, and international comparisons in aspects of air, land, and water law. Prerequisite: Junior standing.

Credits: 3.

ENVS 294 - Environmental Education

Philosophy, concepts, and strategies of environmental education, emphasizing integration of environmental concerns into formal and nonformal educational programs for youth and adults. Prerequisite: Six hours of intermediate or advanced courses in Environmental Studies or related areas.

Credits: 3.

ENVS 295 - Advanced Special Topics

Advanced courses of current areas of interest which may vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course at 100 level; Junior standing.

Credits: 0-6.

ENVS 296 - Advanced Special Topics

junior standing. UG only.

Credits: 1-6.

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Environmental Studies Degree Requirements and Curriculum

College: [Studying the Environment](#)

Department(s): [Environmental Program](#)

Degree Requirements

Students must complete the distribution and credit-hour requirements of their college or school and one of the following programs. Incoming students will be assigned an advisor in the Environmental Program who will assist in selecting a major or minor program.

Curriculum

The curriculum in Environmental Studies offers students several alternatives leading to an individualized program of studies. The Major in Environmental Studies provides a unique academic program for the student seeking an interdisciplinary major leading to the B. S. or B. A. degree, with opportunity for Honors Studies. The Minor in Environmental Studies fulfills the minor requirement for students in the College of Arts and Sciences and is available as an elective minor in other schools and colleges. For selected students, a double major offers the opportunity for combining interdisciplinary studies with a traditional major.

Major in Environmental Studies

This interdisciplinary major offers students the opportunity to combine studies in several disciplines and professional fields. In addition to a core of interdisciplinary courses, each student's program includes an individually-designed plan of study directed toward newly-developing careers and graduate study programs. It is equally suited to the student seeking a broad liberal education with an environmental emphasis and to the student focusing on a particular science, humanities, social studies, or technical discipline.

The Major in Environmental Studies is a selective program for qualified students with well-conceived academic goals. Admission to the major (regardless of declared major at the time of admission to UVM) requires submission of an application to the Environmental Program during the sophomore year, approval of the Director, and successful completion of Environmental Studies 151. In addition to course requirements,

this major includes a required senior research thesis or project that may qualify for program, college, or school honors recognition. Requirements for Secondary Education majors differ. Consult the appropriate sections of this catalogue for the exact requirements of each college or school.

Environmental Studies Major Core

Required Courses	Credit Hours
Intro. to Environmental Studies (ENVS 1)	4
International Environmental Studies (ENVS 2)	4
Intermediate Environmental Studies (ENVS 151)	3
Research Methods (ENVS 201)	3
Senior Project and Thesis (ENVS 202/203) (Planned and designed in ENVS 201; credit arranged in consultation with senior thesis advisors)	6 - 12

Individually-Designed Program

Required Courses	Credit Hours
Individually-designed program of studies (Intermediate and advanced courses, including courses in natural sciences, humanities, social sciences, and international studies)	18 - 30

Students are strongly encouraged to undertake internships, independent projects, study abroad, and cross-cultural experiences.

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Environmental Studies (B. A.)

College: [Arts and Sciences](#)

Department(s): [Environmental Studies](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-eight hours including Environmental Studies 1, 2, 151, 201, and six hours of 202 and/or 203; plus an Individually-Designed Program containing 18 hours of approved environmentally-related courses at 100 or higher level, including three hours at the 200 level, six hours of Environmental Studies courses, with at least one course in each of these areas* ❖ natural sciences, humanities, social sciences, and international studies (may be fulfilled by study abroad experience). The courses of the Individually-Designed Program combine, along with the senior project and thesis, to provide a coherent major for the student.

*Students are cautioned that courses approved in these areas by Environmental Studies might not fulfill the distribution requirements in the College of Arts and Sciences.

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Minor in Environmental Studies

College: [Studying the Environment](#)

Department(s): [Environmental Studies](#)

Requirements:

For students in several colleges and schools, this program combines the basic interdisciplinary skills and perspectives necessary for the understanding of environmental issues with the curriculum of a traditional disciplinary major.

In addition to two introductory Environmental Studies courses and at least three intermediate or advanced ENVS courses, students complete a major in a related discipline or professional field.

Students in the College of Arts and Sciences may elect this minor to fulfill the minor requirements in that college. Minor programs are available on an elective basis in most other schools and colleges.

Consult the appropriate college or school for the exact requirements.

- [Environmental Studies Minor in the College of Agriculture and Life Sciences](#)
- [Environmental Studies Minor in the College of Arts and Sciences](#)
- [Environmental Studies Minor in the Rubenstein School of Environment and Natural Resources](#)
- [Environmental Studies Minor \(Secondary Education Majors\) in the College of Education and Social Services](#)

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Departments and Programs

Geography Department

Colleges: [Arts and Sciences](#), [Graduate College](#)

Faculty: [Geography](#)

Courses: [Geography \(GEOG\)](#)

Contact Information:

*University of Vermont
Geography Department
200 Old Mill
94 University Place
Burlington, VT 05405-0114*

Phone: (802) 656-3060

Fax: (802) 656-3042

Email: geography@uvm.edu

Web Site: <http://www.uvm.edu/~geograph/> ↗

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Arts (B. A.)
 - [Geography](#)
- Undergraduate Minors
 - [Geography](#)

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Courses in Geography

GEOG 001 - World Regional Geography

Basic introduction to Geography by way of a regional approach to human and environmental topics.

Credits: 3.

GEOG 002 - World Natural Environments

attention to landforms, climate, soil, vegetation, and water resources.

Credits: 3.

GEOG 043 - Weather & Climate

Introduction to the fundamentals of the weather, as well as midlatitude and tropical climates. Topics include cloud formation, hurricanes, tornadoes, winter weather, climate change.

Credits: 3.

GEOG 051 - Africa

The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base.

Credits: 3.

GEOG 052 - Canada

The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base.

Credits: 3.

GEOG 055 - Europe

The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base.

Credits: 3.

GEOG 056 - Latin America

The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base.

Credits: 3.

GEOG 057 - The United States

The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base.

Credits: 3.

GEOG 060 - Geography/Race&Ethnicity in US

Examination of the ways in which spatial and locational processes shape and are shaped by ethnic and racial identities, struggles, and relationships.

Credits: 3.

GEOG 073 - Geography of Global Economy

Distribution of global economic activity and power. Processes of uneven development and globalization including industrialization, the "global assembly line," trade, investment, and migration.

Credits: 3.

GEOG 081 - Geotechniques

Introduction to cartography, geographic information systems (GIS), and remote sensing. Map design and analysis using topographic/satellite data, air photo interpretation, digitizing, and Internet resources.

Credits: 3.

GEOG 090 - International Field Studies

Field course abroad (e.g. South Africa or England). Intensive study of the geography of a country or region, with attention to related issues.

Credits: 3.

GEOG 092 - Vermont Field Studies

Field course on a geographical theme (e.g. physical or regional geography) in the Burlington area or surrounding region. Cross-listed with: VS 092.

Credits: 3.

GEOG 095 - Special Topics in Geography

See Schedule of Courses for specific titles.

Credits: 1-3.

GEOG 096 - Special Topics in Geography

See Schedule of Courses for specific titles.

Credits: 1-3.

GEOG 143 - Climatology

Analysis of regional and local climatic data with special reference to climatic controls; special laboratory projects. Prerequisite: 43 or instructor permission.

Credits: 3.

GEOG 144 - Geomorphology

Prerequisite: GEOL 001 or GEOL 055. Cross-listed with: GEOL 151.

Credits: 4.

GEOG 145 - Geography of Water

Examination of the spatial dimensions of water distribution from local to global scales, and the social, political, and economic dimensions of its use. Same as NR 102.

Credits: 3.

GEOG 146 - Watershed Ecosystems:N America

Examines the influence of climate, geomorphic processes, and biogeography on ecosystems at the scale of the watershed. Explores the role of social dynamics in the management and restoration of watersheds.

Credits: 3.

GEOG 151 - Southern Africa

A regionally focused course. Topics will include: information economy, legacy of apartheid, impacts of HIV/AIDS, race, class, gender, land, governance and social justice. Prerequisite: 51.

Credits: 3.

GEOG 154 - Geography of Third World Dev

Problems of poverty, insecurity, inequality and environmental degradation in the Third World. Economic change, migration, regional development, role of women. Focus on Africa and Asia.

Credits: 3.

GEOG 155 - Historical Geography of Europe

HST 120.

Credits: 3.

GEOG 170 - Historical Geography

(Same as History 170.) Examination of the tools, techniques, and perspectives used in studying the historic development of places and landscapes. Vermont and other North American case studies. Prerequisites: 57 recommended or History 11 or 12 or instructor permission .

Credits: 3.

GEOG 171 - Cultural Geography

Distribution of race, ethnicity, language, and religion at different geographical scales and how these factors contribute to world and regional events.

Prerequisites: 1 or Anthropology 21 or Sociology 1.

Credits: 3.

GEOG 173 - Political Ecology

Human-environment interactions under globalization. Social and economic causes of global and local environmental problems. Environmental movements and sustainable livelihoods in First and Third Worlds.

Credits: 3.

GEOG 174 - Agricultural Geography

Credits: 3.

GEOG 175 - Urban Geography

Analysis of the morphology, function and social structure of cities. Consideration of the nature, history and theories of urban growth and development. Prerequisites: 1 or 73 or instructor permission.

Credits: 3.

GEOG 177 - Political Geography

(Same as Political Science 161.) Examines the relationships between nation states and political identity. Other political-spatial constructs are also examined, including the private and public dichotomy, cyberspace, and borders.

Prerequisites: Recommended 1 or 73 or Political Science 51 or 71.

Credits: 3.

GEOG 178 - Gender, Space & Environment

(Same as Women's Studies 170.) Examination of the ways in which human relationships to both the built and the natural environment are mediated by gender. Prerequisites: Six hours in geography or women's studies, or instructor's permission.

Credits: 3.

GEOG 179 - Cultural Ecology

(Same as Anthropology 179.) Interrelationships of social groups and their natural environments and resource bases, with primary emphasis on nonindustrial cultures, examined from the perspectives of anthropology and geography.

Prerequisite: 1 or Anthropology 21.

Credits: 3.

GEOG 185 - Remote Sensing

(e.g. principal components analysis). Prerequisite: GEOG 081 Examinations of the earth's surface from aerial photographs and satellite imagery. Emphasis is on image interpretation, classification, change detection, multivariate analysis recommended. Cross-listed with: FOR 146, NR 146.

Credits: 3.

GEOG 190 - International Field Studies

Field course abroad (e.g. South Africa or England.) Intensive study of the geography of a country or region, with attention to related issues. Prerequisite: Three hours in Geography.

Credits: 3.

GEOG 191 - Geography Internship

Supervised internship in applied geography working with a local public agency or private firm. Individually arranged. Prerequisite: Junior/Senior standing; department permission.

Credits: 1-6.

GEOG 192 - Vermont Field Studies

Field course on a geographical theme (e.g. physical or regional geography) in the Burlington area or surrounding region. Prerequisite: Three hours in Geography.

Cross-listed with: VS 192.

Credits: 3.

GEOG 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 0-3.

GEOG 196 - Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

GEOG 197 - Readings & Research

Credits: 1-6.

GEOG 198 - Readings & Research

Credits: 1-6.

GEOG 202 - Research Methods

A systematic overview of the art and science of geographical inquiry. Examination of key research and methodological approaches in the discipline. Prerequisite:

Junior/Senior standing; nine hours in Geography.

Credits: 3.

GEOG 203 - Contemp Geog Thought Context

A survey of paradigms and issues in contemporary geography. Attention paid to the social and historical contexts of geographic thought. Prerequisite: Nine hours in Geography or Instructor permission.

Credits: 3.

GEOG 204 - Spatial Analysis

Analysis of spatial pattern and interaction through quantitative models; introduction to measurement, sampling, and covariation in a spatial framework. Prerequisite: Senior/Graduate standing; at least nine hours in Geography, or Instructor permission.

Credits: 3.

GEOG 245 - Adv Top:Human Env Interactions

Advanced offerings on various manifestations of social-environmental relationships. Possible topics include sustainable development, environmental justice, and urban ecology. Prerequisite: Senior/Graduate standing with nine hours in Geography or Instructor permission.

Credits: 3.

GEOG 246 - Adv Top:Climate&Water Resource

Advanced analysis of regional climatology, hydroclimatological hazards, or fluvial geomorphology. Special topics might include droughts, severe weather, floods and floodplain management, mountain and lowland rivers. Prerequisites: Senior or graduate standing with nine hours in Geography, or instructor permission.

Credits: 3.

GEOG 272 - Adv Top:Space, Power, Identity

Advanced offerings on topics related to the spatial regulation and geographic construction of social identity, paying particular attention to race, gender and sexuality. Prerequisite: Senior/Graduate standing with nine hours in Geography or Instructor permission.

Credits: 3.

GEOG 273 - Adv Top:Political Econ&Ecology

Advanced offerings in political ecology and political economy, particularly at global and regional scales. Possible topics include Third World economic restructuring, globalization, international environmental movements. Prerequisite: Senior/Graduate standing with nine hours in Geography or Instructor permission.

Credits: 3.

GEOG 274 - Adv Top:Critical Urban&Soc Geo

Advanced offerings in urban and critical social geography. Possible topics include social justice and the city, human rights, geographies of social control. Prerequisite: Senior/Graduate standing with nine hours in Geography, or Instructor permission.

Credits: 3.

GEOG 281 - Adv Topic:GIS & Remote Sensing

Advanced offerings in GIS or remote sensing focusing on landscape interpretation for decision-making practices. Incorporation of applications from Vermont public

and private sectors. Prerequisites: Senior or Graduate standing with nine hours in Geography; or Instructor permission.

Credits: 3.

GEOG 295 - Advanced Special Topics

See schedule of courses for specific titles.

Credits: 3.

GEOG 296 - Advanced Special Topics

See schedule of courses for specific titles.

Credits: 3.

GEOG 297 - Readings & Research

Credits: 1-6.

GEOG 298 - Readings & Research

Credits: 1-6.

GEOG 300 - Graduate Tutorial

Instructor permission. Readings and research on topics arranged individually by students with instructors; attendance in appropriate undergraduate courses may be required. Prerequisite:

Credits: 3.

GEOG 391 - Master's Thesis Research

Credits: 1-18.

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Geography (B. A.)

College: [Arts and Sciences](#)

Department(s): [Geography](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Ten courses (thirty hours), which must include: 2 or 43; 60 or 73; 81; any one regional course (from 51, 52, 55, 56, 57, 90, 92, 151, 154, 155, 162, 190 or 192); any three courses at the 100-level; any one course at the 200-level.

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Minor in Geography

College: [Arts and Sciences](#)

Department(s): [Geography](#)

Requirements

Five courses (fifteen hours) which must include: one course from this array: 1, 2, 43, 60, 73, 81; any one regional course (from 51, 52, 55, 56, 57, 90, 92, 151, 154, 155, 162, 190, or 192); any three courses at the 100-level or above.

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Departments and Programs

Geology Department

Colleges: [Arts and Sciences](#), [Graduate College](#)

Faculty: Geology

Courses: [Geology \(GEOL\)](#)

Contact Information:

University of Vermont

Geology Department

Perkins Building

43 Colchester Ave

Burlington, VT 05405-0122

Phone: (802) 656-3396

Fax: (802) 656-0045

Email: bdoolan@moose.uvm.edu

Web Site: <http://geology.uvm.edu/> ↗

Academic Offerings

- Undergraduate Majors
 - Bachelor of Arts (B. A.)
 - Geology
 - [Solid Earth Concentration](#)
 - [Environmental Geology Concentration](#)
 - Bachelor of Science (B. S.)
 - Geology
 - [Solid Earth Concentration](#)
 - [Environmental Geology Concentration](#)
- Undergraduate Minors
 - [Geology](#)

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Courses in Geology

GEOL 001 - Introductory Geology

Process, agents, and their effects on materials, structures, and morphology of earth's crust. Laboratory includes field trips, study and interpretation of rocks, Credits: 4.

GEOL 003 - Fire & Ice

Introduction to volcanoes/plate tectonics ("fire") and glaciers/climate change ("ice") using lectures, slides, discussion, and field trips. Considers Vermont and world-wide geological examples. Credits: 3.

GEOL 004 - Dynamic Earth

only. Credits: 4.

GEOL 005 - Ecol & Geol of Lake Champlain

Introduction to the principles and processes of ecology and geology applicable to the Lake Champlain basin. A topical, project-oriented format rather than a comprehensive overview. Priority to first-year students. Credits: 4.

GEOL 007 - Earth Hazards

and destruction by earthquakes, landslides, floods, Credits: 3.

GEOL 010 - Geological Oceanography

Characteristics and development of the oceans, their basins and shorelines, including plate tectonic history and basic physical, chemical, and biological processes. Prerequisite: GEOL 001 or introductory science course. Credits: 3.

GEOL 053 - Planetary Geology

that shape our home planet and compares the geologic processes active in our Solar System. Prerequisites: Introductory science course or ASTR 005. Credits: 3.

GEOL 055 - Environmental Geology

Introduction to geologic processes and materials pertinent to environmental problems: ground water movement, supply, and contamination, waste disposal,

flooding, subsidence, and landslides. Local field trips. Designed for intended Natural Science majors.

Credits: 4.

GEOL 062 - Earth Env & Life Through Time

This course presents an overview of how the Earth has changed over time and how this has influenced the history of life. Prerequisites: GEOL 1,3,4,5, or 55.

Credits: 4.

GEOL 095 - Special Topics

See Schedule of Courses for specific titles.

Credits: 0-4.

GEOL 096 - Special Topics

See Schedule of Courses for specific titles.

Credits: 0-6.

GEOL 101 - Field Geology

Geological evolution of western Vermont as seen through actual field mapping in the Burlington area. Specifically designed for sophomores majoring or minoring in Geology or related sciences. Prerequisite: GEOL 001, GEOL 055, or Instructor permission.

Credits: 4.

GEOL 102 - Plate Tectonics & Evol Earth

Tectonic processes on Earth related to the origins of continents and oceans following concepts of Plate Tectonics. Laboratory sessions examine earth materials and geologic processes. Prerequisite: Any introductory Geology course.

Credits: 4.

GEOL 112 - Mineralogy&Optic Crystallgrphy

Credits: 4.

GEOL 116 - Glacial Geology

Prerequisites: GEOL 1,5,7, or 55.

Credits: 3.

GEOL 131 - Igneous/Metamorph/Sedmnt Petro

(3-3) Description, classification, and genesis of igneous and metamorphic rocks. Introduction to petrogenetic models of the earth's crust and mantle. Prerequisite: GEOL 112.

Credits: 4.

GEOL 151 - Geomorphology

Examines, using lectures, labs, and field-based independent study research projects, processes which change Earth's surface and the history of landscape development. Considers fundamental geologic constraints on environmental problems. Prerequisite: GEOL 001 OR GEOL 055. Cross-listed with: GEOG 144.

Credits: 4.

GEOL 153 - Strat & Sedimentary Petrology

Properties of physical sedimentation, principles of stratigraphy and basin analysis, and comparison of modern and ancient environments. Lab includes description and classification of sedimentary rocks. Prerequisite: 131.

Credits: 4.

GEOL 155 - Fluvial Geology

A discussion of fluvial systems including hydrology, sedimentation, geomorphology, water chemistry, and human impacts. Prerequisite: Instructor permission.

Credits: 4.

GEOL 172 - Regional Geology

Discussion of the geology of a selected region of North America. A four-week summer field trip to the area in question. Prerequisites: one other Geology course or permission.

Credits: 4.

GEOL 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

GEOL 196 - Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

GEOL 197 - Research in Geology

Supervised research and readings in a selected field of geology. Students from allied sciences, Mathematics, and Engineering may elect a research problem that combines their major field of study and geology. Prerequisite: Department permission.

Credits: 1-6.

GEOL 198 - Research in Geology

Supervised research and readings in a selected field of geology. Students from allied sciences, mathematics, and engineering may elect a research problem that combines their major field of study and Geology. Prerequisite: Department permission.

Credits: 1-6.

GEOL 201 - Advanced Field Geology

Advanced field mapping techniques, analysis of field data, preparation of geological maps and reports. Prerequisite: GEOL 260.

Credits: 3.

GEOL 210 - Systems Dynamics & Earth Sci

Analysis of generic systems with examples from physical and natural sciences. Geological systems emphasized. and behavior over time. Prerequisites: A major or minor in science, mathematics, natural resources, engineering, or permission of instructor. UG only.

Credits: 3.

GEOL 230 - Adv Igneous&Metamorphic Petrol

Application of phase equilibria, elemental and isotopic data, and textural interpretations to problems in igneous and metamorphic petrology, stressing modern theories of tectonics and petrogenesis. Prerequisite: GEOL 131.

Credits: 4.

GEOL 233 - Environmental Isotope Geochem

Course focuses on stable isotope geochemistry of low temperature processes occurring on and near the earth surface through lecture, laboratory, and seminar. Prerequisite: Introductory Chemistry.

Credits: 3.

GEOL 234 - Global Biogeochemical Cycles

Integrated perspective on biogeochemical cycles describing

Credits: 3.

GEOL 235 - Geochemistry of Natural Waters

Basic concepts of chemical equilibria applied to natural waters, including thermodynamics, pH, oxidation-reduction, weathering, and solution equilibria.

Prerequisites: Chemistry 1, 2.

Credits: 3.

GEOL 240 - Tectonics

Applications of igneous and metamorphic petrology to problems in tectonophysics, including petrochemistry of the earth's crust and upper mantle and the internal structure of orogenic belts. Prerequisite: 101, 102.

Credits: 3.

GEOL 241 - Clastic Depositional Systems

Selected readings and field studies emphasizing the interpretation of clastic sedimentary deposits including transportation, processes of sedimentation, and geomorphology of ancient and recent sedimentary environments. Prerequisite: GEOL 153. Alternate years.

Credits: 3.

GEOL 243 - Clastic Petrology Laboratory

Study of clastic rocks in hand specimen and thin section. Prerequisite: Concurrent enrollment in GEOL 241.

Credits: 1.

GEOL 245 - Carbonate Depositional Environ

Paleoenvironmental analysis of carbonate rocks including selected readings, field investigations, and petrographic studies. Prerequisite: GEOL 153. Alternate years.

Credits: 3.

GEOL 247 - Carbonate Petrology Lab

Study of carbonate rocks in hand specimen and thin section. Prerequisite: Concurrent enrollment in GEOL 245.

Credits: 1.

GEOL 255 - Geohydrology

Field-based projects address hydrologic processes in geological context; precipitation, runoff, ground water flow, river behavior, and hillslope stability. Stresses data analysis, writing, and practical approaches to water-related environmental problems. Prerequisite: Major in science or engineering or permission.

Credits: 4.

GEOL 260 - Structural Geology

Examines processes and problems concerning the mechanical behavior of the Earth's crust and surface. Includes rock deformation stress, strain, and the interpretation of geological structures. Prerequisites: 101, 102, Physics 11 or permission.

Credits: 4.

GEOL 261 - Geodynamics

global scale. Project oriented, focusing on analysis and interpretation of geologic and geophysical data. Prerequisites: GEOL 101 and 102 or permission. UG only. Credits: 4.

GEOL 272 - Regional Geology

Discussion of the geology of a selected region of North America; a four-week summer field trip to the area in question. Prerequisite: GEOL 101, GEOL 110, equivalent. or Credits: 4.

GEOL 273 - Geology of the Appalachians

Origin of mountain belts; the Appalachian mountain system discussed in terms of tectonics and geologic processes active in modern continental margins. Prerequisites: 101, 102, or permission. Credits: 3.

GEOL 278 - Principles of Aquatic Systems

See NR 278. Credits: 3.

GEOL 295 - Advanced Special Topics

See Schedule of Courses for specific titles. Credits: 1-6.

GEOL 296 - Advanced Special Topics

See Schedule of Courses for specific titles. Credits: 1-6.

GEOL 301 - Intro to Graduate Studies

in the Geosciences. Prerequisite: Graduate standing in For first year graduate students in Geology. Includes orientation to faculty, abstract and grant writing, comprehensive exams, talk preparation and scientific method Geology. Credits: 1.

GEOL 302 - Intro Graduate Studies Geology

For first year graduate students in Geology. Includes orientation to faculty, abstract and grant writing, comprehensive exams, talk preparation and scientific method in the Geosciences. Prerequisite: Graduate standing in Geology. Credits: 1.

GEOL 350 - Paleogeography

Paleopositions of continents and the distribution of land areas and ocean basins through geologic time in the context of plate tectonics. Prerequisite: Instructor permission. Credits: 3.

GEOL 351 - Surface Proc & Quaternary Geol

Discussion and critique of scientific literature pertaining to Earth surface history and processes. Critical examination of author's methods, data, and assumptions. Student-led discussions. Specific focus changes yearly. Prerequisites: Graduate standing in science, natural resources or engineering, or Instructor permission. Credits: 1-3.

GEOL 352 - Environmental Geology Seminar

Geologic constraints on environmental problems including: groundwater flow, contaminant transport, slope stability, climate change, sedimentation, deforestation

and earthquake hazards. Extensive readings and student-led discussions.

Prerequisites: Graduate standing in science, natural resources, or engineering, or Instructor permission.

Credits: 1-3.

GEOL 353 - Crit Writing Earth&Env Science

Review of manuscripts and grants prepared by UVM students and faculty. Learn to write better by presenting writing, grammar and logic critiques in a seminar format.

Prerequisite: Instructor permission.

Credits: 1-2.

GEOL 360 - Structural Anyl Deformed Rocks

Mechanisms of rock deformation; fracture phenomena and analysis; fault zone characteristics; fold generation analysis. Stress and strain interpretation of deformational features in rocks and minerals. Field work. Prerequisite: GEOL 260 or equivalent.

Credits: 4.

GEOL 361 - Advanced Structural Geology

Selected topics in analytical structural geology. Prerequisite: GEOL 260 or equivalent.

Credits: 3.

GEOL 371 - Advanced Readings

Readings and research problems intended to contribute to the program of graduate students in areas of geology for which formal courses are not available.

Prerequisite: Graduate standing in Geology.

Credits: 1-3.

GEOL 391 - Master's Thesis Research

Credits: 1-9.

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Geology: Solid Earth Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Geology](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Upper level electives should be chosen from the following lists:

- Solid earth: 112, 131, 230, 240, 241, 245, 273, 195, 196
- Surface Processes: 151, 153, 155, 255, 195, 196
- Geochemistry/Earth Systems: 210, 233, 234, 235, 195, 196

One Geology course below 100 level, 101, 102, 260. At least three credits of field experience are highly advisable (Geology 197, 198, 201, field camp or field-based thesis). Three Solid Earth courses, one Surface Process course, one Geochemistry/Earth Systems course. Two courses in Geology or approved science, mathematics, engineering, or statistics courses at the 100 level or above selected in consultation with Geology advisor, Math. 19, 20, or 21, 22; Chemistry 31 and 32 (or 35 and 36); Physics 11, 21 (12, 22 also strongly recommended).

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Geology: Environmental Geology Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Geology](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Upper level electives should be chosen from the following lists:

- Solid earth: 112, 131, 230, 240, 241, 245, 273, 195, 196
- Surface Processes: 151, 153, 155, 255, 195, 196
- Geochemistry/Earth Systems: 210, 233, 234, 235, 195, 196

One Geology course below 100 level, 101, 102, 260. At least three credits of field experience are highly advisable (Geology 197, 198, 201, field camp or field-based thesis). Three Surface Process courses, one Solid Earth course, one Geochemistry/Earth Systems course. Two courses in Geology or approved science, mathematics, engineering, or statistics courses at the 100 level or above selected in consultation with Geology advisor, Math. 19, 20, or 21, 22; Chemistry 31 and 32 (or 35 and 36); Physics 11, 21 (12, 22 also strongly recommended).

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Geology: Solid Earth Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Geology](#)

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Upper level electives should be chosen from the following lists:

- Solid earth: 112, 131, 230, 240, 241, 245, 273, 195, 196
- Surface Processes: 151, 153, 155, 255, 195, 196
- Geochemistry/Earth Systems: 210, 233, 234, 235, 195, 196

One Geology course below 100 level, 101, 102, 260. At least three credits of field experience are required (Geology 197, 198, 201, field camp or field-based thesis). Four Solid Earth courses, two Surface Process courses, one Geochemistry/Earth Systems course. Two additional courses in Geology or approved science, mathematics, engineering, or statistics courses at the 100 level or above selected in consultation with Geology advisor, Math. 21, 22 or 19, 20, 22; Chemistry 31 and 32 (or 35 and 36); Physics 21, 31 and 22, 42 or 21, 31 and 125; Statistics 141.

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Geology: Environmental Geology Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Geology](#)

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Upper level electives should be chosen from the following lists:

- Solid earth: 112, 131, 230, 240, 241, 245, 273, 195, 196
- Surface Processes: 151, 153, 155, 255, 195, 196
- Geochemistry/Earth Systems: 210, 233, 234, 235, 195, 196

One Geology course below 100 level, 101, 102, 260. At least three credits of field experience are required (Geology 197, 198, 201, field camp or field-based thesis). Four Surface Process courses, two Solid Earth course, one Geochemistry/Earth Systems course. Two additional courses in Geology or approved science, mathematics, engineering, or statistics courses at the 100 level or above selected in consultation with Geology advisor, Math. 21, 22 or 19, 20, 22; Chemistry 31 and 32 (or 35 and 36); Physics 21, 31 and 22, 42 or 21, 31 and 125; Statistics 141.

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Minor in Geology

College: [Arts and Sciences](#)

Department(s): [Geology](#)

Requirements

One Geology course below 100 level, 101, 102; plus six additional hours at the 100 level or above.

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Departments and Programs

German and Russian Department

Colleges: [Arts and Sciences](#), [Graduate College](#)

Faculty: German, Hebrew, Russian

Courses: [German \(GERM\)](#), [Hebrew \(HEBR\)](#), [Russian \(RUSS\)](#),

Contact Information:

University of Vermont

German and Russian Department

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Courses in German

GERM 001 - Elementary

An introduction to all aspects of contemporary standard German: Speaking, listening, reading, writing. Cultural components include topics such as: music, art, literature, and current events. No previous knowledge of German needed for 1. Credits: 4.

GERM 002 - Elementary

An introduction to all aspects of contemporary standard German: Speaking, listening, reading, writing. Cultural components include topics such as: music, art, literature, and current events. No previous knowledge of German needed for 1. Credits: 4.

GERM 051 - Intermediate

Comprehensive review of German grammar, vocabulary-building skills, development of reading strategies and compositional abilities, study of contemporary German culture through literary texts. Prerequisite: 1, 2 or equivalent for 51; 51 for 52. Credits: 3.

GERM 052 - Intermediate

Comprehensive review of German grammar, vocabulary-building skills, development of reading strategies and compositional abilities, study of contemporary German culture through literary texts. Prerequisite: 1, 2 or equivalent for 51; 51 for 52. Credits: 3.

GERM 095 - Special Topics

See Schedule of Courses for specific titles. Credits: 1-6.

GERM 096 - Special Topics

See Schedule of Courses for specific titles. Credits: 1-3.

GERM 103 - Composition & Conversation

An intensive language course concentrating on more advanced syntax, vocabulary building, and idiomatic expression through written compositions, translations, and oral

Credits: 3.

GERM 104 - German News Media

Analysis of journalistic style and content in news coverage of contemporary events as reported in newspapers, magazines, radio, and television in German-speaking countries. Prerequisite: GERM 052 or equivalent.

Credits: 3.

GERM 121 - Culture & Civilization to 1900

Historical, intellectual, and artistic developments of German culture and civilization from Roman times through the 19th century, stressing written and oral work.

Prerequisite: GERM 052 or equivalent.

Credits: 3.

GERM 122 - 20th C Culture & Civilization

Social, cultural, and political developments in the

Credits: 3.

GERM 155 - Survey of German Lit to 1830

Selected prose, drama, and poetry from Medieval through Baroque literature, in-depth readings and analyses of major works by Lessing, Goethe, Schiller, and the Romantics. Prerequisite: 52 or equivalent.

Credits: 3.

GERM 156 - Survey of German Lit from 1830

Major literary and intellectual movements and figures of the period through in-depth analyses of works by Buchner, Mann, Kafka, and Brecht. Prerequisite: 52 or equivalent.

Credits: 3.

GERM 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

GERM 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

GERM 197 - Readings & Research

Credits: 1-6.

GERM 198 - Readings & Research

Credits: 1-6.

GERM 201 - Methods Research&Bibliography

Introduction to tools and methods of research, including major bibliographical sources, reference works, dictionaries, editions, and journals concerned with German literature, language, and folklore. Prerequisite: Two 100-level courses.

Credits: 3.

GERM 202 - Expository Writing

Improvement of writing skills through work with authentic texts from different content areas (literature, media, science, business). Emphasis on stylistic development and sophisticated vocabulary-building. Prerequisite: Two 100-level courses.

Credits: 3.

GERM 213 - History of the German Language

Historical and linguistic development of the German language from Indo-European to the present, emphasizing sound shifts, the 16th century, and the modern age.

Prerequisite: GERM 155 or GERM 156; one other 100-level course.

Credits: 3.

GERM 214 - Middle Ages

Analysis and discussion of several "Minnesang" poets (esp. Walther and Neidhart), the Nibelungenlied, the courtly epics Erec, Parzival, and Tristan, and the satirical epic Helmbrecht. Prerequisite: GERM 155 or GERM 156; one other 100-level course.

Credits: 3.

GERM 225 - Goethe

Study of Goethe's accomplishments in poetry, drama, and the novel during major phases of his literary career: "Sturm und Drang," Classicism, and Romanticism.

Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 226 - Schiller

Major attention will be paid to Schiller's development as a dramatist (from Die Rauber to Wilhelm Tell) as well as to his contributions to German Classicism.

Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 237 - 19th-Century Prose

Literary and stylistic analysis of prose works by Tieck, Kleist, Stifter, Gotthelf, Droste-Hulshoff, Storm, Keller, and Hauptmann with emphasis on Romanticism, Poetic Realism, and Naturalism. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 238 - 19th Century Drama

Analysis of plays by Tieck, Kotzebue, Kleist, Buchner, Grillparzer, Nestroy, Hebbel, and Hauptmann. Consideration of traditional Viennese "Volks theater" and the period's major literary movements. Prerequisite: GERM 155 or GERM 156 and one other 100-level course

Credits: 3.

GERM 247 - German Lit from 1890 to 1945

Naturalism, Symbolism, Expressionism and subsequent trends through readings of authors such as Hauptmann, Rilke, Kaiser, Kafka, Mann, and Brecht.

Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 248 - Contemporary German Literature

Literary movements and their major representatives from 1945 to the present, including relevant sociopolitical, intellectual, and cultural aspects. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 251 - German Folklore

Verbal folklore genres (fairy tales, legends, folk songs, and proverbs) treated in their relation to literature, mass media, and popular culture. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 252 - Faust

Focus on one of the major themes of world literature. Readings include the "Volksbuch" of 1587, and works by Marlowe, Goethe, and Thomas Mann.

Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 263 - German Romanticism

Study of major works by authors such as Friedrich Schlegel, Novalis, Brentano, Hoffmann, and Eichendorff in their literary, artistic, philosophical, and sociopolitical contexts. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 264 - German Lyric Poetry

The lyric genre and the historical development of German poetry from the age of Goethe to the present. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 271 - Proverbs

Diachronic and synchronic survey of German proverbs, proverbial expressions, and wellerisms, emphasizing their use and function in literature, art, mass media, advertisements, and oral communication. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 273 - German Intellectual Movements

A survey of developments in art, music, philosophy, and social thought from the Enlightenment to 1945, with particular attention to their impact on German literature. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 275 - Fin-de-Siecle

Prevalent literary and intellectual movements at the turn of the 20th century in their historical, sociopolitical, and cultural contexts. Study of Nietzsche, Freud, Rilke, Hofmannsthal, Schnitzler, and Mann. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 276 - Brecht & the Modern Drama

Brecht's revolutionary concept of "epic theatre" in theory and practice and its influence on subsequent dramatists, including Durrenmatt, Frisch, Handke, Hochhuth, Muller, and Weiss. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 278 - GDR Fiction

GDR fiction in its literary, historical, and social contexts, with reference to major developments in the GDR from 1949-89. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 279 - German Short Story after 1945

relation to historical, political, and cultural developments from 1945 to the present.

Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 281 - Sem in Lit Genre,Period,Theme

Study of a literary genre, period, or theme through close readings of representative texts supplemented by lectures and reports on sociocultural context. May be repeated. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

Credits: 3.

GERM 282 - Sem on Particular Author

Study of author(s) through close readings of representative texts supplemented by lectures and reports on the works' socio-cultural context. May be repeated.

Credits: 3.

GERM 295 - Advanced Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

GERM 296 - Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

GERM 391 - Master's Thesis Research

Credits: 1-12.

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Courses in Hebrew

HEBR 001 - Elementary

The spoken language of everyday use with oral, aural, and written practice in speaking, reading, and comprehension.

Credits: 4.

HEBR 002 - Elementary

The spoken language of everyday use with oral, aural, and written practice in speaking, reading, and comprehension.

Credits: 4.

HEBR 051 - Intermediate

Reading, translation, and discussion in Hebrew of texts selected to show the development of Hebrew culture from Biblical times to the present. Prerequisites: 1, 2 or equivalent for 51; 51 for 52.

Credits: 3.

HEBR 052 - Intermediate

Reading, translation, and discussion in Hebrew of texts selected to show the development of Hebrew culture from Biblical times to the present. Prerequisites: 1, 2 or equivalent for 51; 51 for 52.

Credits: 3.

HEBR 095 - Special Topics

Credits: 1-3.

HEBR 096 - Special Topics

Credits: 1-3.

HEBR 195 - Int Special Topics

Credits: 1-3.

HEBR 196 - Intermediate Special Topics

Credits: 1-3.

HEBR 197 - Readings & Research

Credits: 1-6.

HEBR 198 - Readings & Research

Credits: 1-6.

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Courses in Russian

RUSS 001 - Elementary Russian

An introduction to all aspects of contemporary standard Russian: speaking, listening, reading, writing. Cultural components include topics such as music, art, literature, and current events. No previous knowledge of Russian needed for RUSS 001.

Credits: 4.

RUSS 002 - Elementary Russian

An introduction to all aspects of contemporary standard Russian: speaking, listening, reading, writing. Cultural components include topics such as music, art, literature, and current events. Prerequisite: RUSS 001 or equivalent.

Credits: 4.

RUSS 051 - Intermediate Russian

structure of Russian. Continuation of cultural components. Prerequisite: RUSS 001, RUSS 002.

Credits: 4.

RUSS 052 - Intermediate Russian

Continued practical work in all language skills (speaking, structure of Russian. Continuation of cultural components. Prerequisite: RUSS 051.

Credits: 4.

RUSS 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

RUSS 096 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

RUSS 101 - Phonology

Practical work on Russian intonation, element order, and phonetics, using primarily Russian materials. Classroom and language laboratory work. May be taken together with RUSS 052. Prerequisite: RUSS 052 or concurrent enrollment in RUSS 052.

Credits: 3.

RUSS 121 - Composition & Conversation

Continued practical work on all four language skills. Emphasis on oral and written self-expression. Presentations and compositions based on Russian-language media and literature. Prerequisite: RUSS 052

Credits: 3.

RUSS 122 - Composition & Conversation

Continued practical work on all four language skills. Emphasis on oral and written self-expression. Presentations and compositions based on Russian-language media and literature. Prerequisite: RUSS 052.

Credits: 3.

RUSS 141 - Reading Comprehension

Development of contextual strategies for reading authentic texts on a number of content areas, primarily expository texts from Russian newspapers, magazines, historical and scientific documents. Prerequisite: RUSS 052.

Credits: 3.

RUSS 142 - Listening Comprehension

Intensive directed aural work with authentic Russian-language media (especially television, radio, and films), supplemented by work on vocabulary development and listening strategies. Prerequisite: RUSS 052.

Credits: 3.

RUSS 161 - Russian Lexicology

Study of Russian word roots and derivational morphology to increase vocabulary recognition and retention, building on correspondences with English/Latinic equivalent roots where possible. Prerequisite: RUSS 052.

Credits: 3.

RUSS 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

RUSS 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

RUSS 197 - Readings & Research

Credits: 1-6.

RUSS 198 - Readings & Research

Credits: 1-6.

RUSS 201 - Survey of Russian Literature

Readings and discussions about Russian literature to the rise of modernism. Particular attention to the social and historical context of the 19th century novel. Prerequisite: RUSS 052. WLIT 118 recommended.

Credits: 3.

RUSS 202 - Survey 20th Century Russ Lit

Readings and discussions about Russian literature from the rise of modernism to present. Particular attention to function of literature in Soviet society. Prerequisite: RUSS 052. WLIT 118 recommended.

Credits: 3.

RUSS 221 - Cult & Civ to 1905 Revolution

Social, cultural, and political institutions from the time of Peter the Great to the

1905 revolution. Particular attention to Russian music, art, and literature.

Prerequisite: RUSS 052.

Credits: 3.

RUSS 222 - Cult & Civ in the 20th Century

Social, cultural, and political institutions from the 1905 revolution to the present. Particular attention to tensions between official and unofficial culture during the Soviet period. Prerequisite: RUSS 052.

Credits: 3.

RUSS 251 - Russian News Media

Analysis of journalistic style and content in news coverage of contemporary events as reported in Russian newspapers and radio and television broadcasts.

Prerequisite: RUSS 052 ,RUSS 141, or RUSS 142 recommended.

Credits: 3.

RUSS 271 - Slavic Linguistics

The linguistic prehistory of Slavic. Linguistic history of the Russian language: introduction to Old Church Slavic and Old Russian, tracing Slavic declensional development. Prerequisite: One 100-level Russian course or instructor's permission.

Credits: 3.

RUSS 281 - Sem on Sel Lit Genre or Period

Study of a literary genre or period through close readings of representative texts supplemented by lectures and reports on sociocultural context. May be repeated.

Prerequisite: One 100-level Russian course.

Credits: 3.

RUSS 282 - Seminar on Selected Author(s)

Study of author(s) through close readings of representative texts supplemented by lectures and reports on the works' sociocultural context. May be repeated.

Prerequisite: One 100-level Russian course.

Credits: 3.

RUSS 295 - Advanced Readings & Research

See Schedule of Courses for specific titles.

Credits: 3.

RUSS 296 - Advanced Readings & Research

See Schedule of Courses for specific titles.

Credits: 3.

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German (B. A.)

College: [Arts and Sciences](#)

Department(s): [German and Russian](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours of German courses at the 100 level or above, including 155, 156; 281 or 282; two courses of world literature or English; and two courses of European or German history.

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Russian (B. A.)

College: [Arts and Sciences](#)

Department(s): [Russian](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours of courses in Russian at the 100 level or above among which at least one course must be Russian literature in translation (WLIT 118); one additional course in English literature or world literature; one Russian history course; and two additional courses chosen from among the listings of the Russian and East European Area Studies Program. All course work to be chosen in consultation with the student's major advisor.

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Minor in German

College: [Arts and Sciences](#)

Department(s): [German and Russian](#)

Requirements

Five courses at the 100 or 200 level, one of which must be 155 or 156.

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Minor in Russian

College: [Arts and Sciences](#)

Department(s): [Russian](#)

Requirements

Russian 51, 52; four courses in Russian at the 100 or 200 level.

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Departments and Programs

History Department

Colleges: [Arts and Sciences](#), [Graduate College](#)

Faculty: [History](#)

Courses: [History \(HST\)](#)

Contact Information:

University of Vermont

History Department

Wheeler House

133 South Prospect St

Burlington, VT 05405

Phone: (802) 656-3180

Fax: (802) 656-8794

Email: Debra.Smail@uvm.edu

Web Site: <http://www.uvm.edu/~history/>

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Arts (B. A.)
 - [History](#)
- Undergraduate Minors
 - [History](#)

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Courses in History

HST 009 - Global History to 1500

The development and cross-fertilization of civilizations in Eurasia, Africa, and the Americas from about 3500 B.C.E. to A.D. 1500.

Credits: 3.

HST 010 - Global History Since 1500

Character, development, and emerging interdependence of the world's major civilizations since 1500.

Credits: 3.

HST 011 - History of the US

Survey from the pre-Revolutionary period to 1876.

Credits: 3.

HST 012 - History of the US

Survey from 1876 to the present.

Credits: 3.

HST 013 - Ideas in the Western Tradition

setting. Greece and Rome. Prerequisites: Concurrent enrollment in English 27, 28; Religion 27, 28; Integrated Humanities Program.

Credits: 3.

HST 014 - Ideas in the Western Tradition

Great books of Western civilization in their historical setting. Renaissance to Existentialism. Credit will not be given for History 14 and History 25 or 26.

Prerequisites: Concurrent enrollment in English 27, 28; Religion 27, 28; Integrated Humanities Program.

Credits: 3.

HST 019 - Western World Since 1945

Comparative history of European nations and the United States since 1945.

Credits: 3.

HST 021 - Classical Greek Civilization

Cross-listed with: CLAS 021.

Credits: 3.

HST 022 - Classical Roman Civilization

Cross-listed with CLAS 023.

Credits: 3.

HST 023 - The Birth of Europe

Survey of history of Western Europe from the late Roman Empire to the stabilization of Medieval Civilization around A.D. 1000.

Credits: 3.

HST 024 - High & Later Middle Ages

The stabilization and expansion of Western European civilization in the Age of the Crusades; the crisis of the 14th century; 15th century recovery.

Credits: 3.

HST 025 - European Civilization to 1815

Introduction to political, social, and intellectual movements which have shaped the foundations of Western civilization from the Renaissance to the French Revolution.

Credits: 3.

HST 026 - Europe 1815 - 1945

Europe from the fall of Napoleon to the end of World War II, focusing on political, social, economic, and intellectual developments.

Credits: 3.

HST 027 - Modern Eastern Europe

Eastern Europe since 1772, especially areas comprising present-day states of Bosnia-Herzegovina, Croatia, the Czech Republic, Hungary, Macedonia, Poland, Slovakia, Slovenia, and Yugoslavia. Focus on politics and culture of nationalism.

Credits: 3.

HST 040 - African History to C-1870

Introduction to the political, social and economic history of Africa, focusing on the major events and forces that shaped the continent before the colonial period.

Credits: 3.

HST 041 - Africa From C-1870 to Present

Introduction to African history from European conquest to the present, with special attention paid to African resistance, the nature of colonialism, and African independence movements.

Credits: 3.

HST 045 - Hst Islam&Middle East to 1258

Introduction to the major institutions evolved in the Middle East from the advent of Islam to the Mongol conquest of Baghdad in 1258.

Credits: 3.

HST 046 - Hst Islam&Mid East Since 1258

Islamic Middle East since the Mongol conquest of Baghdad

Credits: 3.

HST 050 - China & Japan to 1800

Historical development of the politics, economics, social structure, philosophy, religion, and the arts in East Asia from neolithic times to 1800.

Credits: 3.

HST 051 - China & Japan Since 1800

Continuity and change in the politics, economics, society, and culture of China and Japan in the 19th and 20th centuries.

Credits: 3.

HST 062 - Colonial Latin American Hist

Comparative survey concentrating on the complex cultural, economic, and political development of Spanish and Portuguese America from pre-Conquest to 1820.

Credits: 3.

HST 063 - Modern Latin American History

Comparative survey concentrating on Latin America from the independence movements to the present with emphasis on cultural, political, and economic development and U.S. intervention.

Credits: 3.

HST 065 - History of Canada

Survey of Canadian history from aboriginal settlement to the present. Themes include Indian-White relations, colonial societies, national identities, American influence. Field trip to Canada.

Credits: 3.

HST 068 - History U.S. Peoples of Color

Comparative survey of historical experiences of African-Americans, Latinos, Asian-Americans, and Native Americans in U.S. Racism, conquest, slavery, exploitation, civil rights, militancy, liberation movements, and cultural renaissance.

Credits: 3.

HST 085 - History of Science

Survey of the history of the physical and biological sciences from antiquity to the present. Stresses science as an intellectual activity within the contemporary context of philosophy, religion, and social organization.

Credits: 3.

HST 086 - History of Science

Survey of the history of the physical and biological sciences from antiquity to the present. Stresses science as an intellectual activity within the contemporary context of philosophy, religion, and social organization.

Credits: 3.

HST 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

HST 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

HST 120 - Historical Geography of Europe

Cross-listed with: GEOG 155.

Credits: 3.

HST 121 - History of Greece

Cross-listed with CLAS 121.

Credits: 3.

HST 122 - History of Rome

Mediterranean world: cultural conflict, development of a unifying national identity, and the foundation of European states. Prerequisites: HST 009, CLAS 023/HST 022, or appropriate work in Classics. Cross-listed with: CLAS 122.

Credits: 3.

HST 125 - The Renaissance

European society from the 14th to early 16th century, emphasizing the transition from medieval to "modern" society and the roots of Renaissance Italy's cultural and artistic brilliance. Prerequisite: 9 or 10 or 14 or 25 or 26.

Credits: 3.

HST 126 - The Reformation

Reformation and their impact on the social, political,

Credits: 3.

HST 127 - European Culture&Soc 1914-1945

Survey of European high modernism, focusing on the avant-garde, Stalinism, fascism, and popular culture. Prerequisite: 26 or 128 or three hours history.

Credits: 3.

HST 128 - Eur Soc & Culture 1880-1920

European society and culture before and during "The Great War." Transitions in the arts, philosophy, science and technology, industry, dance, theatre, attitudes, and diplomacy. Prerequisite: 26.

Credits: 3.

HST 130 - European Intellectual History

The history of ideas in Europe from the 15th to the 20th centuries. Topics vary according to instructor. Prerequisites: 25 or 26.

Credits: 3.

HST 132 - Modern Irish History

Ireland 1600 to present. English subjugation of Ireland, Anglo-Irish, emergence of Irish nationalism, Irish Literary Renaissance, Irish Free State, and ongoing problem of Northern Ireland. Prerequisite: 25 or 26.

Credits: 3.

HST 136 - Topics in History of France

Varying themes on the political, cultural, and intellectual history of France from the French Revolution to the present. Prerequisite: Three hours history.

Credits: 3.

HST 137 - History of Russia

Russian political, social, and intellectual history from Kievan Rus' to the

Revolutions of 1917, focusing on the Imperial period (1700-1917). Prerequisite: 10 or 26.

Credits: 3.

HST 138 - History of the Soviet Union

Soviet political and social history, 1917-1991, centering on the Stalin era and on efforts of post-Stalin regimes to deal with the Stalinist legacy. Prerequisite: 10, 26 or 137.

Credits: 3.

HST 139 - Modern Germany

Political, cultural, and social history of Germany from unification in 1871 through the Wilhemine empire, Weimar Republic, Nazi era, and postwar period.

Prerequisites: 10 or 14 or 26 or work in German.

Credits: 3.

HST 140 - W Africa:Holy War-Colonialism

Lecture survey. Topics include: Sudanic states, Islamic revolution, slavery and the slave trade, European scramble and the African resistance, colonialism and the colonial state, African nationalism. Prerequisite: HST 040 or HST 041.

Credits: 3.

HST 141 - History of Southern Africa

Lecture survey, covering the history of Southern Africa from the Bantu Migrations to the end of Apartheid. Prerequisite: HST 040 or HST 041.

Credits: 3.

HST 149 - History of Ancient Near East

Survey of primary civilizations of Egypt and Mesopotamia and the secondary cultures of Anatolia, Syria-Palestine, Assyria, and Persia. Prerequisites: HST 009 or CLAS 021 (HST 021) or appropriate work in Classics. Cross-listed with: CLAS 149.

Credits: 3.

HST 150 - China: The 19th & 20th Centuries

China from the late Qing Dynasty to the present, with particular attention to the influence of Western imperialism, the process of revolution, and the Communist era. Prerequisite: Six hours of history, 50 recommended.

Credits: 3.

HST 151 - Modern Japan

Transition from tradition to modernity in Japan from the Meiji Restoration, 1868 to the present. Prerequisite: Six hours of history, 50 recommended.

Credits: 3.

HST 152 - The Chinese Revolution

Examination of the ongoing process and significance of the Chinese Revolution of the 20th century, emphasizing the socio-economic and cultural aspects of the changes it wrought. Prerequisite: Six hours of History; HST 051 recommended.

Credits: 3.

HST 157 - Greek Feminism

The construction of the status of women in ancient Greek society. Readings include lyric, tragic, and comic poetry, philosophy, oratory, novel, and nonliterary documents. Prerequisite: Sophomore standing; three hours in literature, History, Anthropology, or Sociology. Cross-listed with: CLAS 157, WLIT 157, WST 157.

Credits: 3.

HST 161 - Caribbean & Latin American Hist

Topics include colonialism, plantation economy, slavery, race relations, gender issues, economic development, and U.S. influence. Prerequisite: HST 062 or HST 063 or permission.

Credits: 3.

HST 163 - Early Caribbean History

Exploration of the economic, political and cultural developments in the Caribbean, pre-Conquest to the 19th century. Prerequisite: Three hours History; HST 062 or HST 063 recommended.

Credits: 3.

HST 164 - Mod Carib Hist: Cannons-Cricket

Exploration of the economic, political and cultural developments in the Caribbean,

19th century to the present. Prerequisite: Three hours History; HST 062 or HST 063 recommended.

Credits: 3.

HST 165 - Canadian-American Relations

Canada's relationship with the U.S. from the Revolutionary War to the present, emphasizing diplomatic, economic, social, and environmental relations in the 19th and 20th centuries. Prerequisite: Three hours in U.S. or Canadian history.

Credits: 3.

HST 168 - Native American History

A survey of North American Indian history from European contact to the present. Cultural and military conflicts, resistance movements, accommodation, and cultural adaptation within the U.S. Prerequisite: Three hours History.

Credits: 3.

HST 169 - Hist Native American Thought

An examination of Native American philosophies, spiritualities, political theories, and ecological perspectives. Traditional Native American thought, intellectuals and intellectual movements, and contemporary resistance and reform movements.

Prerequisite: Three hours.

Credits: 3.

HST 170 - Historical Geography of the US

(Same as Geography 170.)

Credits: 3.

HST 171 - Social History of the U.S.

Selected topics in history of American society, including community structures, family life, work patterns, value systems, social class, and mobility. Prerequisite: HST 011 or HST 182.

Credits: 3.

HST 172 - Social History of the U.S.

Selected topics in history of American society, including community structures, family life, work patterns, value systems, social class, and mobility. Prerequisite: HST 012 or HST 182.

Credits: 3.

HST 173 - US Foreign Relations to 1914

The domestic and international contexts of U.S. relations with the rest of the world, 1776-1914. Prerequisites: 10 or 11.

Credits: 3.

HST 174 - US Foreign Relations 1914 On

The domestic and international contexts of U.S. relations with the rest of the world, 1914-present. Prerequisites: 10 or 12.

Credits: 3.

HST 177 - American Revolution

Survey of the Revolutionary Era, 1760-1791. Causes of the Revolution, War for Independence, establishment of the Constitution. Prerequisite: Six hours of history or other social sciences of which History 25 is highly recommended.

Credits: 3.

HST 179 - U.S. History Since 1960

Topical review of U.S. history since 1960, emphasizing problems of interpreting and reconstructing the recent past. Prerequisite: 12.

Credits: 3.

HST 181 - Film and History

Topics in the history of American and European cinema and society, focusing on the filmmaker as historian and the film as historical artifact. Prerequisite: Three hours History or Film.

Credits: 3.

HST 182 - History of Women in the US

Survey of the origins and changes in images, status, and roles of women in American society since the colonial period. Prerequisite: Three hours in History (HST 011 or HST 012 recommended), or WST minor. Cross-listed with: WST 161.

Credits: 3.

HST 183 - US Military History

Development of the U.S. military establishment within the framework of U.S. history from the Colonial era to the present. Prerequisite: HST 010, HST 011, or HST 012.

Credits: 3.

HST 184 - Vermont History

Survey of Vermont history from early times to the present. Prerequisite: HST 011 or HST 012. Cross-listed with: VS 184.

Credits: 0-3.

HST 185 - Science & Culture

emphasizing works of leading scientists, mathematicians, and humanists.

Prerequisite: HST 086 or six hours of European history, or science major.

Credits: 3.

HST 186 - The Scientific Revolution

Interrelationship between European scientific activity and social change during 16th and 17th centuries. Emphasis on philosophical, religious, artistic, and social context of the times. Prerequisite: HST 085 or six hours of European history, or science major.

Credits: 3.

HST 187 - Afr Amer Hst:1619 to Civil War

Economic, social, political, and intellectual developments in U.S. history as they have affected and been affected by African-Americans, 1619 to Civil War.

Prerequisite: Three hours History.

Credits: 3.

HST 188 - Afr Amer Hst:Civil War-present

Economic, social, political, and intellectual developments in U.S. history as they have affected and been affected by African-Americans, Civil War to present.

Prerequisite: Three hours History.

Credits: 3.

HST 189 - Hist African-American Women

An exploration of the experiences of women of African descent from their arrival in America to contemporary times. Prerequisites: Any one of the following: HST 011; HST 012; HST 182, HST 187, HST 188; WST 073; HST 174, HST 235, HST 273.

- Credits: 3.
- HST 190 - The Holocaust
Study of the background, events, and aftermath of the Holocaust in Nazi Germany and Europe under German control. Prerequisite: 10 or 26 or 27 or instructor's permission.
Credits: 3.
- HST 191 - World War II
Causes, conduct, and consequences of global war from 1931-1945, including social, economic, political, and diplomatic as well as military aspects. Prerequisite: 10 or 12 or 26 or 51.
Credits: 3.
- HST 192 - Sp Meth Sec Ed for Soc Studies
(Same as Education 179.) Social studies curricula and selected social studies topics. (Not acceptable toward fulfilling Arts and Sciences College major requirements.) Prerequisite: Acceptance in teacher certification program.
Credits: 3.
- HST 195 - Intermediate Special Topics
See Schedule of Courses for specific titles. Prerequisites: Junior or senior standing, six hours of history.
Credits: 0-3.
- HST 196 - Intermediate Special Topics
See Schedule of Courses for specific titles. Prerequisites: Junior or senior standing, six hours of history.
Credits: 0-3.
- HST 197 - Readings & Research
Prerequisite: May be prescribed by an individual Instructor; Junior/Senior standing.
Credits: 3-6.
- HST 198 - Readings & Research
Prerequisite: May be prescribed by an individual Instructor; Junior/Senior standing.
Credits: 3-6.
- HST 199 - Internship in History
Supervised cooperative internship work in history in archives, museums, libraries, etc. To be individually arranged for each student. Prerequisite: Junior/Senior standing; department permission.
Credits: 3-6.
- HST 201 - History on the Land
(Same as Historic Preservation 201; Art 201.)
Credits: 3.
- HST 209 - Seminar in Global History
since 1500.
Credits: 3.
- HST 210 - Seminar in Global History
Selected topics on the nature and results of interactions among the world's peoples. HST 209: to 1500. HST 210: since 1500. Prerequisite: Minimum Junior standing; twelve hours of History including HST 009 or HST 010.
Credits: 3.

HST 221 - Seminar in Ancient History

(See Classics 221, 222.)

Credits: 3.

HST 222 - Seminar in Ancient History

(See Classics 221, 222.)

Credits: 3.

HST 224 - Seminar in Medieval Europe

Selected topics on Europe from the Fall of Rome to the Renaissance.

Prerequisites: Twelve hours of history including 23 or 24; junior, senior, or graduate standing.

Credits: 3.

HST 225 - Seminar in Early Modern Europe

Selected topics on European history from the Renaissance to the French Revolution. Prerequisite: Junior/Senior/Graduate standing and twelve hours of History.

Credits: 3.

HST 226 - Seminar in Modern Europe

Selected topics on European history from 1815 to present. Prerequisites: Junior, senior, or graduate standing; 12 hours history.

Credits: 3.

HST 227 - Seminar in Modern Europe

Selected topics on European history from 1815 to present. Prerequisites: Junior, senior, or graduate standing; 12 hours history.

Credits: 3.

HST 228 - Seminar in Popular Culture

History of the attitudes of ordinary people towards every day life in European society from the Middle Ages to the present. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

Credits: 3.

HST 237 - Seminar in Russia before 1917

Selected topics in Russian intellectual, social, and cultural history focusing on the period 1825-1917. Prerequisites: Junior, senior, or graduate standing, 12 hours of history including 137.

Credits: 3.

HST 238 - Seminar in Soviet History

Selected topics in Soviet social and cultural history from the Bolshevik Revolution to the death of Stalin (1917-53). Prerequisite: Junior/Senior/Graduate standing; twelve hours of History including HST 138.

Credits: 3.

HST 240 - Comparative Slavery:Hist Persp

History of slavery from a comparative perspective, including Classical Antiquity, Islam and the Middle East, Africa, Latin America, and the Southern United States. Prerequisite: Minimum Junior standing.

Credits: 3.

HST 241 - Seminar in African History

Topics in African history. Generally, the seminar will focus on one of three themes:

Islam, slavery or urbanism. Prerequisite: Junior/Senior/Graduate standing; twelve hours History.

Credits: 3.

HST 250 - Seminar in East Asian History

Topics in the history of East Asia. Prerequisite: Junior/ Senior/Graduate standing; twelve hours of History.

Credits: 3.

HST 252 - Seminar on China

Selected topics on the history of China. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History, including HST 150 or equivalent.

Credits: 3.

HST 262 - Sem Caribbean & Latin Amer Hst

Selected topics in Caribbean and Latin American history. Prerequisite: Junior/Senior/Graduate standing; HST 062 or HST 063, or permission.

Credits: 3.

HST 265 - Seminar in Canadian History

Topics in 19th and 20th century Canadian history; national development, regionalism, multiculturalism, and international relations. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

Credits: 3.

HST 271 - Seminar in US Social History

Prerequisite: Minimum Junior standing;

Credits: 3.

HST 272 - Seminar in US Social History

Topics in U.S. Social History. HST 271: to the Civil War; HST 272: Civil War to the present. Prerequisite: Junior/Senior/ Graduate standing; twelve hours of History.

Credits: 3.

HST 273 - Seminar in Modern U.S. History

Selected topics in U.S. history, among them foreign relations, the role of the presidency, World War II, and the Cold War. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

Credits: 3.

HST 274 - Seminar in Modern U.S. History

Selected topics in U.S. history, among them foreign the Cold War. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

Credits: 3.

HST 284 - Seminar in Vermont History

Vermont Historical Society, and the Vermont State Archives. Prerequisite: Junior/Senior/Graduate standing; twelve hours History, including HST 184 or permission.

Credits: 3.

HST 285 - Seminar in History of Science

Selected topics in the history of science. Prerequisite: Junior/Senior/Graduate standing;12 hours of History.

Credits: 3.

HST 287 - Seminar in Historiography

Topics and methods in contemporary historical writing. Prerequisite:
Junior/Senior/Graduate standing: twelve hours of History.
Credits: 3.

HST 295 - Special Topics Seminar

See Schedule of Courses for specific titles. Prerequisite: Junior/Senior/Graduate
standing; twelve hours of History.
Credits: 3.

HST 296 - Special Topics Seminar

See Schedule of Courses for specific titles. Prerequisite:
Credits: 3.

HST 300 - Graduate Tutorial

Variable credit.
Credits: 3-6.

HST 301 - Intro to Grad Study in History

Historical methods, philosophy of history, and the history of history writing.
Credits: 3.

HST 351 - American Cultural History

Intended primarily for students in Historic Preservation, but open to other Graduate
students.
Credits: 3.

HST 391 - Master's Thesis Research

Required of all candidates for the M.A. Normally arranged for two semesters at
three hours each. Credits: 1-6.
Credits: 1-6.

HST 395 - Special Topics

Credits: 3.

HST 397 - Special Readings and Research

Directed individual study of areas not appropriately covered by existing courses.
Variable credit. Credits 1-6.
Credits: 1-6.

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History (B. A.)

College: [Arts and Sciences](#)

Department(s): [History](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-three hours including six hours of any approved sequence of courses at the introductory level (00), nine hours at the intermediate level (100), and three hours at the advanced level (200). They must also include 15 hours of concentration in one of the Department's three areas of study (Western Hemisphere; Europe; Africa/Asia/Latin America) and six hours in each of the others. The 15-hour concentration must include one course at the intermediate level and one seminar at the advanced level. (The Western Hemisphere concentration must include three hours in Canadian or Latin American history.)

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Minor in History

College: [Arts and Sciences](#)

Department(s): [History](#)

Requirements

Eighteen hours of history including three hours in any course at the introductory level (00), plus nine hours at the intermediate level (100) or advanced level (200). These must also include six hours in each of two of the department's areas of study (Western Hemisphere; Europe; Africa/Asia/Latin America).

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Departments and Programs

Mathematics and Statistics Department

Colleges: [Engineering and Mathematics](#), [Arts and Sciences](#), [Graduate College](#), [Continuing Education](#)

Faculty: [Mathematics and Statistics](#)

Courses: [Mathematics \(MATH\)](#), [Statistics \(STAT\)](#)

Contact Information:

University of Vermont

Mathematics and Statistics Department

16 Colchester Ave

Burlington, VT 05405

Phone: (802) 656-2940

Fax: (802) 656-2552

Email: dinitz@math.uvm.edu

Web Site: <http://www.emba.uvm.edu/EM/Math/>

- [Mathematics and Statistics Basic Curriculum \(B.S.\)](#)

Academic Offerings

- Undergraduate Degrees
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 - [Applied and Interdisciplinary Mathematics](#)
 - [Mathematics](#)
 - [Statistics](#)
 - Bachelor of Science (B. S.)
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Mathematics

- [Applied Mathematics Concentration](#)
- [Pure Mathematics Concentration](#)
- [Statistics Concentration](#)

Overview

Students can concentrate in mathematics or statistics while pursuing a broad foundation in the liberal arts in the Department of Mathematics and Statistics. It is also possible to earn a second degree in any college combining mathematics and statistics with another discipline to obtain a double major in Arts and Sciences. The Department also offers an accelerated five-year B.S./M.S. program.

Please view our mission statement at:

<http://www.emba.uvm.edu/math/info/mission.html>

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Courses in Mathematics

MATH 001 - Elementary College Algebra

Review of fundamental operations and a more extensive study of fractions, exponents, radicals, linear and quadratic equations, ratio, proportion, variation, progressions, and the binomial theorem. Topics normally included in intermediate algebra in high school. Students who have satisfactorily completed two years of high school algebra, or the equivalent, receive no credit for this course. Offered only in Evening Division and Summer Session. Prerequisite: One year of high school algebra.

Credits: 3.

MATH 002 - Plane Trigonometry

Trigonometric functions, their graphs and other properties, solution of triangles, trigonometric equations and identities, and inverse trigonometric functions. May not be taken for credit concurrently with, or following receipt of, credit for any mathematics course numbered MATH 020 or above. Prerequisite: MATH 001 or MATH 009. Offered only in Evening Division and Summer Session.

Credits: 3.

MATH 009 - College Algebra

Sets, relations, and functions with particular attention to properties of algebraic, exponential, and logarithmic functions, their graphs and applications. May not be taken for credit concurrently with, or following receipt of, credit for any mathematics course numbered 19 or above. Prerequisites: Two years of secondary school algebra, one year of secondary school geometry.

Credits: 3.

MATH 010 - Pre-Calculus Mathematics

geometry.

Credits: 3.

MATH 011 - Technical Calculus I

Introduction to calculus of functions of one variable, emphasizing techniques and applications of differentiation and integration. Prerequisite: MATH 010 or MATH 009 and MATH 002, or strong background in secondary school algebra and trigonometry; an associates degree in engineering. Dual credit not given for MATH 011 and MATH 021.

Credits: 3.

MATH 012 - Technical Calculus II

coordinates, sequences, series and vectors. Prerequisite: MATH 011 or MATH 021; associates degree in engineering.

Credits: 3.

MATH 013 - Calculus via Modeling I

Introduction to mathematical modeling and differential calculus with a graphical, problem-solving approach. Requires graphing calculator. Prerequisite: Three years high school math, or MATH 009. Credit not given for both MATH 013 and MATH 019.

Credits: 3.

MATH 014 - Calculus via Modeling II

Further modeling and an introduction to integral and multivariate calculus with a graphical, problem-solving approach. Requires graphing calculator. Credit not given for both MATH 014 and MATH 020. Prerequisite: MATH 013.

Credits: 3.

MATH 015 - Elementary School Math

Comprehension of operations with real numbers, measurements, and informal geometry provide background for algebra, number theory, statistics, probability, compass and ruler constructions, and problem solving. Prerequisite: 15 for 16. Open only to students in elementary education.

Credits: 3.

MATH 016 - Fund Concepts Elem School Math

Comprehension of operations with real numbers, measurements, and informal geometry provide background for algebra, number theory, statistics, probability, compass and ruler constructions, and problem solving. Prerequisite: 15 for 16. Open only to students in elementary education.

Credits: 3.

MATH 017 - Applications of Finite Math

Introduction to mathematics of finite systems with applications, such as probability, statistics, growth and symmetry, graph theory, fair division and apportionment problems, voting systems. Prerequisite: Two years of secondary school algebra or 9 or 10.

Credits: 3.

MATH 018 - Basic Mathematics

Data, statistics, modeling, algebra, word problems, calculus. Students who do well in the algebra section may continue with MATH 19 or MATH 21. Prerequisites: 3 years high school math. No credit for EM students.

Credits: 3.

MATH 019 - Fundamentals of Calculus I

Introduction to limits and differential calculus with a wide variety of applications. Students interested in intensive use of mathematics should take 21. Credit not given for more than one of the courses 19, 21 unless followed by 22. Credit not given for both Math. 13 and 19. Prerequisite: 9, 10, or sufficiently strong background in secondary school algebra and geometry.

Credits: 3.

MATH 020 - Fundamentals of Calculus II

019.* 022 is preferable to MATH 019, MATH 020, MATH 022. Credit Credits: 3.

MATH 021 - Calculus I

Introduction to calculus of functions of one variable including: limits, continuity, techniques and applications of differentiation and integration. Credit not given for more than one course in the pair 19, 21. Prerequisite: 10; or 9 and 2; or strong background in secondary school algebra and trigonometry Credits: 4.

MATH 022 - Calculus II

Techniques and applications of integration. Polar coordinates, Taylor polynomials, sequences and series, power series. Prerequisite: 21. Credits: 4.

MATH 052 - Fundamentals of Mathematics

Fundamental mathematical concepts and techniques, theory. Credit not given for both 52 and 54. emphasizing proofs and algorithms, are investigated within the context of topics such as number theory and graph Corequisite: Math 21. Credits: 3.

MATH 054 - Fund of Math of Computation

Introduction to mathematical theory and techniques underlying computer science. Co-requisite: MATH 019 or MATH 021. Credits: 3.

MATH 095 - Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: Instructor permission. Credits: 1-6.

MATH 111 - Technical Calculus III

Calculus of functions of several variables, partial derivatives, gradient, divergence, curl, multiple integrals. Prerequisite: MATH 012 or MATH 022; associates degree in engineering. Dual credit not given for MATH 111 and MATH 121. Credits: 3.

MATH 121 - Calculus III

Vectors, vector-valued functions. Calculus of functions of several variables: partial derivatives, gradient, divergence, curl, multiple integrals, line integrals, Stokes' and Green's theorems. Prerequisite: MATH 022. Credits: 4.

MATH 124 - Linear Algebra

Matrices, linear dependence, vector spaces, linear transformations, characteristic equations and applications. Prerequisite: MATH 022 or Instructor permission. Credits: 3.

MATH 141 - Real Analysis in One Variable

Principles of analysis in one variable. Heine-Borel and Bolzano-Weierstrass theorems; rigorous development of differential and integral calculus infinite sequences and series of functions. Prerequisite: 52. Credits: 3.

MATH 151 - Groups and Rings

An introduction to the basic concepts of abstract algebra emphasizing examples, including modular arithmetic, symmetric groups, cyclic groups, polynomial rings, homomorphisms, and isomorphisms. Prerequisite: 52.

Credits: 3.

MATH 161 - Development of Mathematics

Historical development of mathematical sciences emphasizing interrelations among them. Individual assignments correspond to background and interests of students. Prerequisite: Nine hours of college mathematics.

Credits: 3.

MATH 162 - Geometry E&Mid School Teacher

An informal, investigative approach to geometry. Extensive use of discovery experiences through inductive procedures as opposed to the traditional emphasis on deductive process found in high school geometry. Credit not given for Math. majors in EM. Prerequisite: MATH 015 or a teaching certificate.

Credits: 3.

MATH 167 - Physical Chemistry Preparation

Review of relevant mathematical and physical concepts as applied to physical chemistry. Credit cannot be obtained for both MATH 167 and MATH 121. Not available for credit for E&M students. Prerequisite: MATH 022; CHEM 032 or CHEM 036. Cross-listed with: CHEM 167.

Credits: 1.

MATH 173 - Basic Combinatorial Theory

Introduction to basic combinatorial principles emphasizing problem-solving techniques. Enumeration, Generating Functions, Fibonacci Numbers, Pigeonhole Principle, Inclusion-Exclusion, and Graph Theory. Prerequisite: 52 or 54.

Credits: 3.

MATH 179 - Teaching Secondary School Math

Contemporary secondary school mathematics curricula, their content from an advanced standpoint, unifying mathematical concepts and their implications at various levels, and introduction of selected mathematical topics. Intended only for students with an interest in teaching secondary school mathematics. Not acceptable as part of any mathematics requirement for a degree. Prerequisite: EDEC 178; acceptance to teacher education, or Instructor permission.

Credits: 3.

MATH 191 - Special Topics

An approved project under guidance of a staff member and culminating in a written report. Involvement with off-campus groups permitted. Prerequisite: Junior/ Senior standing; approval of Department Chair.

Credits: 1-3.

MATH 192 - Special Topics

An approved project under guidance of a staff member and culminating in a written report. Involvement with off-campus groups permitted. Prerequisite: Junior/ Senior standing; approval of Department Chair.

Credits: 1-3.

MATH 193 - College Honors

Credits: 1-3.

MATH 194 - College Honors

Credits: 1-3.

MATH 195 - Special Topics

Credits: 1-4.

MATH 207 - Probability Theory

(Same as Statistics 251.)

Credits: 3.

MATH 221 - Deterministic Modls Oper Rsch

The linear programming problem. Simplex algorithm, dual problem, sensitivity analysis, goal programming. Dynamic programming and network problems.

Prerequisites: 124; 121 desirable.

Credits: 3.

MATH 222 - Stochastic Models in Oper Rsch

Development and solution of some typical stochastic models. Markov chains, queueing problems, inventory models, and dynamic programming under uncertainty. Prerequisite: MATH 207, STAT 151, or Instructor permission.

Credits: 3.

MATH 224 - Analysis of Algorithms

(Same as Computer Science 224.)

Credits: 3.

MATH 230 - Ordinary Differential Equation

Solutions of linear ordinary differential equations, the Laplace transformation, and series solutions of differential equations. Prerequisite: MATH 121. Corequisite: MATH 124 or Instructor permission. Credit not granted for more than one of the courses MATH 230 or MATH 271.

Credits: 3.

MATH 236 - Calculus of Variations

Necessary conditions of Euler, Legendre, Weierstrass, and Jacobi for minimizing integrals. Sufficiency proofs. Variation and eigenvalue problems. Hamilton-Jacobi equations. Prerequisite: 230. Alternate years, 1997-98.

Credits: 3.

MATH 237 - Intro to Numerical Analysis

Error analysis, root-finding, interpolation, least squares, quadrature, linear equations, numerical solution of ordinary differential equations. Prerequisite: MATH 121, MATH 124 or MATH 271; Knowledge of computer programming.

Credits: 3.

MATH 238 - Numerical Diff Equations

Numerical solution of differential equations: initial-value and boundary-value problems; finite difference and finite element methods. Prerequisite: 237, either 230 or 271 recommended.

Credits: 3.

MATH 240 - Fourier Series&Integral Trans

MATH 271.

Credits: 3.

MATH 241 - Anyl in Several Real Vars I

Properties of the real numbers, metric spaces, infinite sequences and series, continuity. Prerequisites: 52, 121, 124 or instructor's permission.

Credits: 3.

MATH 242 - Anyl Several Real Variables II

Differentiation in R^n , Riemann-Stieltjes integral, uniform convergence of functions, Inverse and Implicit Function Theorems. Prerequisite: 241.

Credits: 3.

MATH 243 - Theory of Computation

(Same as Computer Science 243.)

Credits: 3.

MATH 251 - Abstract Algebra I

Basic theory of groups, rings, fields, homomorphisms, and isomorphisms.

Prerequisite: MATH 052, MATH 124, or Instructor permission.

Credits: 3.

MATH 252 - Abstract Algebra II

of quintic equations. Prerequisite: MATH 251. Modules, vector spaces, linear transformations, rational and Jordan canonical forms. Finite fields, field extensions, and Galois theory leading to the insolvability

Credits: 3.

MATH 255 - Elementary Number Theory

Divisibility, prime numbers, Diophantine equations, congruence of numbers, and methods of solving congruences. Prerequisite: MATH 052 or MATH 054.

Credits: 3.

MATH 257 - Topics in Group Theory

Topics may include abstract group theory, representation theory, classical groups, Lie groups. Prerequisite: 251. Alternate years, 2000-01.

Credits: 3.

MATH 260 - Foundations of Geometry

Geometry as an axiomatic science; various non-Euclidean geometries; relationships existing between Euclidean plane geometry and other geometries; invariant properties. Prerequisite: MATH 052 or MATH 054.

Credits: 3.

MATH 264 - Vector Analysis

Gradient, curl and divergence, Green, Gauss, and Stokes Theorems, applications to physics, tensor analysis. Prerequisite: MATH 121, MATH 124, or MATH 271.

Credits: 3.

MATH 266 - Chaos,Fractals&Dynamical Syst

Discrete and continuous dynamical systems, Julia sets, the Mandelbrot set, period doubling, renormalization, Henon map, phase plane analysis and Lorenz equations. Corequisite: 271 or 230 or instructor's permission.

Credits: 3.

MATH 268 - Mathematical Biology&Ecology

Mathematical modeling in the life sciences. Topics include population modeling, dynamics of infectious diseases, reaction kinetics, wave phenomena in biology, and biological pattern formation. Prerequisites: 124, 230; or instructor's permission.

Credits: 3.

MATH 271 - Appl Math for Engr&Scientists

Matrix theory, linear ordinary differential equations. Emphasis on methods of solution, including numerical methods. Co-requisite: 121. No credit for mathematics majors. Credit not granted for more than one of the courses Math. 230 and Math. 271.

Credits: 3.

MATH 272 - Applied Analysis

Partial Differential Equations of Mathematical Physics, Calculus of Variations, Functions of a Complex Variable, Cauchy's Theorem, integral formula. Conformal mapping. Prerequisite: 230 or 271.

Credits: 3.

MATH 273 - Combinatorial Graph Theory

Paths and trees, connectivity, Eulerian and Hamiltonian cycles, matchings, edge and vertex colorings, planar graphs, Euler's formula and the Four Color Theorem, networks. Prerequisite: MATH 052 or MATH 054, or Instructor permission.

Credits: 3.

MATH 274 - Numerical Linear Algebra

Direct and iterative methods for solving linear equations, least square factorization methods, eigenvalue computations, ill-conditioning and stability. Prerequisite: MATH 237.

Credits: 3.

MATH 275 - Advanced Engineer Analysis I

(Same as Mechanical Engineering 304, 305; Civil Engineering 304, 305.)

Prerequisites: 271 or 230; 275 for 276.

Credits: 3.

MATH 276 - Adv Engineering Analysis II

(Same as Mechanical Engineering 304, 305; Civil Engineering 304, 305.)

Prerequisites: 271 or 230; 275 for 276.

Credits: 3.

MATH 283 - Junior-Senior Seminar

Students required to give presentations on selected topics. Prerequisite: Instructor permission.

Credits: 1.

MATH 293 - Undergraduate Honors Thesis

Program of reading and research culminating in written thesis and oral presentation. Honors notation appears on transcript and Commencement Program. Contact department chairperson for procedures. (Not offered for graduate credit.)

Credits: 3-4.

MATH 294 - Undergraduate Honors Thesis

Program of reading and research culminating in written thesis and oral presentation. Honors notation appears on transcript and Commencement Program. Contact department chairperson for procedures. (Not offered for graduate credit.)

Credits: 3-4.

MATH 295 - Special Topics

For advanced students in the indicated fields. Lectures, reports, and directed readings on advanced topics. Prerequisite: Instructor permission. Credit as arranged. Offered as occasion warrants.

Credits: 1-9.

MATH 330 - Adv Ordinary Diff Equations

Linear and nonlinear systems, approximate solutions, existence, uniqueness, dependence on initial conditions, stability, asymptotic behavior, singularities, self-adjoint problems. Prerequisite: MATH 230.

Credits: 3.

MATH 331 - Theory of Func of Complex Var

meromorphic functions, conformal mappings, Riemann Differentiation, integration, Cauchy-Riemann equations, infinite series, properties of analytic continuation, Laurent series, calculus of residues, contour integration, surfaces. Prerequisite: MATH 242.

Credits: 4.

MATH 332 - Approximation Theory

Interpolation and approximation by interpolation, uniform approximation in normed linear spaces, spline functions, orthogonal polynomials. Least square, and Chebychev approximations, rational functions. Prerequisite: MATH 124, MATH 237.

Credits: 3.

MATH 333 - Thry Functions Real Variables

The theory of Lebesgue integration, Lebesgue measure, sequences of functions, absolute continuity, properties of LP-spaces. Prerequisite: MATH 242.

Credits: 4.

MATH 335 - Advanced Real Analysis

L²-spaces, LP-spaces; Hilbert, Banach spaces; linear functionals, linear operators; completely continuous operators (including symmetric); Fredholm alternative; Hilbert-Schmidt theory; unitary operators; Bochner's Theorem; Fourier-Plancherel, Watson transforms. Prerequisites: MATH 333.

Credits: 3.

MATH 336 - Advanced Real Analysis

L²-spaces, LP-spaces; Hilbert, Banach spaces; linear functionals, linear operators; completely continuous operators (including symmetric); Fredholm alternative; Hilbert-Schmidt theory; unitary operators; Bochner's Theorem; Fourier-Plancherel, Watson transforms. Prerequisite: MATH 333 and MATH 335.

Credits: 3.

MATH 339 - Partial Differential Equations

Classification of equations, linear equations, first order equations, second order elliptic, parabolic, and hyperbolic equations, uniqueness and existence of solutions. Prerequisite: MATH 230; MATH 242.

Credits: 3.

MATH 351 - Topics in Algebra

credit with Instructor permission.

Credits: 3.

MATH 353 - Point-Set Topology

MATH 241. Topological spaces, closed and open sets, closure operators, separation axioms, continuity, connectedness, compactness, metrization, uniform spaces. Prerequisite:

Credits: 3.

MATH 354 - Algebraic Topology

Homotopy, Seifert-van Kampen Theorem; simplicial, singular, and Cech homology. Prerequisite: MATH 353.

Credits: 3.

MATH 373 - Topics in Combinatorics

Topics will vary each semester and may include combinatorial designs, coding theory, topological graph theory, cryptography. Prerequisite: MATH 251 or MATH 273; or Instructor permission.

Credits: 3.

MATH 382 - Seminar

Topical discussions with assigned reading. Required of M.S. degree candidates.

Credits: 1.

MATH 391 - Master's Thesis Research

Credits: 1-18.

MATH 395 - Special Topics

Subject will vary from year to year. May be repeated for credit.

Credits: 1-6.

MATH 491 - Doctoral Dissertation Research

Credits: 1-18.

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Courses in Statistics

STAT 011 - Intro to Stats via Microcomp

Various study designs considered. Graphical and analytic techniques for presenting results. Wide variety of applications surveyed. PC-based software used. Experience gained in sample survey work. Prerequisite: High school algebra.

Credits: 3.

STAT 051 - Probability With Statistics

Introduction to probabilistic and statistical reasoning, including probability distribution models and applications to current scientific/social issues. Roles of probability, study design, and exploratory/confirmatory data analysis. Prerequisite: Two years H.S. algebra. No credit for Sophomores, Juniors, or Seniors in the mathematical and engineering sciences.

Credits: 3.

STAT 095 - Special Topics

Lectures, reports, and directed readings at an introductory level. Prerequisite: As listed in course schedule.

Credits: 1-3.

STAT 111 - Elements of Statistics

Basic statistical concepts, methods, and applications, including correlation, regression, confidence intervals, and hypothesis tests. Prerequisite: Two years of high school algebra; Sophomore standing.

Credits: 3.

STAT 140 - Natural Resource Biostatistics

Cross-listed with: NR 140.

Credits: 4.

STAT 141 - Basic Statistical Methods

Foundational course for students taking further quantitative courses. Exploratory data analysis, probability distributions, estimation, hypothesis testing. Introductory regression, experimentation, contingency tables, and nonparametrics. Computer software used. Prerequisites: Math. 11, 13, 19 or 21, sophomore standing.

Credits: 3.

STAT 143 - Statistics for Engineering

Data analysis, probability models, parameter estimation, hypothesis testing. Multi-factor experimental design and regression analysis. Quality control, SPC, reliability. Engineering cases and project. Statistical analysis software.

Prerequisites: Math. 12, 14, 20 or 22, sophomore standing.

Credits: 3.

STAT 151 - Applied Probability

Foundations of probability, conditioning, and independence. Business, computing, biological, engineering reliability, and quality control applications. Classical discrete and continuous models. Pseudo-random number generation.

Prerequisites: Math. 12, 14, 20 or 22.

Credits: 3.

STAT 191 - Special Projects

Student-designed special project under supervision of a staff member culminating in a report. Prerequisite: Junior standing; permission of Program Director.

Credits: 1-4.

STAT 195 - Special Topics

Lectures, reports, and directed readings. Prerequisite: As listed in course schedule.

Credits: 1-3.

STAT 200 - Med Biostatistics&Epidemiology

(Same as Biostatistics 200.) Introductory design and analysis of medical studies. Epidemiological concepts, case-control and cohort studies. Clinical trials. Students evaluate statistical aspects of published health science studies. Prerequisite: 141 or 143; or 211.

Credits: 3.

STAT 201 - Stat Analysis Via Computers

(Same as Biostatistics 201.) Intensive coverage of computer-based data processing and analysis using statistical packages, subroutine libraries, and user-supplied programs. Students analyze real data and prepare a comprehensive report. Prerequisites: 111 with instructor's permission, or 141, or corequisite 211.

Credits: 3.

STAT 211 - Statistical Methods I

(Same as Biostatistics 211.) Fundamental concepts for data analysis and experimental design. Descriptive and inferential statistics, including classical and nonparametric methods, regression, correlation, and analysis of variance. Statistical software. Prerequisite: Junior standing.

Credits: 3.

STAT 221 - Statistical Methods II

(Same as Biostatistics 221.) Multiple regression and correlation. Basic experimental design. Analysis of variance (fixed, random, and mixed models). Analysis of covariance. Computer software usage. Prerequisites: 141 or 143; or 211.

Credits: 3.

STAT 223 - Applied Multivariate Analysis

(Same as Biostatistics 223.) Multivariate normal distribution. Inference for mean vectors and covariance matrices. Multivariate analysis of variance (MANOVA),

discrimination and classification, principal components, factor analysis.

Prerequisites: Any 200-level Statistics course, 221 or 225 recommended, matrix algebra recommended.

Credits: 3.

STAT 224 - Stats for Quality&Productivity

(Same as Biostatistics 224.) Statistical process control; Shewhart, cusum and other control charts; process capability studies. Total Quality Management.

Acceptance, continuous, sequential sampling. Process design and improvement. Case studies. Prerequisites: 141 or 143; or 211.

Credits: 3.

STAT 225 - Applied Regression Analysis

(Same as Biostatistics 225.) Simple linear and multiple regression models; least squares estimates, correlation, prediction, forecasting. Problems of multicollinearity and influential data (outliers).

Credits: 3.

STAT 227 - Adv Statistical Methods II

(Same as Psychology 341.) Prerequisite: 211 with computer experience or Psychology 340.

Credits: 3.

STAT 229 - Survival Analysis

(Same as Biostatistics 229.) Probabilistic models and inference for time-to-event data. Censored data, life tables, Kaplan-Meier estimation, logrank tests, proportional hazards regression. Specialized applications (e.g. clinical trials, reliability). Prerequisites: Any 200-level Statistics course, one year of calculus.

Credits: 3.

STAT 231 - Experimental Design

(Same as Biostatistics 231.) Randomization, complete and incomplete blocks, cross-overs, Latin squares, covariance analysis, factorial experiments, confounding, fractional factorials, nesting, split plots, repeated measures, mixed models, response surface optimization. Prerequisites: 211; 221 recommended.

Credits: 3.

STAT 233 - Survey Sampling

(Same as Biostatistics 233.) Design and data analysis for sample surveys. Simple random, stratified, systematic, cluster, multistage sampling. Practical issues in planning and conducting surveys. Prerequisites: 211; or 141 or 143 with instructor's permission.

Credits: 3.

STAT 235 - Categorical Data Analysis

(Same as Biostatistics 235.) Measures of association and inference for categorical and ordinal data in multiway contingency tables. Log linear and logistic regression models. Prerequisite: 211.

Credits: 3.

STAT 237 - Nonparametric Statistical Mthd

(Same as Biostatistics 237.) Nonparametric and distribution free methods; categorical, ordinal, and quantitative data; confidence intervals; rank and chi-square hypothesis tests; computer-intensive procedures (bootstrap, exact tests).

Prerequisites: 211; or 141 or 143 with instructor's permission.

Credits: 3.

STAT 241 - Statistical Inference

(Same as Biostatistics 241.) Introduction to statistical theory: related probability fundamentals, derivation of statistical principles, and methodology for parameter estimation and hypothesis testing. Prerequisites: 151 or 251; 141 or equivalent; Math. 121.

Credits: 3.

STAT 251 - Probability Theory

(Same as Math. 207.) Distributions of random variables and functions of random variables. Expectations, stochastic independence, sampling and limiting distributions (central limit theorems). Concepts of random number generation.

Prerequisite: Math. 121, Statistics 151 recommended.

Credits: 3.

STAT 252 - Appl Models

Markov chain models for biological, social, and behavioral systems models.

Random walks, transition and steady-state probabilities, passage and recurrence times. Prerequisite: 151 or 251.

Credits: 1-2.

STAT 253 - Appl Time Series & Forecasting

(Same as Biostatistics 253.) Autoregressive moving average (Box-Jenkins) models, autocorrelation, partial correlation, differencing for nonstationarity, computer modeling. Forecasting, seasonal or cyclic variation, transfer function and intervention analysis, spectral analysis. Prerequisite: 211 or 225; or 141 or 143 with instructor's permission.

Credits: 3.

STAT 256 - Neural Computation

(See Computer Science 256.)

Credits: 3.

STAT 261 - Statistical Theory I

(Same as Biostatistics 261, 262.) Point and interval estimation, hypothesis testing, and decision theory. Application of general statistical principles to areas such as nonparametric tests, sequential analysis, and linear models. Prerequisites: For 261: 151 with instructor permission or 251; for 262: 241 with instructor permission or 261.

Credits: 3.

STAT 262 - Statistical Theory II

(Same as Biostatistics 261, 262.) Point and interval estimation, hypothesis testing, and decision theory. Application of general statistical principles to areas such as nonparametric tests, sequential analysis, and linear models. Prerequisites: For 261: 151 with instructor permission or 251; for 262: 241 with instructor permission or 261.

Credits: 3.

STAT 265 - Integrated Product Development

(Same as Business Administration 293.)

Credits: 3.

STAT 270 - Stochastic Thry in Elec Eng

(See Electrical Engineering 270.)

Credits: 3.

STAT 271 - Least Squares Est & Filtering

(See Electrical Engineering 271.)

Credits: 3.

STAT 281 - Statistics Practicum

Intensive experience in carrying out a complete statistical analysis for a research project in substantive area with close consultation with a project investigator.

Prerequisites: Any one of 200, 201, 221 through 237; or 253; some statistical software experience. No credit for graduate students in Statistics or Biostatistics.

Credits: 1-4.

STAT 293 - Undergrad Honors Thesis

Contact Statistics Program Director for procedures. A program of reading, research, design, and analysis culminating in a written thesis and oral defense. Honors notation appears on transcript and Commencement Program.

Credits: 1-8.

STAT 294 - Undergrad Honors Thesis

A program of reading, research, design, and analysis culminating in a written thesis and oral defense. Honors notation appears on transcript and Commencement Program. Contact Statistics Program Director for procedures.

Credits: 1-8.

STAT 295 - Special Topics

For advanced students. Lectures, reports, and directed readings on advanced topics. Prerequisite: As listed in course schedule.

Credits: 1-4.

STAT 308 - Applied Biostatistics

Intensive introduction to the rationale for and application of biostatistical methods in planning experiments and interpreting data in the biological, health and life sciences. Cross-listings: Molecular Physiology and Biophysics 308, Biostatistics 308.

Credits: 5.

STAT 313 - Stat Analysis for Management

See BSAD 313.

Credits: 3.

STAT 321 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Corequisites: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.

STAT 323 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Co-requisites: STAT 221 for STAT 321; STAT

223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.

STAT 324 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Co-requisites: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.

STAT 325 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Co-requisites: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.

STAT 329 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Co-requisite: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.

STAT 380 - Sem:Statistics & Biosstatistics

Presentation and discussion of current topics, methodological research and applications in Statistics and Biosstatistics by graduate students, faculty and guest speakers. Prerequisite: Instructor Permission.

Credits: .5-1.

STAT 381 - Statistical Research

Methodologic or data analytic research culminating in oral and written reports to the faculty. Prerequisite: Instructor Permission. Cross-listed with: BIOS 381.

Credits: 1-3.

STAT 385 - Consulting Practicum

Statistics Program Director.

Credits: 1-3.

STAT 391 - Master's Thesis Research

Credits: 1-6.

STAT 395 - Advanced Special Topics

with: BIOS 395. Lectures or directed readings on advanced and contemporary topics not presently included in other statistics courses. Prerequisites: As listed in course schedule. Cross-listed

Credits: 1-3.

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Mathematics and Statistics Basic Curriculum (B. S.)

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Department(s): [Mathematics and Statistics](#)

Concentrations: [Mathematics](#), [Statistics](#)

Mathematics: Math. 21, 22, 121, 52, 124, 241, 251, and CS 21.

Statistics: Math. 21, 22, 121, 124; CS 21; and one of Stat. 141, 143 or 211, 151 or 251, 201, 221 or 227, 241 or 261, and 281 or 293.

Applied and Interdisciplinary Mathematics: Math. 21, 22, 121; CS 21; Math. 124, 230, and 237.

In addition to the Basic Curriculum above, candidates for the degree of Bachelor of Science in Mathematics must complete the following requirements A, B, C, and D.

A. Major Courses

Mathematics: A minimum of 21 additional hours in Mathematics, Statistics, or Computer Science courses numbered 100 or above. At least 12 hours must be in courses numbered 200 or above and no more than 12 hours may be chosen from Computer Science.

Statistics: An additional six credit hours of Statistics, so that the total credits earned in Statistics is at least 24 hours. A minimum of two additional hours in Mathematics, Statistics, or Computer Science courses numbered 100 or above, so that a total of at least 45 credits in the basic and major courses is earned. A total of 18 credit hours in the combined basic curriculum and majors courses must be taken at the 200 level and no more than 12 hours can be taken in Computer Science.

Applied and Interdisciplinary Mathematics: A minimum of 18 additional hours in Mathematics, Statistics, or Computer Science courses numbered 100 or above. Of these 18 hours, 6 must be in Mathematics or Statistics, and must be numbered 200 or above.

B. Allied Field Courses

Twenty-four hours selected from the following Allied Fields:

1. Physical Sciences
2. Biological Sciences
3. Medical Sciences
4. Engineering
5. Computer Science (26 or higher)
6. Agricultural Sciences
7. Business Administration
8. Psychology
9. Economics

Each student in consultation with his or her advisor must plan a sequence of Allied Field courses consistent with his or her professional and personal goals. A student interested in pursuing intensive studies in an area not specifically listed is encouraged to plan a program with his or her advisor and submit it to the appropriate departmental committee for review and approval. The requirements are as follows:

Mathematics: Twenty-four hours selected from the above list of Allied Fields. Of these 24 hours, at least six must be in courses numbered 100 or above, and at least six must be taken in fields (1) to (5). Courses used to satisfy requirement A above may not be used to satisfy this requirement.

Statistics: Twenty-four hours selected from the above list of Allied Fields, including at least one laboratory experience in science or engineering. Of these 24 hours, at least six must be in courses numbered 100 or above and at least six must be taken in fields (1) to (5). Courses used to satisfy requirement A above may not be used to satisfy this requirement.

Applied and Interdisciplinary Mathematics: At least seven courses with a concentrated focus in an allied field. The major courses in requirement A and the Allied Field courses in requirement B must form a coherent program that has the written approval of the student's faculty advisor in the Mathematics and Statistics Department. When appropriate, and with the written approval of the advisor, at most three courses can overlap requirements A and B.

C. **Humanities and Social Science Courses**

(Courses used to satisfy requirement B above may not be used to satisfy this requirement.)

English 1, and 21 hours of courses selected from categories I, II, and III listed below. These 21 hours must be distributed over at least two categories, and at least six hours must be taken in each of the two categories chosen. Statistics majors must include Speech 11.

- I. Language and Literature
 - Chinese
 - Classics
 - English
 - French
 - General Literature
 - German

- Greek
- Hebrew
- Italian
- Linguistics
- Russian
- Spanish

II. Fine Arts, Philosophy, and Religion

- Art
- Film
- Music
- Philosophy
- Religion
- Speech
- Theatre

III. Social Sciences

- Anthropology
- Communication Sciences
- Economics
- Geography
- History
- Political Science
- Psychology
- Sociology

D. **Total Hours**

A minimum of 120 semester hours is required, plus two hours in physical education activities. First-year students must include the one-hour Race and Culture course, Allied Health 95, or a course approved by the College of Arts and Sciences as meeting the "Race Relations and Ethnic Diversity in the United States" requirement.

E. **Grades**

No more than three grades of D, D+, or D- in the 200/300 level Mathematics and Statistics courses used to satisfy the "Core Curriculum" and "Major Courses" requirements will be acceptable.

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Mathematics: Applied and Interdisciplinary Mathematics Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Mathematics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

This concentration combines a major in applied mathematics with an approved minor that emphasizes the application of mathematics. Such minors include various disciplines in the physical, life, and earth sciences, the social sciences, and business. A student may expand the approved minor to form a double major with mathematics. The requirements for this option are: (a) Math. 21, 22, 121, CS 21, Math. 124, 230, and 237; (b) at least nine additional hours in mathematics, statistics, or computer science courses number 100 or above, at least three of which must be in mathematics or statistics, at least six of which must be numbered 200 or above; (c) an approved minor. Parts (b) and (c) must form a coherent program that has the written approval of the student's faculty advisor in the Mathematics and Statistics Department.

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Mathematics (B. A.)

College: [Arts and Sciences](#)

Department(s): [Mathematics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Math. 21, 22, 121, 52, and 124, plus 18 additional credits in Math./Statistics courses at 100 level or above, with at least 12 hours numbered 200 or higher.

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Mathematics: Statistics Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Mathematics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Computer Science 21. Thirty-three hours of Mathematics/Statistics courses numbered 21 or higher, including Math. 121 and 124, and Statistics 141 or 143 or 211, 151 or 251, 201, 221 or 227, 241 or 261, and 281 or 293. At least 12 hours must be at the 200 level or higher.

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Mathematics (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Mathematics and Statistics](#)

Overview

The mathematics curriculum is quite flexible. It is designed to provide a sound basic training in mathematics that allows a student to experience the broad sweep of mathematical ideas and techniques, to utilize the computer in mathematics, and to develop an area of special interest in the mathematical sciences.

In addition to the Bachelor of Science degree described here, the Department of Mathematics and Statistics also offers a Bachelor of Arts degree in the College of Arts and Sciences. A faculty advisor from Mathematics will assist students in determining which degree program best suits their individual needs and plans. Some of the career plans for which a well-designed major in mathematics can provide ideal preparation are highlighted below.

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Mathematics and Statistics](#)

Recommendations for Major Courses

In consultation with their advisor, students should choose an area of interest within the mathematics major and plan a coherent program that addresses their interests in mathematics and its applications. This area might be one of those listed below, or it might be another area suggested by the student. As a guide, students interested in one of the areas would typically take at least three courses in that area, including all of the courses marked with an asterisk (*). In addition, students should take courses from at least two other areas. Because of its centrality in mathematics, students should make sure that they take at least one course listed under Classical Mathematics. In following these recommendations, a course listed in more than one area is meant to be counted

only once.

1. **Classical Mathematics**

Classical mathematics encompasses those areas having their roots in the great traditions of mathematical thought, such as geometry and topology, mathematical analysis, algebra and number theory, and discrete mathematics. Courses in this area include the following: Math. 141, 151, 173, 236, 240, 241*, 242, 251*, 252, 255, 257, 260, 264, 273, 331, 353.

2. **Applied Mathematics**

Applied Mathematics involves the use of mathematical methods to investigate problems originating in the physical, biological, and social sciences, and engineering. Mathematical modeling, coupled with the development of mathematical and computational solution techniques, illuminates mechanisms which govern the problem and allows predictions to be made about the actual physical situation. Current research interests of the faculty include biomedical mathematics, fluid mechanics and hydrodynamic stability, asymptotics, and singular perturbation theory. Courses in this area include the following: Math. 230*, 236, 237*, 238, 240, 272, 273, 274.

3. **Computational Mathematics**

Computational mathematics involves both the development of new computational techniques and the innovative modification and application of existing computational strategies to new contexts where they have not been previously employed. Intensive computation is central to the solution of many problems in areas such as applied mathematics, number theory, engineering, and the physical, biological and natural sciences. Computational mathematics is often interdisciplinary in nature, with algorithm development and implementation forming a bridge between underlying mathematical results and solution of the physical problem of interest. Courses in this area include the following: Math. 173, 230, 237*, 238, 274, Statistics 201.

4. **Theory of Computing**

The mathematical theory of computing deals with the mathematical underpinnings allowing effective use of the computer as a tool in problem solving. Aspects of the theory of computing include: designing parallel computing strategies (graph theory), analyzing strengths and effectiveness of competing algorithms (analysis of algorithms), examining conditions which ensure that a problem can be solved by computational means (automata theory and computability), and rigorous analysis of run times (complexity theory). Courses in this area include the following: Math. 173, 223, 224*, 243, 273, 325, Computer Science 346, 353.

5. **Mathematics of Management**

Mathematics of Management involves the quantitative description and study of problems particularly concerned with the making of decisions in an organization.

Problems are usually encountered in business, government, service industries, etc., and typically involve the allocation of resources, inventory control, product transportation, traffic control, assignment of personnel, and investment diversification. Courses in this area include the following: Math. 173, 221*, 222, 230, 236, 273, Statistics 141 or 211, Statistics 151 or Math. 207, Statistics 224, 241, 253.

6. **Actuarial Mathematics**

Actuaries use quantitative skills to address a variety of problems within business environments, and especially within the life insurance industry. Two professional organizations sponsor qualifying examinations and grant recognition to actuaries in the U.S. and Canada. A unique feature of the actuarial profession is that formal training is typically completed after graduation "on-the-job." Students planning an actuarial career can prepare for and complete some actuarial examinations prior to graduation. Several departmental courses serve as preparation for the examinations: Math. 21, 22, 121, and 124 for the first examination; Statistics 141 or 211, {Statistics 151 or Math. 207}* , and {Statistics 241 or 261}* for the second examination; Statistics 221 or 231, 225, and 253 for the third examination; Math. 221, 222, and Statistics 252b for the fourth examination: and Math. 237 for the fifth examination.

7. **Probability and Statistical Theory**

Probabilistic reasoning is often a critical component of practical mathematical analysis or risk analysis and can usefully extend classical deterministic analysis to provide stochastic models. It also provides a basis for statistical theory, which is concerned with how inference can be drawn from real data in any of the social or physical sciences. Courses in this area include the following: Math. 222, 241, 242, (Statistics 151 or Math. 207)* , Statistics 241* , 252a, 252b, 261, 262, 270.

Recommendations for Allied Field Courses

Students who select the Applied and Interdisciplinary Mathematics option are required to consult with their advisor in setting up their concentration in an Allied Field, as described under requirements B. Students who select the General Mathematics option should also discuss Allied Field courses with their advisor and choose ones which complement their mathematical interests. Students with certain mathematical interests are advised to emphasize an appropriate Allied Field as indicated below and take at least six hours in courses numbered 100 or above in that field.

Applied Mathematics:

See Allied Fields under Mathematics and Statistics degree requirements.

Computational Mathematics:

Allied Field (4) or (5).

Mathematics of Management:

Allied Field (7). Students interested in Mathematics of Management are advised to include Economics 11 and 12 in their choice of Humanities and Social Sciences courses, and to include Business Administration 60 and 61 in their choice of Allied Field courses. Those wishing to minor in Business Administration should contact the School of Business Administration and also take Business Administration 173 and two other courses chosen from Business Administration 168, 170, 174, 177, 178, and 272.

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Mathematics: Statistics Major (B. S.)

 College: [Engineering and Mathematics](#)

 Department(s): [Mathematics and Statistics](#)

Overview

Students receiving the B. S. in Mathematics may elect Statistics as their major. In addition, students receiving a B. A. degree in Arts and Sciences may concentrate in Statistics as a part of their Mathematics major. Statistics is a mathematical science extensively used in a wide variety of fields. Indeed, every discipline which gathers and interprets data uses statistical concepts and procedures to understand the information implicit in their data base. Statisticians become involved in efforts to solve real world problems by designing surveys and experimental plans, constructing and interpreting descriptive statistics, developing and applying statistical inference procedures, and developing and investigating stochastic models or computer simulations. To investigate new statistical procedures requires a knowledge of mathematics and computing as well as statistical theory. To apply concepts and procedures effectively also calls for an understanding of the field of application.

The curriculum is designed for students who plan to enter business, industry, or government as statisticians; to become professional actuaries; or to continue on to graduate school in statistics/biostatistics or another field where a quantitative ability can prove valuable (business, operations research, medicine, public health, demography, psychology, etc.). The courses and curricula are administered through the Statistics Program Steering Committee which includes faculty from Statistics, College of Medicine Biometry Facility, Natural Resources, and the Agricultural Experiment Station. Students are encouraged to undertake special projects to gain experience in data analysis, design, and statistical computing. Also, experience can be gained with local industry and other organizations for those interested in quality control, industrial statistics, survey and market research or forecasting, for example.

Statistics majors may also minor in Mathematics by completing MATH 21, 22, 52 or 121, and 9 more credits in mathematics at the 100+ level. Since Statistics majors normally take MATH 21, 22, 121 and 124, they just need two more mathematics courses at the 100+ level.

Students earning the B. S. in Mathematics may earn a double major in Mathematics and Statistics by meeting the requirements of the Statistics major and earning an additional 18 credits in Mathematics, to include one of Math. 141, 241, 151 or 251.

Further details on the Statistics major and minor curricula may be obtained from the Director of the Statistics Program. The Handbook for Mathematics and Statistics majors, available from the Mathematics and Statistics department office, also provides a wealth of useful information.

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Mathematics and Statistics](#)

Specific Requirements

Premedical Concentration in Statistics

Each student electing the Premedical Concentration in Statistics will fulfill the general requirements for the Statistics major. Statistics 200 is recommended as an important elective for students interested in medicine or allied health. In addition, the premedical concentration should include as a minimum two years of chemistry with laboratory (Chemistry 31, 32, or 35, 36, 37, 38, and 141, 142), at least one year of physics with laboratory (Physics 21, 31, 22, 42 or 21, 31, 125), and at least one year of biology with laboratory (Biology 1, 2). Exposure to medical research problems will be provided through supervised experiences in the College of Medicine Biometry Facility.

Concentration in Quality

Students interested in methods of quality control and quality improvement are encouraged to develop a concentration in quality. Statistics 224: Statistics in Quality and Productivity is regularly offered. Related courses to consider include Business Administration 178 and others in the Production and Operations Management and Quantitative Methods area of Business Administration. Project experience in industrial quality control or in health care quality can be gained in Statistics 191 and 281, or 293-294.

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Minor in Applied Mathematics

College: [Arts and Sciences](#), [Engineering and Mathematics](#)

Department(s): [Mathematics and Statistics](#)

Requirements

Fifteen hours of mathematics courses numbered 52 or higher, including one of 230, 237, or 271.

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Minor in Pure Mathematics

College: [Arts and Sciences](#), [Engineering and Mathematics](#)

Department(s): [Mathematics and Statistics](#)

Requirements

Math 21 (or equivalent), 22, 52 or 121, and nine additional credits in Mathematics courses numbered 100 or above. Computer Science or Computer Engineering majors may substitute Math 54 for 52. The course plan for a mathematics minor must be approved by a mathematics faculty advisor.

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Minor in Statistics

College: [Engineering and Mathematics, Arts and Sciences](#)

Department(s): [Mathematics and Statistics](#)

Requirements

A Statistics Minor consists of 15 credits of statistics (STAT) courses, acquiring calculus knowledge equivalent to MATH 19 or 21, and gaining computer experience equivalent to STAT 201 or a computer programming course (CS 16 or higher or MATH 52). Not more than seven credits of introductory Statistics 11/51/111/140/141/143/211 may be counted. The course plan for the Statistics Minor must be approved by a Statistics faculty advisor. See more complete guidelines at <http://www.emba.uvm.edu/math/programs/statminor/> ↻.

Note that Mathematics majors can minor in Statistics as well. In Arts and Sciences you must earn 12 of your 15 credits in statistics beyond any statistics courses counted in your major courses. In Engineering and Mathematics you must earn 15 credits in statistics beyond any statistics courses counted in your major courses.

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Departments and Programs

Music Department

Colleges: [Arts and Sciences](#), [Graduate College](#)

Faculty: Music

Courses: [Music \(MUS\)](#)

Contact Information:

University of Vermont

Music Department

Southwick Hall

392 South Prospect St

Burlington, VT 05405-0144

Phone: (802) 656-3040

Fax: (802) 656-0759

Email: music@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~music/> ↻

Related Programs

- [Music Education \(B. S.\)](#)

Academic Offerings

- Undergraduate Majors
 - Bachelor of Arts (B. A.)
 - [Music](#)
 - Bachelor of Music (B. M.)
 - [Music Theory](#)
 - [Performance](#)
- Undergraduate Minors
 - [Music](#)

Overview

Students may apply to either the Bachelor of Arts or Bachelor of Music programs. Arrangements for auditions should be made with the Music Department. Those admitted as first-year students or sophomores to either degree program are considered Candidates in the program. Admission as Majors is made at the beginning of the junior year following formal review procedures during the second semester of the sophomore year.

All students in programs which require a senior recital, including students transferring into these programs, must pass a junior standing examination at the end of the sophomore year, or before junior standing can be achieved in the case of transfer students. All students approaching a senior recital must pass a faculty audition covering all of the music to be included on the recital six weeks prior to the date of the recital.

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Courses in Music

MUS 001 - Intro Music Listening

A concise view of Western music from plainsong to the present. Involves both classroom and outside listening. Non-majors only.

Credits: 3.

MUS 002 - Intro to Performance Study

Group lessons at elementary level in various instruments and voice. Lab fee. May be repeated for credit.

Credits: 1.

MUS 003 - Intro Music Theory

Rudiments of notation, rhythm, melody, harmony, scales, form, and terminology. Non-majors only.

Credits: 3.

MUS 004 - The Experience of Music

Explores the phenomenon "music" through aural examination of its composite elements: melody, rhythm, harmony, texture, form. Musical examples drawn from Western and non-Western folk, art, and popular musical repertoires. Prerequisite: Nonmajors only.

Credits: 3.

MUS 005 - Performance Study

music or proficiency on another instrument or voice.

Credits: 1.

MUS 006 - Performance Study

Group lessons in piano. Prerequisites: Ability to read music or proficiency on another instrument or voice.

Credits: 1.

MUS 007 - Performance Study

Group lessons in piano. Prerequisites: Ability to read music or proficiency on another instrument or voice.

Credits: 1.

MUS 008 - Performance Study

Group lessons in piano. Prerequisites: Ability to read music or proficiency on another instrument or voice.

Credits: 1.

MUS 011 - Survey of Western Music

Historical study of development of Western music. First semester: Earliest times through the baroque. Second semester: Classical period to the present. Involves both classroom and outside listening.

Credits: 3.

MUS 012 - Survey of Western Music

Historical study of development of Western music. First semester: Earliest times through the baroque. Second semester: Classical period to the present. Involves both

Credits: 3.

MUS 015 - World Music Cultures

Survey of non-Western and non-European music primarily of the geographic areas of Australia, Indonesia, China, Japan, India, Black Africa, and Native American Indians.

Credits: 3.

MUS 031 - Basic Musicianship

Piano; 31 for 32 or instructor's permission.

Credits: 3.

MUS 032 - Basic Musicianship

Study of melody and elementary harmony, melodic and rhythmic dictation, sight singing. Prerequisites: Basic

Credits: 3.

MUS 041 - Basic Electronic Music

Emphasis on understanding and working with digital electronic sounds through MIDI, using synthesizers, computers, sequencing software and tape recorders,

Credits: 3.

MUS 042 - History of Jazz

Survey of New Orleans, Chicago, Swing, bebop, cool, funky, and free jazz styles through the work of important soloists and bands, 1915-1965.

Credits: 3.

MUS 044 - The Blues & Related Traditions

Survey of performers, musical procedures, technical means, and traditional lyrics of songsters, jug bands, gospel, barrel house piano, and important blues styles to about 1955.

Credits: 3.

MUS 051 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1-2.

MUS 052 - Private Lessons

required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1-2.

MUS 053 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1-2.

MUS 054 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1-2.

MUS 055 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1-2.

MUS 056 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1-2.

MUS 057 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1-2.

MUS 058 - Private Lessons

Private instruction in an instrument or voice for nonmajors. Subject to availability of staff. Lab fee required. Contact department office for placement. Not open for credit to music majors or minors.

Credits: 1-2.

MUS 081 - Brass Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.

MUS 082 - Brass Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.

MUS 083 - String Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.

MUS 084 - String Class

Pedagogy Classes Primarily for Education majors; others

Credits: 1.

MUS 085 - Voice Class

Pedagogy Classes Primarily for Education majors; others accepted with

departmental permission.

Credits: 1.

MUS 086 - Voice Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.

MUS 088 - Woodwind Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.

MUS 089 - Percussion Class

Pedagogy Classes Primarily for Education majors; others accepted with departmental permission.

Credits: 1.

MUS 095 - Special Topics

Credits: 1-3.

MUS 096 - Special Topics

Credits: 1-3.

MUS 111 - Classical, Romantic

Chronological, analytical study of representative examples of music literature from approximately 1750-1900; Mozart, Haydn, Beethoven, Schubert, Berlioz, Schumann, Chopin, Liszt, Brahms. Prerequisite: 1, 3, 11, 12 or permission, ability to read music. Offered in alternate years.

Credits: 3.

MUS 112 - Contemporary Music

Development and style characteristics of 20th century music from the late romanticists to the experimentalists. Both European and American composers presented. Prerequisites: 1, 3, 11, 12, or permission, ability to read music. Offered in alternate years.

Credits: 3.

MUS 113 - Medieval, Renaissance

Chronological, analytical study of music literature from approximately 600-1600: Gregorian chant, Notre Dame, Burgundian, English, and Netherlands schools. Prerequisites: 1, 3, 11, 12, or permission, ability to read music. Offered in alternate years.

Credits: 3.

MUS 114 - Baroque Music

Chronological, analytical study of music literature from approximately 1600-1750: Roman and Venetian schools, beginnings of opera, culminating in works of Handel and J.S. Bach. Prerequisites: 1, 3, 11, 12, or permission, ability to read music. Offered in alternate years.

Credits: 3.

MUS 115 - Genre or Specific Area Courses

American music; ethnomusicology. Prerequisites: Three hours from 1, 3, 4, 11, 12, or permission.

Credits: 3.

MUS 123 - Theory&Practice Jazz Improv I

Repertoire, idiomatic usage, aural skills, theoretical constructs, and strategies for the jazz improvisor. Prerequisites: Intermediate instrumental skill, ability to read music, previous study of traditional music theory.

Credits: 3.

MUS 131 - Int Theory:Music of Tonal Era

Era Contrapuntal and harmonic dictation; counterpoint, harmony, and form analysis. Prerequisites: 31, 32; 131 for 132, or instructor's permission. Concurrent enrollment in 133, 134.

Credits: 3.

MUS 132 - Int Theory:Music of Tonal Era

Era Contrapuntal and harmonic dictation; counterpoint, harmony, and form analysis. Prerequisites: 31, 32; 131 for 132, or instructor's permission. Concurrent enrollment in 133, 134.

Credits: 3.

MUS 133 - Intermediate Theory Lab

Sight singing, keyboard, score reading. Concurrent enrollment in 131, 132.

Credits: 1.

MUS 134 - Intermediate Theory Lab

Sight singing, keyboard, score reading. Concurrent enrollment in 131, 132.

Credits: 1.

MUS 151 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1-4.

MUS 152 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1-4.

MUS 153 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1-4.

MUS 154 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1-4.

MUS 155 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1-4.

MUS 156 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1-4.

MUS 157 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1-4.

MUS 158 - Private Lessons

Private instruction in an instrument or voice for music majors and minors at the first-year and sophomore levels. Lab fee required.

Credits: 1-4.

MUS 161 - Band

Large Ensembles Attendance at all rehearsals and public performances is required. Prerequisite: Audition. May be repeated for credit.

Credits: 1.

MUS 162 - Choir

Large Ensembles Attendance at all rehearsals and public performances is required. Prerequisite: Audition. May be repeated for credit.

Credits: 1.

MUS 163 - Choral Union

Large Ensembles Attendance at all rehearsals and public performances is required. Prerequisite: Audition. May be repeated for credit.

Credits: 1.

MUS 164 - Orchestra

Large Ensembles Attendance at all rehearsals and public performances is required. Prerequisite: Audition. May be repeated for credit.

Credits: 1.

MUS 165 - Vermont Wind Ensemble

Prerequisite: Concurrent enrollment in 161.

Credits: 1.

MUS 171 - Accompanying

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.

Credits: 1-3.

MUS 172 - Brass Ensemble

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.

Credits: 1-3.

MUS 173 - Contemporary Ensemble

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.

Credits: 1-3.

MUS 174 - Catamount Singers

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.

Credits: 1-3.

MUS 175 - Opera Workshop

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.
Credits: 1-3.

MUS 176 - Percussion Ensemble

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.
Credits: 1-3.

MUS 177 - Small Ensemble

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.
Credits: 1-3.

MUS 178 - Jazz Ensemble

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.
Credits: 1-3.

MUS 179 - Trombone Choir

Small Ensembles Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. Prerequisite: Audition. May be repeated for credit.
Credits: 1-3.

MUS 181 - Music for Elementary Teachers

Development of musical skills, understandings, and attitudes pertinent to teaching of music in elementary classroom. Prerequisite: Junior standing.
Credits: 3.

MUS 184 - Instrument Repair

Laboratory for music education students in minor repair and adjustment of string, woodwind, brass, and percussion instruments. Prerequisites: String, woodwind, brass, and percussion classes or concurrent enrollment, departmental permission. Offered on occasional basis only.
Credits: 1.

MUS 186 - Piano Repair - Tuning

Basic knowledge of piano construction, tuning, and repairing. Departmental permission. Offered on occasional basis only.
Credits: 1.

MUS 195 - Special Topics

Prerequisites: Junior or senior standing; Music 11, 12, 131, 132, 133, 134.
Credits: 1-3.

MUS 196 - Special Topics

Prerequisites: Junior or senior standing; Music 11, 12, 131, 132, 133, 134.
Credits: 3.

MUS 211 - Seminar in Music Literature

Seminars will treat in detail topics surveyed in intermediate level music literature sequence. Subject matter determined by instructor. Prerequisites: 11, 12; 111 for 211, 112 for 212, 113 for 213, 114 for 214; 115 for 215. Offered on irregular basis as required by major enrollment.

Credits: 3.

MUS 212 - Seminar in Music Literature

Seminars will treat in detail topics surveyed in intermediate level music literature sequence. Subject matter determined by instructor. Prerequisites: 11, 12; 111 for 211, 112 for 212, 113 for 213, 114 for 214; 115 for 215. Offered on irregular basis as required by major enrollment.

Credits: 3.

MUS 213 - Seminar in Music Literature

Seminars will treat in detail topics surveyed in intermediate level music literature sequence. Subject matter determined by instructor. Prerequisites: 11, 12; 111 for 211, 112 for 212, 113 for 213, 114 for 214; 115 for 215. Offered on irregular basis as required by major enrollment.

Credits: 3.

MUS 214 - Seminar in Music Literature

Seminars will treat in detail topics surveyed in intermediate level music literature sequence. Subject matter determined by instructor. Prerequisites: 11, 12; 111 for 211, 112 for 212, 113 for 213, 114 for 214; 115 for 215. Offered on irregular basis as required by major enrollment.

Credits: 3.

MUS 215 - Seminar in Music Literature

Seminars will treat in detail topics surveyed in intermediate level music literature sequence. Subject matter determined by instructor. Prerequisites: 11, 12; 111 for 211, 112 for 212, 113 for 213, 114 for 214; 115 for 215. Offered on irregular basis as required by major enrollment.

Credits: 3.

MUS 216 - Bibliography Seminar

Biographies and critical works, bibliographies, Festschriften, scholarly and performing editions of music and discography surveyed. Prerequisites: 11, 12, one additional music literature course at 100 or 200 level.

Credits: 3.

MUS 221 - Senior Project

For the advanced music history student - an opportunity to work with a faculty member on a topic of mutual interest. All topics subject to departmental approval. Prerequisites: 11, 12, six hours of intermediate and/or advanced courses in music literature.

Credits: 3.

MUS 231 - Adv Theory:20th Century Music

Techniques and form analysis of post-tonal contemporary music. Prerequisites: 132, 134, or instructor's permission.

Credits: 3.

MUS 232 - Adv Theory: Counterpoint

Analysis of contrapuntal forms and techniques. Music principally of 16th-18th

centuries. Prerequisites: 132, 134, or instructor's permission.

Credits: 3.

MUS 233 - Arranging

Characteristics of instruments; arranging for ensembles. Prerequisite: 132 or instructor's permission.

Credits: 3.

MUS 234 - Orchestration

Studies in orchestral scoring. Prerequisite: 233 or instructor's permission.

Credits: 3.

MUS 235 - Fugal Composition

Study of representative baroque, classical, and contemporary fugal procedures through analysis and composition. Prerequisites: 231 or instructor's permission.

Credits: 3.

MUS 237 - Composition

Creative work in free composition with instruction according to needs and capabilities of individual student. Prerequisite: 231, 235, or instructor's permission. May be repeated for credit.

Credits: 3.

MUS 238 - Composition

Creative work in free composition with instruction according to needs and capabilities of individual student. Prerequisite: 231, 235, or instructor's permission. May be repeated for credit.

Credits: 3.

MUS 240 - Seminar:Musical Analysis

Advanced study of musical forms. Comparison of standard approaches to harmonic, motivic, and rhythmic analysis. Prerequisites: 235, instructor's permission.

Credits: 3.

MUS 241 - Senior Project in Music Theory

Advanced study focusing on a theoretical topic under direction of assigned staff member. Prerequisite: Senior standing as Theory major.

Credits: 3.

MUS 251 - Private Lessons

Private instruction in an instrument or voice for majors at junior and senior levels. Lab fee required.

Credits: 1-4.

MUS 252 - Private Lessons

Private instruction in an instrument or voice for majors at junior and senior levels. Lab fee required.

Credits: 1-4.

MUS 253 - Private Lessons

Private instruction in an instrument or voice for majors at junior and senior levels. Lab fee required.

Credits: 1-4.

MUS 256 - Perform Study:Senior Recital

Private instruction in voice or an instrument in the semester of senior recital. Lab

fee required.

Credits: 1-5.

MUS 257 - Performance Pedagogy

Methods of teaching voice, strings, woodwinds, brass, percussion, or keyboard instruments including repertoire suitable for use at various levels of ability.

Significant literature of all historical periods in major field. Prerequisites: Senior standing in performance, consent of instructor. (Not offered for graduate credit.)

Credits: 1-3.

MUS 259 - Conducting

Technique of the baton, score reading, laboratory practice. Preparation and performance of selected scores, including rehearsal procedures. Selected students may conduct University major ensembles. Prerequisites: 132, 134.

Credits: 3.

MUS 265 - Vermont Wind Ensemble

Study and performance of masterworks for wind ensemble and concert band.

Attendance at all rehearsals and concerts required. Prerequisite: Audition. May be repeated for credit.

Credits: 1.

MUS 281 - Elem Music Ed Methods

(Same as Education EDMU 281). Prerequisite: Junior standing in Music Education.

Credits: 3.

MUS 282 - Sec Music Ed Methods

Methods and materials in the teaching of vocal and instrumental music in secondary schools. Five hours classroom observation per week required.

Prerequisite: Junior standing in Music Education.

Credits: 3.

MUS 295 - Special Topics

UG only.

Credits: 1-3.

MUS 297 - Advanced Readings & Research

Studies in comparison or related special topic under direction of assigned staff member.

Credits: 1-3.

MUS 298 - Advanced Readings & Research

Studies in comparison or related special topic under direction of assigned staff member.

Credits: 3.

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Music (B. A.)

College: [Arts and Sciences](#)

Department(s): [Music](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Forty hours in Music. Majors will take the following core courses: 11, 12 (history); 31, 32, 131, 132 (theory); and 133, 134 (theory lab); plus eight hours of performance study and ensemble in any combination (excluding Music 5-8).

All students will elect nine additional hours - at least three at the 200 level - in one of the following three categories, plus three hours in a category different from that of the chief concentration.

- Theory: 231-235
- History: 111-114, 211-214
- Performance: 251-253, 256

A mixture of categories may be possible in consultation with a departmental advisor. Music majors with a concentration in categories (a) or (b) must attain intermediate level on a single instrument chosen from the department's offerings.

Concentration in category (c) requires an appearance each semester in departmental recitals, passing a junior standing examination at the end of the sophomore year, and a solo recital in the senior year. Majors must have, or acquire, piano skills sufficient to pass the piano proficiency examination, in addition to the eight hours of performance and ensemble study.

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Music Theory (B.M.)

College: [Arts and Sciences](#)

Department(s): [Music](#)

Overview

This degree is the initial preprofessional collegiate music degree, designed for highly talented students who wish to pursue a career in music as performers, scholars, or private teachers. To earn the degree, they must demonstrate not only technical competence but also a broad knowledge of music and musical literature, sensitivity to musical style, and an insight into the role of music in society. Candidates with a strong sense of commitment ordinarily continue their studies through postgraduate work before they are fully qualified as professionals. Admission to the Theory major requires successful completion of a comprehensive theory examination at the end of the sophomore year. Transfer students with advanced standing must also pass this examination before they can be accepted as Theory majors.

General Requirements

- [University](#)
- [Bachelor of Music Requirements](#)

Specific Requirements

Theory Major Hours

- Major instrument, 151, 152, 153, 154, 251, 252, 253 12
- Theory, 31, 32, 131, 132, 133, 134, 231, 232, 233, 234, 235, 237, 238, 240, 241 43
- History, 11, 12 6
- Ensemble 6
- Keyboard 5, 6, 7, 8 (if necessary) 4
- Instrumental choirs 4
- Music genre electives 9
- Nonmusic electives 36

- Physical education 2, 122

For Music Education see [College of Education and Social Services](#).

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Music Performance (B. M.)

College: [Arts and Sciences](#)

Department(s): [Music](#)

Overview

This degree is the initial preprofessional collegiate music degree, designed for highly talented students who wish to pursue a career in music as performers, scholars, or private teachers. To earn the degree, they must demonstrate not only technical competence but also a broad knowledge of music and musical literature, sensitivity to musical style, and an insight into the role of music in society. Candidates with a strong sense of commitment ordinarily continue their studies through postgraduate work before they are fully qualified as professionals. Admission as a Candidate in the Performance major program requires an audition with the Music Department. Acceptance as a Major requires passing the junior standing examination. The final graduation requirement is a senior recital.

General Requirements

- [University](#)
- [Bachelor of Music Requirements](#)

Specific Requirements

Performance Major Hours

- Major instrument, 151, 152, 153, 154, 251, 252, 253, 256 28
- Theory, 31, 32, 131, 132, 133, 134, 231, 232, 233 26
- History, 11, 12 6
- Ensemble 14
- Keyboard, 5, 6, 7, 8 (if necessary) 4
- Music electives 9
- Nonmusic electives 36
- Physical education 2, 125

For Music Education see [College of Education and Social Services](#).

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Minor in Music

College: [Arts and Sciences](#)

Department(s): [Music](#)

Requirements

Twenty hours including six in Music History (11, 12), six in Basic Musicianship (31, 32), two in Performance Study (151, 152) or Ensemble (161-165, 171-179) in any combination, plus six in History, Theory, or Performance/Ensemble at the 100 level or above.

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Departments and Programs

Philosophy Department

Colleges: [Arts and Sciences](#), [Graduate College](#)

Faculty: [Philosophy](#)

Courses: [Philosophy \(PHIL\)](#)

Contact Information:

*University of Vermont
Philosophy Department
70 South Williams St
Burlington, Vermont 05401*

Phone: (802) 656-4042

Fax: (802) 656-3133

Email: phildept@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~phildept/>

Academic Offerings

- Undergraduate Majors
 - Bachelor of Arts (B. A.)
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- Undergraduate Minors
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Courses in Philosophy

PHIL 001 - Intro Phil: Selected Problems

Introduction to philosophy through such fundamental problems as the existence of God, the basis of morality, and the possibility of knowledge. Contemporary and historical readings. Credit not given for more than one of 1, 3, and 4.

Credits: 3.

PHIL 003 - Intro Philosophy: East & West

Introduction to the historical dialectic of philosophy by comparisons and contrasts between Chinese and Western traditions of philosophy. Credit not given for more than one of 1, 3, and 4. Offered every semester.

Credits: 3.

PHIL 004 - Intro to Philosophy: Ethics

Introduction to philosophy through an analysis of the principal problems and theories of ethics. Credit not given for more than one of 1, 3, and 4. Offered every semester.

Credits: 3.

PHIL 013 - Introduction to Logic

Study of the basic principles of deductive inference.

Credits: 3.

PHIL 095 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

PHIL 096 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

PHIL 101 - History of Ancient Philosophy

Study of the works of the Pre-Socratics, Plato, Aristotle, and their successors.

Prerequisite: 1, 3, 4, 95, 96. Fall.

Credits: 3.

PHIL 102 - History of Modern Philosophy

Study of works of the major philosophers of the 17th and 18th centuries: Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, Kant, and others.

Prerequisite: 1, 3, 4, 95, 96. Spring.

Credits: 3.

PHIL 105 - History of Medieval Philosophy

Study of works of such major philosophical figures as Augustine, Anselm, Abelard, Aquinas, Duns Scotus, and William of Ockham. Prerequisite: PHIL 101 is recommended.

Credits: 3.

PHIL 107 - 19th Century Philosophy

Study of works of such philosophers as Hegel, Fichte, Schopenhauer, J. S. Mill, Kierkegaard, Nietzsche, and Marx. Prerequisite: PHIL 102 is recommended.

Credits: 3.

PHIL 108 - Plato

(See Classics 161.) Prerequisites: 1 course in Philosophy or in Classics (Greek Culture or Greek).

Credits: 3.

PHIL 110 - Nature of Mind

Examination of philosophical issues raised by influential psychological views of the nature of the human mind. Prerequisite: PHIL 001, PHIL 003, PHIL 004, PHIL 095, PHIL 096, or one course in Psychology. Fall.

Credits: 3.

PHIL 112 - Philosophy of Science

Introduction to major philosophical problems raised by science. Typical topics: the nature of scientific inference, the structure of theories, causation, explanation, and scientific change. Prerequisite: One course in philosophy or one course in history of science or six hours in any natural science. Fall.

Credits: 3.

PHIL 121 - Chinese Philosophy I

Study of the Classical Schools of Chinese thought, including Confucianism, Taoism, Mohism, and Legalism. Prerequisite: One course in philosophy, religion, or Asian studies. Offered two out of every three semesters.

Credits: 3.

PHIL 122 - Chinese Philosophy II

Chinese thought from the Han Dynasty to Mao Zedong's thought. Prerequisite: 121. Alternate years.

Credits: 3.

PHIL 130 - Phil Foundations of Education

Critical examination of the aims of education and the most appropriate means of achieving those aims. Readings from historical and contemporary sources.

Prerequisite: 1, 3, 4, 95, 96. Alternate years.

Credits: 3.

PHIL 133 - Marxism

Survey of the philosophy of Karl Marx and the Marxist tradition on such topics as historical materialism, human nature, alienation, freedom, social change, and revolution. Prerequisite: PHIL 001, PHIL 003, PHIL 004, PHIL 095, PHIL 096. Alternate years.

Credits: 3.

PHIL 135 - Philosophy of Religion

Typical topics: the nature of religion, the concept of God, the grounds for belief in God, mortality, truth, and revelation. Historical and contemporary sources.

Prerequisite: 1, 3, 4, 95, 96. Offered once a year.

Credits: 3.

PHIL 140 - Social & Political Philosophy

Analysis of such fundamental theories and problems in social and political thought as political obligation, rights, and justice. Prerequisite: 1, 3, 4, 95, 96. Offered once a year.

Credits: 3.

PHIL 142 - Philosophy of Law I

(Same as Political Science 143.) Analysis of the nature of law, the relation between law and morality, obligation to obey the law, the judicial decision, responsibility in law, legal ethics. Prerequisite: 1, 3, 4, 95, 96 or Political Science 41. Offered once a year. (Political Science).

Credits: 3.

PHIL 143 - Philosophy of Law II

(Same as Political Science 144.) Problems of liberty, e.g. freedom of expression, privacy, paternalism; scope and limits of the criminal law; philosophy of punishment; selected problems in criminal justice, e.g. plea bargaining; preventive detention. Prerequisite: 1, 3, 4, 95, 96 or Political Science 41. Offered once a year. (Political Science).

Credits: 3.

PHIL 144 - Philosophical Prob Medicine

Critical and intensive examination of such problems as abortion, euthanasia, dying and death, the ethics of organ transplantation, and the ethics of genetic engineering. Prerequisite: 1, 3, 4, 95, 96. . Offered once a year.

Credits: 3.

PHIL 151 - Phil Ideas in Literature

Philosophical themes as exemplified in literature. Prerequisite: 1, 3, 4, 95, 96.

Alternate years.

Credits: 3.

PHIL 152 - Philosophy of Art

A consideration of some leading theories of art, and their application to problems of art as they appear in music, literature, painting, and in the general criticism of the arts. Prerequisite: 1, 3, 4, 95, 96. Offered once a year.

Credits: 3.

PHIL 153 - Philosophy and Film

An examination of style in film from the perspective of philosophical aesthetics, and of the ways film style can be used to express philosophical themes.

Prerequisite: 1, 3, 4, 95, 96.

Credits: 3.

PHIL 160 - Recent Continental Philosophy

Survey of 20th century continental philosophy, including phenomenology, hermeneutics, critical theory, structuralism, and poststructuralism. Readings from Husserl, Heidegger, Sartre, Saussure, Wittgenstein, Habermas, and Foucault.

Prerequisites: 1, 3, 4, 95, 96 or instructor's permission.

Credits: 3.

PHIL 170 - Feminism: Theories and Issues

Theories of libertarianism, liberalism, and egalitarianism; application to the analysis and evaluation of social issues of contemporary interest, such as abortion and affirmative action. Prerequisite: One course in philosophy.

Credits: 3.

PHIL 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

PHIL 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

PHIL 197 - Readings & Research

Credits: 1-6.

PHIL 198 - Readings & Research

Credits: 1-6.

PHIL 201 - Theory of Knowledge

Critical examination of nature and sources of knowledge; belief, truth, evidence, perception, memory, and induction. Prerequisite: PHIL 102 or PHIL 112. Offered every Fall semester.

Credits: 3.

PHIL 202 - Metaphysics

Critical examination of such topics as the nature of space and time, the concept of change, the identity of the self, the nature of the world and man's place in it.

Prerequisite: PHIL 101, PHIL 102 or PHIL 110. Offered every Spring semester.

Credits: 3.

PHIL 210 - Philosophy of Mind

Major philosophical theories of the mind and its relation to the physical world, the nature of sensation, desire, and belief, and the relation between thought and action. Prerequisite: PHIL 102 or PHIL 110. Alternate years. Kornblith, Pereboom.

Credits: 3.

PHIL 217 - Philosophy of Language

Philosophical study of the nature of language. Prerequisite: Linguistics 101, 102.

Alternate years.

Credits: 3.

PHIL 221 - Topics in Chinese Philosophy

Detailed examination of a classical Chinese philosophical text or school.

Prerequisite: 121 or 122. Alternate years.

Credits: 3.

PHIL 235 - Topics in Philosophy of Religion

Advanced study of such issues as the metaphysics of religion, the epistemology of religious belief, philosophy and faith, religion and science, and religion and ethics.

(May be repeated for credit when topic is significantly different and with departmental approval.) Prerequisites: 101, 102 or 135.

Credits: 3.

PHIL 240 - Contemporary Ethical Theory

Analysis of the ideas of contemporary moral philosophers in normative ethics and metaethics. Prerequisite: 140, 142, 143 or 144. Alternate years.

Credits: 3.

PHIL 241 - Cont Social & Political Phil

An analysis of the ideas of contemporary philosophers in social and political philosophy. Prerequisite: 140, 142, 143, or 144. Alternate years.

Credits: 3.

PHIL 242 - Justice & Equality

(Same as Political Science 241.) An examination of contemporary normative theories of distributive justice and equality. Prerequisite: 140, 142, 143, or 144. Offered once a year. (Political Science).

Credits: 3.

PHIL 260 - Topics in Continental Phil

Study of a central issue in current continental philosophy, e.g. social theory, psychoanalysis, or aesthetics. Readings Derrida, and Foucault. Prerequisites: Any course in philosophy at the 100 level or above, or instructor's permission. (May be repeated for credit when topic is significantly different.) Alternate years.

Credits: 3.

PHIL 265 - American Philosophy

The thought of such leading American philosophers as Peirce, James, Royce, Santayana, Dewey, and Whitehead. Prerequisites: 101, 102. Alternate years.

Credits: 3.

PHIL 271 - Seminar

Major Philosophical Author or School Study of major philosophical texts by a single author or school of thought. May be repeated for credit when different authors are studied. Prerequisite: An appropriate 100-level course in Philosophy.

Credits: 3.

PHIL 272 - Seminar

Major Philosophical Author or School Study of major philosophical texts by a single author or school of thought. May be repeated for credit when different authors are studied. Prerequisite: An appropriate 100-level course in Philosophy.

Credits: 3.

PHIL 295 - Adv Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

PHIL 296 - Adv Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

PHIL 297 - Adv Readings & Research

Independent study with an instructor on a specific philosopher or philosophical problem. Prerequisite: An appropriate 200-level course in philosophy.

Credits: 1-6.

PHIL 298 - Adv Readings & Research

Independent study with an instructor on a specific philosopher or philosophical problem. Prerequisite: An appropriate 200-level course in philosophy.

Credits: 1-6.

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Philosophy (B. A.)

College: [Arts and Sciences](#)

Department(s): [Philosophy](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours including: (a) 101 and 102; (b) a total of at least four 200-level courses in Philosophy. Students considering graduate work are urged to take Philosophy 13 and to study a foreign language.

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Minor in Philosophy

College: [Arts and Sciences](#)

Department(s): [Philosophy](#)

Requirements

One course from 101, 102, 140; one course from 201, 202, 240; and 12 additional hours in Philosophy, at least three of which must be at the 100 level or above.

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Departments and Programs

Physics Department

Colleges: [Arts and Sciences](#), [Graduate College](#)

Faculty: [Physics](#)

Courses: [Physics \(PHYS\)](#)

Contact Information:

University of Vermont

Physics Department

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Phone: (802) 656-2644

Fax: (802) 656-0817

Email: physics@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~physics/>

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Courses in Physics

PHYS 011 - Elementary Physics

Survey of principles of classical and modern physics without calculus, appropriate for students concentrating in life or health sciences. Accompanying labs: Physics 21, 22. Prerequisites: secondary school algebra

Credits: 4.

PHYS 012 - Elementary Physics

Survey of principles of classical and modern physics without calculus, appropriate for students concentrating in life or health sciences. Accompanying labs: Physics 21, 22. Prerequisites: 11 or 31 for 12; secondary school algebra

Credits: 4.

PHYS 021 - Introductory Lab I

Prerequisite: Concurrent enrollment or credit in 11 or 31.

Credits: 1.

PHYS 022 - Introductory Lab II

Prerequisite: Concurrent enrollment or credit in 12 or 42.

Credits: 1.

PHYS 031 - Introductory Physics

sciences, premedical programs. Accompanying lab: 21. Mechanics including oscillations, waves, heat, and kinetic theory. Recommended for students in engineering, natural

Credits: 4.

PHYS 042 - Electromagnetism & Modern Phys

Electricity, magnetism, optics, modern physics. Recommended for students in engineering, natural sciences, premedical programs. Accompanying lab: 22. Prerequisite: 31, Math. 22.

Credits: 4.

PHYS 095 - Special Topics

Credits: 0-4.

PHYS 096 - Special Topics

Credits: 1-3.

PHYS 128 - Waves and Quanta

Classical and electromagnetic waves, physical optics, wave-particle

phenomenology, wave mechanics, and applications of the Schrodinger equation.

Prerequisites: 42, Math. 121.

Credits: 3.

PHYS 130 - Introductory Laboratory III

Prerequisite: Concurrent enrollment or credit in PHYS 128.

Credits: 1.

PHYS 195 - Intermediate Special Topics

See Schedule of Courses for specific titles. Prerequisite: PHYS 128; department permission.

Credits: 3.

PHYS 196 - Intermediate Special Topics

See Schedule of Courses for specific titles. Prerequisite: PHYS 128; department permission.

Credits: 1-3.

PHYS 197 - Readings & Research

Prerequisite: PHYS 128; department permission.

Credits: 1-6.

PHYS 198 - Readings & Research

Prerequisite: PHYS 128; department permission.

Credits: 1-6.

PHYS 201 - Experimental Physics

Experiments in classical and modern physics. May be entered at beginning of either semester and repeated for credit up to a maximum of four semesters.

Prerequisites: 42 or 128, Math. 121, junior standing.

Credits: 3.

PHYS 202 - Experimental Physics

Experiments in classical and modern physics. May be entered at beginning of either semester and repeated for credit up to a maximum of four semesters.

Prerequisites: 42 or 128, Math. 121, junior standing.

Credits: 3.

PHYS 211 - Mechanics

Newtonian dynamics of particles and systems of particles, with applications to problems of special importance, such as driven and coupled harmonic oscillators and central field trajectories. Prerequisites: 42, Math. 121.

Credits: 3.

PHYS 213 - Electricity & Magnetism

Fundamental principles of electricity and magnetism; electrostatic fields, and magnetic fields of steady currents. Electric and magnetic properties of matter and electromagnetic energy. Prerequisites: 42, Math. 121. Credit not given for more than one of 213 or Electrical Engineering 141.

Credits: 3.

PHYS 214 - Electromagnetism

Introduction to time dependent electromagnetic fields. Maxwell's equations in vacuum and in matter. Electromagnetic waves and radiation. Prerequisite: 213. Credit not given for more than one of 214 or Electrical Engineering 142.

Credits: 3.

PHYS 222 - Biological Physics

Physical laws, processes, and interactions pertaining to biological systems.

Prerequisites: 12 or 42, Math. 121.

Credits: 3.

PHYS 242 - Intro to Solid State Physics

Introduction to crystal structures, reciprocal lattices, lattice vibrations. Thermal properties of solids and free electron theory of metals and semiconductors.

Elementary band theory and introduction to electronic transport theory.

Prerequisite: PHYS 128.

Credits: 3.

PHYS 257 - Modern Astrophysics

Stellar structure and evolution, compact objects, the interstellar medium, galactic structure, gravitational theory, and cosmology, the formation of our solar system and terrestrial life. Prerequisite: One 100-level course in physical science or engineering. Cross-listed with: ASTR 257.

Credits: 3.

PHYS 258 - Relativity

Development of Einstein's theory of special relativity. Lorentz transformation, time dilation, length contraction, mass variation, relative velocities. Introduction to four-dimensional space. Concepts of general relativity. Applications selected from astrophysics, elementary particles, etc. Prerequisite: PHYS 128.

Credits: 3.

PHYS 264 - Nuclear & Elem Particle Physic

Introduction to theoretical and experimental aspects of nuclear and elementary particle physics. Prerequisite: PHYS 128; Junior standing.

Credits: 3.

PHYS 265 - Thermal Physics

Thermodynamics, kinetic theory, statistical mechanics. Prerequisites: 42; Math. 121.

Credits: 3.

PHYS 273 - Quantum Mechanics I

Introduction to nonrelativistic quantum mechanics. Schrodinger equation and applications to simple systems. Prerequisite: PHYS 128, PHYS 211.

Credits: 3.

PHYS 295 - Advanced Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

PHYS 296 - Advanced Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

PHYS 301 - Mathematical Physics

Introduction to basic mathematical methods of theoretical physics; vector and tensor analysis, partial differential equations, orthogonal functions, complex variables and variational techniques. Prerequisites: PHYS 211, PHYS 214.

Alternate years.

Credits: 3.

PHYS 305 - Teaching of College Physics

Instructional strategies and techniques with application to the teaching of laboratories and recitations. Prerequisites: Undergraduate degree in Physics; Instructor permission.

Credits: 1.

PHYS 311 - Advanced Dynamics

Classical mechanics presented as the basis of the concepts and methods of modern physics. Variational, Lagrangian, and Hamiltonian formulations, canonical transformations, continuous systems. Prerequisite: PHYS 211. Alternate years.

Credits: 3.

PHYS 313 - Electromagnetic Theory

Development of Maxwell's theory of electromagnetism emphasizing its physical basis and the modes of mathematical description. Prerequisite: PHYS 214.

Alternate years.

Credits: 3.

PHYS 321 - Theoretical Physics

For research students interested in pursuing topics of general and departmental research interest in theoretical physics. Prerequisite: Instructor Permission.

Offered as occasion warrants.

Credits: 1-6.

PHYS 323 - Contemporary Physics

Topics of current interest in physics to be offered as student and faculty interest warrants. May be repeated for credit with department approval. Prerequisite: Instructor Permission.

Credits: 0-6.

PHYS 331 - Biological Physics

occasion warrants.

Credits: 1-3.

PHYS 341 - Solid State Physics

Introduction to crystal symmetry and the reciprocal lattice. Crystal binding and lattice vibrations. Thermal, electrical, and magnetic properties of solids, free electron theory of metals, and band theory. Prerequisites: PHYS 214, PHYS 265, PHYS 273 or their equivalents; Instructor permission.

Credits: 3.

PHYS 342 - Solid State Physics

their equivalents; Instructor permission.

Credits: 3.

PHYS 351 - Seminar:Physics of Materials

For research students in the field of the physics of materials. Lectures, reports, and directed readings related to the research for the department and the field generally. May be repeated for credit with departmental approval. Prerequisite: Instructor Permission. Offered as occasion warrants.

Credits: 1-3.

PHYS 362 - Quantum Mechanics II

Mathematical and physical foundations of nonrelativistic quantum mechanics from the unifying point of view of Dirac. Symmetry operations and the algebraic

structure of quantum mechanics are emphasized. Prerequisite: PHYS 273.

Alternate years.

Credits: 3.

PHYS 381 - Problems in Engr Physics

Directed readings and independent study in one or more topics in engineering physics, leading to a written report and an oral presentation. Graduate credit only.

Credits: 4-6.

PHYS 382 - Problems in Engr Physics

topics in engineering physics, leading to a written report and an oral presentation. Graduate credit only.

Credits: 4-6.

PHYS 391 - Master's Thesis Research

Credits: 1-12.

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Physics (B. A.)

College: [Arts and Sciences](#)

Department(s): [Physics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-two hours in Physics, including 31 with 21, 42 with 22, 128 with 130, 201 or 202, 211, 213, 273; mathematics through 121 and three hours of approved mathematics electives; Computer Science 21. An additional laboratory science is strongly recommended.

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Physics (B. S.)

College: [Arts and Sciences](#)

Department(s): [Physics](#)

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

All courses in core and all courses in one of the listed options. Core: Physics 31 with 21, 42 with 22, 128 with 130, 211, 213, 214 and 273; Math 21, 22, 121, 271 and 272 or 124 and 130; Chemistry 31 and 32; Computer Science 21.

Options:

- Pure Physics: Physics 201, 202, 265, twelve hours of approved physics electives.
- Mechanical Engineering: ME 12, 14, 40 with 44, 42, 101, 111, and 143; CE 1; EE 100.
- Civil & Environmental Engineering: CE 1, 10, 100, 150, 170 and 173; ME 12, 40 with 44; EE 100.
- Electrical Engineering (Signals and Systems): EE 3, 4, 81, 82, 120, 121, 171, 174, 275 and one course from 276, 277, 295; recommended elective Statistics 270.
- Electrical Engineering (Circuits and Devices), EE 3, 4, 81, 82, 120, 121, 131, 163, 183, 184, 221.

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Minor in Physics

College: [Arts and Sciences](#)

Department(s): [Physics](#)

Requirements

Seventeen hours including 31 with 21, 42 with 22, 128 with 130, and three additional hours at the 200 level excluding 201 and 202. Note: Mathematics through 121 is needed for 128.

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Departments and Programs

Political Science Department

Colleges: Arts and Sciences

Faculty: Political Science

Courses: Political Science (POLS)

Contact Information:

University of Vermont

Political Science Department

532 Old Mill

94 University Place

Burlington, VT 05405-0114

Phone: (802) 656-3050

Fax: (802) 656-0758

Email: Political.Science@uvm.edu

Web Site: <http://www.uvm.edu/~polisci/>

Academic Offerings

- Undergraduate Majors
 - Bachelor of Arts (B. A.)
 - Political Science
- Undergraduate Minors
 - Political Science

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Courses in Political Science

POLS 021 - American Political System

Institutions, processes, and problems of American government.

Credits: 3.

POLS 029 - American Civil Rights Movemnts

Examination of American racial discrimination; emphasis on strategies and actions of NAACP, SCLC, SNCC, Black Panthers, Nation of Islam, to end racial discrimination.

Credits: 3.

POLS 041 - Intro Prob Political Thought

Examination of basic problems in political philosophy, e.g. morality and law; punishment; freedom; equality; obligation and disobedience.

Credits: 3.

POLS 051 - Intro International Relations

Examination of the basic theoretical concepts in international relations. Introduces the student to systemic, domestic, and individual levels of analysis for assessing foreign policy decisions.

Credits: 3.

POLS 071 - Comparative Political Systems

Examination of political behavior, political structures, and political processes from a cross-national perspective.

Credits: 3.

POLS 095 - Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.

POLS 096 - Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.

POLS 121 - Law & Politics

Examination of the U.S. courts focusing on the legal and political factors that influence court action, and judicial action that affects public policy. Prerequisite:

POLS 021.

Credits: 3.

POLS 122 - Constitutional Law:Gov Powers

Emphasis on developing skills of legal analysis. Historical origins and general principles of constitutionalism. Prerequisite: POLS 021.

Credits: 3.

POLS 123 - The Vermont Political System

governance in Vermont in the context of the federal system and other American states. Prerequisite: POLS 021.

Credits: 3.

POLS 124 - The Presidency

The functions and activities of the president and staff. Prerequisite: POLS 021.

Credits: 3.

POLS 125 - Political Parties

Analysis of political parties with special emphasis upon party realignment and reform, campaign techniques for nomination and election, and comparative party systems. Prerequisite: POLS 021.

Credits: 3.

POLS 127 - The Congressional Process

Organization, procedure, and behavior of the chambers of the U.S. Congress.

Prerequisite: POLS 021.

Credits: 3.

POLS 129 - Const Law:Civil Rights America

Critical examination of role of judiciary in enforcing 14th Amendment's "Equal Protection Clause." Prerequisite: POLS 021.

Credits: 3.

POLS 131 - Political Leadership

Methods of identifying leaders, their relationships with nonleaders and with one another, their impact on public policy, and their personalities and social backgrounds. Prerequisite: POLS 021.

Credits: 3.

POLS 132 - US Supreme Court:Proc&Policy

The U.S. Supreme Court as one of the three major political institutions, including the selection process, intracourt politics, and dynamics of court decision making.

Prerequisite: POLS 021.

Credits: 3.

POLS 133 - Public Opinion/Political Part

Theories and the empirical study of public opinion and political participation.

Topics include: public opinion polling methodology, the origins of political outlooks, ideology, authoritarianism, generational politics, public opinion on race, voting behavior. Prerequisite: POLS 021.

Credits: 3.

POLS 137 - Politics and The Media

The role of the media in politics, including how media presentation and

interpretation of events affect public opinion, political institutions, and public policy.

Prerequisite: POLS 021.

Credits: 3.

POLS 138 - Const Law: Civil Liberties

Investigation of the Supreme Court's interpretation of the First Amendment, rights of the accused, and the right to privacy. Prerequisite: POLS 021.

Credits: 3.

POLS 141 - History of Political Thought

First semester: Development of Western political thought from Plato to Aquinas.

Second semester: Modern political thought from Machiavelli to Nietzsche.

Prerequisite: 41.

Credits: 3.

POLS 142 - History of Political Thought

First semester: Development of Western political thought from Plato to Aquinas.

Second semester: Modern political thought from Machiavelli to Nietzsche.

Prerequisite: 41.

Credits: 3.

POLS 143 - Philosophy of Law I

(Same as Philosophy 142.) Analysis of the nature of law, the relation between law and morality, obligation to obey the law, the judicial decision, responsibility in law, legal ethics. Prerequisite: 41 or Philosophy 1 or 3 or 4.

Credits: 3.

POLS 144 - Philosophy of Law II

(Same as Philosophy 143.) Problems of liberty, e.g. freedom of expression, privacy, paternalism; scope and limits of the criminal law; philosophy of punishment; selected problems in criminal justice. Prerequisite: 41 or Philosophy 1 or 3 or 4.

Credits: 3.

POLS 149 - Intermediate Political Theory

Intermediate courses on topics in political theory beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: POLS 041 or Instructor permission.

Credits: 3.

POLS 151 - American Foreign Policy

Overview of the United States' involvement with the world. Focuses on the domestic political, institutional, and ideological influences on the formation of policy. Prerequisite: POLS 051.

Credits: 3.

POLS 157 - Internatl Politics Middle East

Formation and operation of the state system in the 20th century Middle East. Emphasis on Great Power involvement, Arab-Israeli issues, regional conflict, transitional ideologies. Prerequisite: POLS 051.

Credits: 3.

POLS 161 - Political Geography

(See Geography 177.) Prerequisite: 51 or 71 or Geography 1 or 73.)

Credits: 3.

POLS 168 - Middle East Politics

State formation in the Middle East and problems it has occasioned. Review of

modern history and examination of contemporary politics of several countries.

Prerequisite: POLS 071.

Credits: 3.

POLS 171 - Western European Political Sys

A comparative examination of the British, German, and French political systems.

Prerequisite: POLS 071.

Credits: 3.

POLS 172 - Politic&Society in Russian Fed

Examines the nature of politics and the development of post-Soviet social and economic institutions in Russia. Prerequisite: POLS 071.

Credits: 3.

POLS 173 - Canadian Political System

Institutions, process, and problems of the Canadian polity. Prerequisite: POLS 071.

Credits: 3.

POLS 174 - Latin American Politics

Comparative examination of selected Latin American political systems.

Prerequisite: POLS 071.

Credits: 3.

POLS 175 - Govt & Politics of China

Institutions, processes, and problems of government of China. Prerequisite: POLS 071.

Credits: 3.

POLS 177 - Pol Sys'ts of Tropical Africa

Development of differing political systems in African countries located south of the Sahara and north of South Africa. Prerequisite: POLS 071, or one course in African Prerequisite: POLS 071, or one course in African Studies.

Credits: 3.

POLS 181 - Fund of Social Research

(Same as Sociology 100.) Introduction to research methods in social science. Includes examination of research design, measurement, data collection, data analysis, and the presentation and theoretical interpretation of research findings.

Prerequisite: One core course.

Credits: 4.

POLS 191 - Internships

Credits: 1-6.

POLS 192 - Internships

Credits: 1-6.

POLS 195 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

POLS 196 - Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

POLS 197 - Readings & Research

Credits: 1-6.

POLS 198 - Readings & Research

Credits: 1-6.

POLS 222 - Constitutional Law II

Selected topics in constitutional law. Prerequisite: POLS 122.

Credits: 3.

POLS 225 - Intergovernmental Relations

Problems of the federal system. National-state-local cooperative administration of selected public functions. Prerequisite: POLS 021, three hours at the 100-level.

Credits: 3.

POLS 226 - Topics on the Presidency

Further study of the executive branch and its operations. Selected topics, e.g. presidential decision making. White House staffing and operations, congressional-executive relations. Prerequisite: POLS 124.

Credits: 3.

POLS 228 - Congress & Foreign Policy

Congress's role in foreign policy making, emphasizing congressional action in the post-Vietnam period. Prerequisite: POLS 021, three hours at the 100-level.

Credits: 3.

POLS 229 - Seminar in American Politics

Credits: 3.

POLS 232 - Comparative State Politics

Politics, policy, and institutions of state governments of the U.S.; techniques for comparative analysis of these aspects of politics. Prerequisite: POLS 021, three hours at the 100-level.

Credits: 3.

POLS 241 - Justice & Equality

(Same as Philosophy 242.) Examination of contemporary normative theories of distributive justice and equality. Prerequisites: 41, or Philosophy 1 or 3 or 4, three hours at 100 level.

Credits: 3.

POLS 242 - American Political Thought

American political thought from the colonial period to recent times. Prerequisites: POLS 041, three hours at the 100-level. Background in American history recommended.

Credits: 3.

POLS 243 - Democratic Theory

The nature of democracy. Both contemporary debates within democratic theory and the classical sources of democratic theory are examined. Prerequisite: POLS 041; three hours at 100 level.

Credits: 3.

POLS 249 - Seminar in Political Theory

Credits: 3.

POLS 251 - Foreign Pol Newly Indep States

Examines the development of foreign relations of post-Soviet states, with a special focus on Russia and the post-Communist era. Prerequisite: POLS 051 or three hours at 100 level.

Credits: 3.

POLS 257 - Pol of European Integration

plus three hours at the

Credits: 3.

POLS 258 - Causes of War

Examination of various theories explaining the outbreak of war, with applications to historical cases. Prerequisite: POLS 051; three hours at the 150 level.

Credits: 3.

POLS 259 - Sem in International Relations

Credits: 3.

POLS 260 - War, Strategy and Politics

determining states' choice of strategies and tactics in interstate conflicts and confrontations. Contemporary and historical examples. Prerequisite: POLS 051; three hours at the 150 level.

Credits: 3.

POLS 261 - Topics American Foreign Policy

In-depth examination of selected topics related to the making and implementation of U.S. foreign policy. Prerequisite: POLS 051; three hours at the 150 level.

Credits: 3.

POLS 263 - Third World Foreign Policy

The particular security and political economic challenges facing states in the process of nation-building in Latin America, Africa, Middle East, South Asia, Southeast Asia. Prerequisite: POLS 051; three hours at the 150 level.

Credits: 3.

POLS 264 - US-China Relations

Examination of the historical context and various causes of the recurring tensions and unresolved issues in U.S.-China relations since 1945. Prerequisite: POLS 051; one 100-level course.

Credits: 3.

POLS 265 - East Asian Political Economy

Examination of the historical, political, economic, and international factors for the rise of East Asia since the Second World War. Prerequisite: POLS 051 or POLS 071, one 100-level course.

Credits: 3.

POLS 272 - Eastern European Pol Systems

Examination of Eastern European political systems with emphasis on the role of ethnic conflict and Marxist-Leninist ideology. Prerequisites: POLS 071, three hours at the 100-level.

Credits: 3.

POLS 276 - British Politics

Topics include the role of the citizenry; the character of political and governmental institutions; and policy making in particular fields. Northern Ireland is also covered. Prerequisite: POLS 071 plus three hours at the 100 level or appropriate International Studies background.

Credits: 3.

POLS 277 - Comparative Ethno-Nationalism

Ethnicity and nationalism in Europe, Asia, and Africa. Political, historical, social, and economic factors are examined comparatively. Prerequisite: POLS 071; three Prerequisites: POLS 071, three hours at the 100-level.

Credits: 3.

POLS 279 - Sem in Comparative Politics

Credits: 3.

POLS 284 - Public Opinion:Thry & Rsch I

Same as SOC 241.* Prerequisite: POLS 181 or SOC 100.

Credits: 3.

POLS 285 - Public Opinion:Thry & Rsch II

Same as SOC 242. Prerequisite: POLS 284 or SOC 241.

Credits: 3.

POLS 293 - Senior Honors Seminar I

Examination of major contemporary research topics in political science.

Prerequisite: Admission by invitation only. (Not offered for graduate credit.)

Credits: 3.

POLS 294 - Senior Honors Seminar II

Tutorial format centered on individual student research projects and a comprehensive examination. Prerequisite: POLS 293. Not offered for graduate credit.

Credits: 3.

POLS 295 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.

POLS 296 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3-4.

POLS 297 - Advanced Readings & Research

For advanced undergraduate and graduate students.

Credits: 3.

POLS 298 - Advanced Readings & Research

For advanced undergraduate and graduate students.

Credits: 3.

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Political Science (B. A.)

College: [Arts and Sciences](#)

Department(s): [Political Science](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty hours in Political Science:

- Four (12 hours) core courses (21, 41, 51, 71).
- Eighteen hours at the advanced (100 or 200) level, three hours of which must be at the 200 level, subject to the following restrictions:
 - Students must complete at least one advanced (100 or 200) course in three different subfields.
 - Of these 18 hours at the advanced (100 or 200) level, students must complete at least 12 of those hours, including three hours at the 200 level, in regular UVM political science courses (e.g., excluding study abroad, transfer credit, readings and research).

Note: Internships will not count toward the 30 hours required for the major.

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Minor in Political Science

College: [Arts and Sciences](#)

Department(s): [Political Science](#)

Requirements

Eighteen hours in political science, including nine hours from the "core" courses (21, 41, 51, 71), and nine hours at the level of 100 or above. Of the nine hours at the 100 level or above, students must complete at least six hours in regular UVM political science courses (e.g., excluding study abroad, transfer credit, readings and research). Internships will not count toward the eighteen hours required for the minor.

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Departments and Programs

Psychology Department

Colleges: [Arts and Sciences](#), [Graduate College](#)

Faculty: Psychology

Courses: [Psychology \(PSYC\)](#)

Contact Information:

*University of Vermont
Psychology Department
Dewey Hall
2 Colchester Ave
Burlington, VT 05405-0134*

Phone: (802) 656-2670

Fax: (802) 656-8783

Email:

Web Site: <http://www.uvm.edu/~psych/>

Academic Offerings

- Undergraduate Majors
 - Bachelor of Arts (B. A.)
 - [Psychology](#)
 - Bachelor of Science (B. S.)
 - Psychology
 - [Biobehavioral Concentration](#)
 - [Traditional Concentration](#)
- Undergraduate Minors
 - [Psychology](#)

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Courses in Psychology

PSYC 001 - General Psychology

Introduction to the entire field, emphasizing the behavior of the normal adult human being.

Credits: 3.

PSYC 015 - Improv Memory, Motiv&Cog Skills

Theory and research on learning and memory, motivation, and cognitive skills.

Emphasis on the application of principles to everyday life. Prerequisite: PSYC 001 or Instructor permission.

Credits: 3.

PSYC 095 - Special Topics

Credits: 1-6.

PSYC 096 - Special Topics

Credits: 1-3.

PSYC 109 - Psychology Research Methods I

Basic course in principles of research methodology, including design, statistical procedures, and reporting. Prepares students to understand and evaluate psychological research in a variety of areas of psychology. Laboratory/discussion experiences. Prerequisite: 1.

Credits: 4.

PSYC 110 - Psychology Research Methods II

More advanced methodology course for majors in psychology. Prepares students to conduct and report research in psychology, with special attention to experimental procedures in learning and cognition. Laboratory experiences.

Prerequisite: PSYC 109.

Credits: 4.

PSYC 111 - Psychology of Decision Making

Introduction to the study of individual and group decisions. Focus on "how," "how best," and "how reasonably" to decide. Attention to tricks and traps in the process.

Prerequisite: PSYC 001. Summer only.

Credits: 3.

PSYC 119 - History of Psychology

Review of major theoretical and empirical developments in psychology, including

schools of psychology that have influenced contemporary models of psychology.

Prerequisite: PSYC 001; Junior or Senior standing.

Credits: 3.

PSYC 121 - Biopsychology

Biological bases of behavior: classical and contemporary issues, including introduction to nervous system, behavioral effects of drugs, chemical bases of behavioral disorders. Prerequisite: PSYC 001 or BIOL 001.

Credits: 3.

PSYC 130 - Social Psychology

An introduction to concepts and methods used to study the behavior of individuals in various social situations. Prerequisite: PSYC 001.

Credits: 3.

PSYC 152 - Abnormal Psychology

Describing and defining abnormal behavior; models of etiology; research evidence for biological and social models; methods of intervention and prevention.

Prerequisite: PSYC 001.

Credits: 3.

PSYC 161 - Developmental Psyc:Childhood

Survey of research and theories on child development from conception to adolescence emphasizing experimental analyses of early social and cognitive development. Prerequisite: PSYC 001.

Credits: 3.

PSYC 163 - Psychology Mass Communication

Survey of theory and research concerning mass media effects in children's socialization, information diffusion, and in shaping values, behaviors regarding health, politics, consumer choices, and environment. Prerequisite: PSYC 001 or Instructor permission.

Credits: 3.

PSYC 195 - Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-6.

PSYC 196 - Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-6.

PSYC 197 - Independent Study

Individual research under staff direction. Prerequisite: Department permission.

Credits: 1-6.

PSYC 198 - Independent Study

Individual research under staff direction. Prerequisite: Department permission.

Credits: 1-6.

PSYC 205 - Learning

Analysis of theory and research on the basic learning process and behavior.

Prerequisite: PSYC 109.

Credits: 3.

PSYC 206 - Motivation

Theory and research on motives, including hunger, fear, sex drive, and addiction, their influence on behavior, relationship to other psychological processes, and biological correlates. Prerequisite: PSYC 109.

Credits: 3.

PSYC 207 - Thinking

Survey of cognitive psychology, examining theory and research on perception, memory, language, cognition, and their interactions. Prerequisites: 109.

Credits: 3.

PSYC 208 - Cognition & Language

(See Communication Sciences 208.)

Credits: 3.

PSYC 215 - Cognition & Aging

(See Communication Sciences 215.)

Credits: 3.

PSYC 220 - Animal Behavior

Behavior of animals under controlled experimental conditions and in their natural environments. Consideration of evolution, development, function, and control of behavior. Prerequisite: 109 or Biology 102.

Credits: 3.

PSYC 221 - Physiological Psychology I

and perception. Individual laboratory experience. Prerequisite: 109.

Credits: 4.

PSYC 222 - Sel Topics Behavioral Neurosci

Selected topics examining the role of the central nervous

Credits: 3.

PSYC 223 - Psychopharmacology

Effects of drugs (both medical and recreation) on behavior. Topics such as drug effects on learning, memory, motivation, perception, emotions, and aggression.

Prerequisites: 109, 121 or 222.

Credits: 3.

PSYC 230 - Advanced Social Psychology

or PSYC 130.

Credits: 3.

PSYC 231 - Psychology of Women

Psychological theories about women and research on women's roles. Biological, personality, cognitive, and developmental factors considered. Prerequisite: One Psychology course at the 100 level.

Credits: 3.

PSYC 233 - Experience & Creativity

Explores psychological processes for developing creative thinking and for enhancing the quality of conscious experience. Emphasizes personal growth as well as theoretical understanding. Prerequisite: Advanced background in at least one relevant field, such as Psychology, Environmental Studies, Studio Art, or education.

Credits: 3.

PSYC 235 - Psychology of Art

Exploration of key psychological processes involved in creating and experiencing all forms of art; participants also conduct a research project in an area of interest. Prerequisite: Strong background in Psychology and/or Art. UG only. Credits: 3.

PSYC 236 - Theories of Human Comm

Study of the role of perception, human information processing, language, nonverbal codes, meaning, cognition, and interpersonal and sociocultural context in human communication process. Prerequisite: PSYC 109 or PSYC 130. Credits: 3.

PSYC 237 - Cross-Cultural Communication

Study of cultural factors, cognitive processes, communication patterns, and problems in cross-cultural communication; role of communication in development and social change in third world countries. Prerequisite: PSYC 109 or PSYC 130 or PSYC 230; other advanced background in education or a social science. Credits: 3.

PSYC 239 - Adv Soc Psyc Appl&Facilitation

Explores psychological foundations of approach used in 130 for applying academic content. Involves research and readings beyond work for 139. Prerequisite: 139, or 12 hours of psychology and department permission. Intended for 130 group facilitators with advanced psychology background. (Not offered for graduate credit.) Credits: 3.

PSYC 240 - Organizational Psychology

Study of the psychological impact of macro and micro features of organizations upon leadership, decision making, workforce diversity, group process, conflict, and organizational performances. Prerequisite: PSYC 109, or Instructor permission. Credits: 3.

PSYC 241 - Org Psyc:Glob/Cultrl/Loc Force

Study of global, cultural, and local dynamics upon organizational culture, leadership, workforce diversity, ethics and justice at work, and conflict resolution. Conduct applied organizational cultural analysis. Prerequisite: PSYC 109 or Instructor permission. Credits: 3.

PSYC 250 - Intro to Clinical Psychology

Study of basic principles of interviewing, testing, assessment from life situations, and report writing. Examination of the most common approaches to psychotherapy. Prerequisite: PSYC 109, PSYC 152. Credits: 3.

PSYC 251 - Behav Disorders of Childhood

An overview of theory, research, and practice in developmental psychopathology from infancy through adolescence. The major disorders of social and emotional development reviewed. Prerequisite: PSYC 109 or PSYC 161. PSYC 109 may be taken concurrently. Credits: 3.

PSYC 253 - Advanced Behavior Modification

Application of techniques for the modification of human behavior in a variety of educational and social situations involving the collection and analysis of behavioral data. Prerequisite: PSYC 109, PSYC 152.

Credits: 3.

PSYC 254 - Prim Prevent&Mental Hlth Promo

An examination of empirical approaches to prevention of mental and emotional disorders; history of public health methods; sources of support and opposition to prevention efforts. Prerequisites: 109, 152. UG only.

Credits: 3.

PSYC 255 - Intro to Health Psychology

Psychology of the cause, treatment, and prevention of physical illness and disability. Topics include: stress, health behavior, medical compliance, patient-provider relationships, coping with illness. Prerequisite: 109 or advanced standing in Allied Health Sciences. UG only.

Credits: 3.

PSYC 261 - Cognitive Development

Examination of research and theory concerning developmental changes in the human processing of information from infancy to adulthood centered around the work of Piaget. Prerequisite: PSYC 109 or PSYC 161. PSYC 109 may be taken concurrently.

Credits: 3.

PSYC 262 - Social Development

Examination of theory and research concerning interpersonal development in humans from infancy through adulthood. Relationships between language, cognition, and social development emphasized. Prerequisite: PSYC 109 or PSYC 161. 109 may be taken concurrently.

Credits: 3.

PSYC 263 - Disabilities of Learning & Dev

Seminar in etiology, treatments, prevention of developmental and learning disabilities within framework of current service and educational practices. Effectiveness, ethical, legal, psychological issues examined. Prerequisite: One 100-level Psychology course or advanced standing in Psychology, Education, or Physical Therapy.

Credits: 3.

PSYC 265 - Infant Development

Biological, cognitive, and social aspects of infant development in context; opportunities to evaluate and design research and apply knowledge to parenting, prevention, and social policy. Prerequisite: PSYC 109, PSYC 161 which may be taken concurrently or comparable.

Credits: 3.

PSYC 266 - Communication & Children

Study of the role of communication, especially television, in cognitive and social development from preschool to adolescence. Relationship between television violence and abnormal behavior examined. Prerequisite: PSYC 109 or PSYC 161 or PSYC 163.

Credits: 3.

- PSYC 268 - Psychology Adult Dev & Aging
support interventions. Prerequisites: 1, and Psychological development in the final third of the life span emphasizing theory and research concerning social, cognitive, perceptual, and mental health transitions and Sociology/Nursing/Early Childhood and Human Dev. 20 or Early Childhood and Human Dev. 195/295 or permission.
Credits: 3.
- PSYC 269 - Cross-Cultural Psyc:Clin Persp
Introduction to issues posed for psychologists in their work with ALANA (African, Latino/a, Native and Asian American) and international populations. Critical appraisal of readings, research and case studies.
Credits: 3.
- PSYC 295 - Advanced Special Topics
See Schedule of Courses for specific titles.
Credits: 0-3.
- PSYC 296 - Advanced Special Topics
See Schedule of Courses for specific titles.
Credits: 1-6.
- PSYC 301 - Faculty Seminar
Introduction to specialized areas of psychology.
Credits: 0.
- PSYC 302 - Faculty Seminar
Introduction to specialized areas of psychology.
Credits: 0.
- PSYC 305 - Seminar in Learning Theory
Credits: 3.
- PSYC 332 - Cognition in Social Behavior
Permission.
Credits: 3.
- PSYC 334 - Organizational Behav&Cultures
Examination of the impact of various organizational cultures upon leadership, personnel selection, group processes, motivation, entrepreneurship, decision making, conflict, negotiation strategies, and organizational development.
Prerequisite: Instructor Permission.
Credits: 3.
- PSYC 340 - Adv Statistical Methods I
Statistical methods for evaluating psychological data. Emphasizes exploring data with respect to research hypotheses. Critical study of hypothesis tests on means, chi-square, and correlational techniques.
Credits: 3.
- PSYC 341 - Adv Statistical Methods II
Continuation of PSYC 340. In-depth study of the analysis of variance and multiple regression. Further study of analysis and interpretation of data from the behavioral sciences. Prerequisite: PSYC 340.
Credits: 3.
- PSYC 344 - Experimental Design

Credits: 3.

PSYC 347 - Measurement & Scaling

Traditional psychophysical methods, Thurstonian judgmental methods, recent topics in unidimensional scaling. Techniques, applications in multidimensional scaling. Relation of these to mental test theory, factor analysis, cluster analysis.

Prerequisites: PSYC 340, PSYC 341.

Credits: 3.

PSYC 349 - Seminar in Psyc Research Meth

For advanced psychology Graduate students. Topics may include but are not limited to: factor analysis, discriminant function analysis, multivariate analysis of variance, advanced experimental design, computer application in data collection and analysis. Prerequisite: PSYC 341; or Instructor permission.

Credits: 3.

PSYC 350 - Family Therapy

Prerequisite:

Credits: 3.

PSYC 351 - Behavior Therapy: Adults

Review of literature relating to theory, practice, research. Emphasis on the evaluation of a variety of procedures applied to behavior disorders in adults.

Prerequisite: Instructor Permission.

Credits: 3.

PSYC 352 - Behavior Therapy: Children

Review of literature relating to theory, practice, research. Emphasis on the evaluation of a variety of procedures applied to behavior disorders in children.

Prerequisite: Instructor Permission.

Credits: 3.

PSYC 353 - Clinical Human Neuropsychology

PSYC 222, or equivalent.

Credits: 3.

PSYC 354 - Psychopathology I

An advanced course dealing with models of classification, diagnosis, epidemiology of behavior disorders in children. Prerequisite: Instructor Permission.

Credits: 3.

PSYC 355 - Psychopathology II

An advanced course dealing with models of classification, diagnosis, epidemiology of behavior disorders in adults. Prerequisite: Instructor Permission.

Credits: 3.

PSYC 357 - Cross Culture Clin Interv&Rsch

Issues for psychologists regarding clinical intervention and research with Black, Latino/a, Native and Asian Americans and international populations of color with an eye towards cultural competence. Prerequisites:

Credits: 3.

PSYC 359 - Interpersonal Psychotherapy

An examination of psychotherapy as an interpersonal process. Resistance, transference, and counter-transference examined as interpersonal interactions and related to interpersonal personality theory. Prerequisites: Advanced Graduate

standing; Instructor permission.

Credits: 3.

PSYC 361 - Advanced Personality Theory

Personality development from a psychoanalytic, humanistic, trait, and sociocultural perspective. Also, methods of personality measurement, such as scale construction and the analysis of fantasy and projective material. Prerequisite: Permission.

Credits: 3.

PSYC 362 - Community Clinical Psychology

Seminar examining community intervention strategies for psychological problems and health risk behaviors. Topics: history of community psychology, discussion of intervention programs, consultation issues, research. Prerequisite: Instructor Permission.

Credits: 3.

PSYC 363 - Advanced Primary Prevention

Review of research literature on prevention of psychopathology and promotion of competence; development of model prevention programs; evaluation, ethical issues, and political issues. Prerequisite: Instructor Permission.

Credits: 3.

PSYC 364 - Professional Affairs & Ethics

The origins of professions and of psychology in particular. Accreditation, laws affecting psychology, organization of the profession, licensing certification, and the code of ethics for psychology. Prerequisite: Instructor Permission.

Credits: 3.

PSYC 366 - Advanced Developmental Psyc

Critical Analysis of selected topics in developmental psychology. Research, theory, applied, professional issues including, for example, moral development, infancy, early conceptual development, professional writing. Prerequisite: Graduate standing in Psychology. Repeatable course.

Credits: 3.

PSYC 369 - Health Psychology

Psychological aspects of the etiology, treatment, prevention of physical illness. Topics include: stress and disease, compliance, health care systems, coping with illness, positive health behavior. Prerequisite: Instructor Permission.

Credits: 3.

PSYC 370 - Adult Psychological Assessment

Intelligence, neuropsychology, interviewing, psychodiagnosis, objective and projective personality methods, behavioral assessment, report writing. Supervised assessment practicum (100 hours) in university and in-patient mental health settings. Prerequisite: Instructor Permission.

Credits: 3.

PSYC 371 - Child & Adolescent Psyc Assess

Interviewing, intelligence testing, behavioral assessment, social cognition, family environments, specific disorders of childhood. Supervised assessment practicum (100 hours) in in-patient and out-patient mental health settings and schools. Prerequisite: Instructor Permission.

Credits: 3.

PSYC 372 - Psychological Intervention I

Introduction to psychotherapy, theories, and strategies. Skill building in case formulation, therapeutic goals, and effective intervention techniques. Supervised therapy practicum (100 hours) in university setting. Prerequisite: Instructor Permission.

Credits: 3.

PSYC 373 - Psychological Intervention II

Theories and strategies of psychological intervention. Supervised service delivery (150 hours) at University Counseling and Testing Center including individual and group therapy and crisis intervention. Prerequisite: Instructor Permission.

Credits: 0.

PSYC 374 - Advanced Clinical Practicum

Year-long, 20 hours/week supervised service delivery (1,000 hours) involving psychological intervention and consultation. Training takes place in a variety of mental health agencies. Prerequisites: Second-year student or above (or equivalent) in Ph.D. program in Clinical Psychology and permission. (May be taken more than once.)

Credits: 1.

PSYC 375 - Internship in Clinical Psyc

Credits: 0.

PSYC 380 - Contemporary Topics

Selected topics in depth, emphasis on critical analysis of original literature. Recent topics: anxiety, behavioral pharmacology, biological bases of memory, depression, organizational behavior, psychotherapy research, primate behavior, skilled performance.

Credits: 3.

PSYC 381 - Clinical Research Seminar

Year-long seminar on methods and design in clinical research. Oral and written presentation of a research proposal and results. Required twice for clinical students. Prerequisite: Instructor Permission.

Credits: 3.

PSYC 382 - Adv Professional/Research Sem

Discussion of current research and student research presentation in areas of concentration ("clusters"). Prerequisite: Graduate standing in General/Experimental Program.

Credits: 1.

PSYC 385 - Advanced Readings & Research

Readings, with conferences, to provide graduate students with backgrounds and specialized knowledge relating to an area in which an appropriate course is not offered.

Credits: 1-3.

PSYC 391 - Master's Thesis Rsch

Credits: 1-18.

PSYC 395 - Special Topics

Credits: 1-12.

PSYC 491 - Doctoral Dissertation Research
Credits: 1-18.

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Psychology (B. A.)

College: [Arts and Sciences](#)

Department(s): [Psychology](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-five hours including:

- 1, 109, 110, 119
- three of the following: 121, 130, 152, 161;
- one course from each of the following categories A, B, and C:
 - 205, 206, 207, 208, 215, 220, 221, 222, 223;
 - 230, 231, 233, 234, 236, 237, 239, 240, 241, 254*, 257*, 261, 262, 263*, 265, 266, 268;
 - 250, 251, 252, 253, 254*, 255, 257*, 259, 263*; (4) one additional course at/above 100 level.

*Category B or C, but not both.

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Psychology: Biobehavioral Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Psychology](#)

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Forty-four hours of psychology including 1, 109, 110, 119, 121, 130, 152, 161, and upper division psychology courses as described below; Math 13, 14, or 19, 20 or 21, 22; biology courses as indicated below; and at least three additional hours in an approved science or statistics. For a list of approved offerings in science and statistics, contact the psychology department office. Students opting for a bachelor of science degree in psychology must also complete the College of Arts and Sciences distribution requirements for a B.S. degree and they may not use psychology courses to fulfill the social sciences category.

Students who are interested in behavioral neuroscience and related medical fields, including premedicine preparation, should select this concentration. Required courses include: Biology 1B, 2B; three category A courses, one from each of the following subcategories (i) 221 or 222, (ii) 205 or 220, (iii) 206 or 223; and one course from 207, 208, 215, 230, 231, 233, 234, 236, 237, 239, 240, 241, 250, 251, 252, 253, 254, 255, 257, 259, 261, 262, 263, 265, 266, 268. The remaining hours must be psychology courses at or above the 100 level. Independent research is encouraged and these hours may be counted towards the total 44 hours required. A science minor is strongly recommended.

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Psychology: Traditional Concentration (B. S.)

College: [Arts and Sciences](#)

Department(s): [Psychology](#)

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Forty-four hours of psychology including 1, 109, 110, 119, 121, 130, 152, 161, and upper division psychology courses as described below; Math 13, 14, or 19, 20 or 21, 22; biology courses as indicated below; and at least three additional hours in an approved science or statistics. For a list of approved offerings in science and statistics, contact the psychology department office. Students opting for a bachelor of science degree in psychology must also complete the College of Arts and Sciences distribution requirements for a B.S. degree and they may not use psychology courses to fulfill the social sciences category.

This concentration is most appropriate for students wishing a broader training in psychology, often in preparation for graduate school. Required courses include: Biology 1, 2; one course from each of the following categories A, B, and C: (A) 205, 206, 207, 208, 215, 220, 221, 222, 223; (B) 230, 231, 233, 234, 236, 237, 239, 240, 241, 254*, 257*, 261, 262, 263*, 265, 266, 268; (C) 250, 251, 252, 253, 254*, 255, 257*, 259, 263*. The remaining hours must be psychology courses at or above the 100 level. Independent research is encouraged and these hours may be counted towards the total 44 hours required. A minor in mathematics, statistics, or biology is strongly recommended.

*Category B or C, but not both.

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Minor in Psychology

College: [Arts and Sciences](#)

Department(s): [Psychology](#)

Requirements

This minor is not available to students pursuing degree programs not offered by the College of Arts and Sciences.

Nineteen hours including 1, 109, plus 12 hours at the 100 level or above, including at least three hours at the 200 level.

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Departments and Programs

Religion Department

Colleges: [Arts and Sciences](#)

Faculty: Religion

Courses: [Religion \(REL\)](#)

Contact Information:

*University of Vermont
Religion Department
481 Main St
Burlington, VT 05405-0218*

*Phone: (802) 656-0232
Email: wpaden@zoo.uvm.edu
Web Site: <http://www.uvm.edu/~religion/>*

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Arts (B. A.)
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Courses in Religion

REL 020 - Intro Rel:Comparative

Study of patterns and differences in religious life; selected comparisons of Asian, Western, and tribal religions.

Credits: 3.

REL 021 - Intro Rel:Asian Traditions

Study of the Hindu, Buddhist, and East Asian religious traditions as expressed in their basic symbolisms, writings, practices, and cultural forms.

Credits: 3.

REL 022 - Intro Rel:Western Traditions

Study of the basic motifs, mythic patterns, and historical transformations in religious life from the ancient Near East to the modern West.

Credits: 3.

REL 023 - Intro Rel:Bible

Study of religious expressions as exemplified in biblical and related texts.

Credits: 3.

REL 027 - Integr Humanities

Study of religious and philosophical thought in Western culture from Hebraic and Greek antiquity to present. Prerequisites: Concurrent enrollment in Integrated Humanities Program, English 27, 28 and History 27, 28.

Credits: 3.

REL 028 - Integrated Humanities

HST 028.

Credits: 3.

REL 080 - Religion & Race in America

Historical survey of forms of African-American religion in

Credits: 3.

REL 095 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

REL 096 - Intro Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

REL 100 - Interpretation of Religion

Examination of major theories and methods used in studying and interpreting religious phenomena. Prerequisite: Three hours in Religion.

Credits: 3.

REL 101 - Social Dimension Rel Life

Comparative study of communal forms of religious life, such as cosmic state, monasticism, sect, caste and denomination, from a variety of cultures-Eastern, Western, tribal, and modern-with a concern for their meanings as fundamental forms of religious expression. Prerequisite: Three hours in Religion or Sociology.

Credits: 3.

REL 104 - Mysticism, Shamanism & Possessn

Comparative study of ways in which the inward dimension of religious life finds expression. Prerequisite: Three hours in Religion.

Credits: 3.

REL 108 - Myth, Symbol & Ritual

Study of patterns and significance of myth and ritual as they appear in cross-cultural perspective, with reference to contemporary interpretations of symbol and language. Prerequisite: Three hours in Religion.

Credits: 3.

REL 109 - Ritualization:Rel,Body,Culture

A cross-cultural examination of ritual strategies for integrating personal and social experience, with attention to various theories and types of religious ritual.

Prerequisite: Three hours in Religion.

Credits: 3.

REL 111 - Western Religious Thought

Study of ways in which Western religious thinkers-in both Greek and Biblical traditions-have expressed and responded to philosophical-theological questions about human existence, world, and God. Prerequisite: Three hours in Religion.

Credits: 3.

REL 114 - Hebrew Scriptures

Study of the history and writings of the Hebraic-Judaic religion to the first century B.C. Prerequisite: Three hours in Religion.

Credits: 3.

REL 116 - Judaism

Investigation of sustaining rituals, customs, institutions, and beliefs of normative Judaism. Prerequisite: Three hours in Religion.

Credits: 3.

REL 122 - Christian Origins

Historical study of the first four centuries of Christianity in its sociocultural context, including consideration of New Testament texts. Prerequisite: Three hours in Religion.

Credits: 3.

REL 124 - Christianity

Historical study of the Christian tradition examining major religious movements of early, medieval, and Reformation Christianity, and the spirituality of Christians during these periods. Prerequisite: Three hours in Religion.

Credits: 3.

REL 128 - Religion in America

Study of the relationship between religion, the cultural ethos, and identity in America. Prerequisite: Three hours in Religion.

Credits: 3.

REL 130 - Islam

Overview examining doctrines and practices of Muslims and their religious institutions from the rise of Islam to the present. Prerequisite: Three hours in Religion.

Credits: 3.

REL 131 - Studies in Hindu Tradition

Selected writings, rituals, and developments in the Hindu tradition with reference to cultural assumptions of India. Prerequisite: Three hours in Religion.

Credits: 3.

REL 132 - Buddhism in India & East Asia

A study of early and Mahayana Buddhist thought and of some developments of Mahayana in China and Japan. Prerequisite: Three hours in religion. May be taken for credit after Religion 134 only with prior permission of instructor.

Credits: 3.

REL 134 - Buddhism Sri Lanka:Elite&Pop

An examination of Theravada Buddhist belief and practice in the context of Sri Lankan culture, with attention to lay and monastic interaction. Prerequisite: Three hours in Religion. May be taken for credit after REL 132 only with prior permission of Instructor.

Credits: 3.

REL 141 - Religion in Japan

An examination of Japanese values as expressed in folk, Shinto, and Buddhist traditions, and in social structures, aesthetic pursuits, or business practices.

Prerequisite: Three hours in Religion.

Credits: 3.

REL 145 - Religion in China

Examination of Classical, Confucian and Taoist thought through texts in translation, developments in these traditions, and interactions with folk religion and Buddhism in the premodern period. Prerequisite: Three hours in Religion.

Credits: 3.

REL 168 - Contemporary Spiritual Life

Study of human involvement with the spiritual as manifested in contemporary religious groups, or in modern theory and practice of meditation. Prerequisite: Three hours in Religion.

Credits: 3.

REL 173 - Studies in Gender & Religion

Selected topics focusing on the social and religious construction of gender and the shape of women's religious lives. Religious traditions studied vary by semester.

Prerequisite: Three hours in Religion. May be repeated up to six hours.

Credits: 3.

REL 180 - Moral&Rel Persp on Holocaust

A study of the Holocaust in relation to questions of moral responsibility, justice, guilt, and human suffering, focusing on Jewish responses. Prerequisite: Three hours in Religion, HST 190, or Permission of Instructor.

Credits: 3.

REL 182 - Religion and Ecology

ENVS 002, or NR 002, REL 020 or REL 021 preferred. ecological spirituality.

Prerequisites: ENVS 001 or

Credits: 3.

REL 195 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.

REL 196 - Intermediate Special Topics

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-6.

REL 197 - Readings & Research

Variable credit.

Credits: 1-6.

REL 198 - Readings & Research

Variable credit.

Credits: 1-6.

REL 201 - Senior Seminar

Selected contemporary issues in theory and interpretation; preparation and presentation of individual senior projects. Prerequisites: Twelve hours in religion, including 100 and six hours at the intermediate level, senior standing.

Credits: 3.

REL 214 - Studies in Judaica

Selected topics of concentration emerging out of and related to the study of normative Judaism, e.g. the prophetic faith, Rabbinic Judaism, Hasidism, and Jewish mysticism. Prerequisite: Nine hours in religion, with three hours at the intermediate level (116 recommended). May be repeated up to six hours. (Not offered for graduate credit.)

Credits: 3.

REL 224 - Studies in Christianity

Examination of selected issues, movements, periods, or individuals within the Christian tradition. Prerequisites: Nine hours in religion (122, 124, or 173 recommended). May be repeated up to six hours. UG only.

Credits: 3.

REL 226 - Studies in Hellenistic Rel

Study of religion in the Mediterranean area during the period from the 4th century B.C. though the 4th century A.D. including Christian origins. Prerequisite: Nine hours in religion, with three hours at the intermediate level. (Not offered for graduate credit.)

Credits: 3.

REL 228 - Studies in Western Rel Thought

Important figures, issues, movements, or texts examined. Prerequisite: Nine hours in religion, with three hours at the intermediate level. May be repeated up to six hours. (Not offered for graduate credit.)

Credits: 3.

REL 230 - Studies in Islam

Topics varying by semester such as Women and Islam, Sufi (mystical) traditions, Shi'ite Islam, Islam and the West, and South Asian Muslim Cultures. Prerequisites: Nine hours in Religion, with three hours at the intermediate level (130 recommended). UG only.

Credits: 3.

REL 240 - Studies in Asian Religions

Concentrated studies in the history, life, or thought of a selected Asian religious tradition. Prerequisite: Three hours in religion at intermediate level in the same religious traditions. UG only.

Credits: 3.

REL 259 - Religion and Secular Culture

Comparison of religious and secular systems of meaning, value, and practice. Prerequisite: Nine hours in religion, with three hours at the intermediate level. (Not offered for graduate credit.)

Credits: 3.

REL 280 - Symbol & Archetype

Study of the work of C.G. Jung and the Jungian circle as it bears upon the interpretation of religion and as it represents a 20th century religious quest.

Prerequisite: Nine hours in religion, with six hours at the intermediate level. (Not offered for graduate credit.)

Credits: 3.

REL 291 - Topics in History & Phenomenon of Religion

Prerequisite: Nine hours in Religion, with six hours at the intermediate level; Junior standing. May be repeated up to six hours.

Credits: 1-6.

REL 292 - Topics in History & Phenomenon of Religion

Prerequisite: Nine hours in Religion, with six hours at the intermediate level; Junior standing. May be repeated up to six hours.

Credits: 1-6.

REL 297 - Interdisciplinary Seminar

Student-faculty workshop on a topic of current interest, employing resources from various disciplines. Prerequisites: Nine hours in religion, with six hours at the intermediate level, junior standing, instructor's permission. (Not offered for graduate credit.)

Credits: 3.

REL 298 - Interdisciplinary Seminar

employing resources from various disciplines. Prerequisites: Nine hours in religion, with six hours at the intermediate level, junior standing, instructor's permission. (Not offered for graduate credit.)

Credits: 3.

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Religion (B. A.)

College: [Arts and Sciences](#)

Department(s): [Religion](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-three hours in Religion, including 100 and 201; one course chosen from the 20-27 range; one course from the 101-109 range (comparative); one course from the 110-130 range (Biblical traditions); one course from the 130-149 range (Asian traditions); an additional course at the 200 level. Religion 130 may count for either the Biblical or Asian traditions requirement, but not for both. Three hours in related, non-departmental courses may count toward the thirty-three hour requirement. A list of approved courses is available from the Religion Department.

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Minor in Religion

College: [Arts and Sciences](#)

Department(s): [Religion](#)

Requirements

Eighteen hours in Religion including: one introductory course from the 20-27 range; 100; one course from 101-109 range; one intermediate level course on a particular religious tradition (from 110-149); one course at the 200 level; an additional Religion course.

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Departments and Programs

Romance Languages Department

Colleges: Arts and Sciences

Faculty: French, Italian, Spanish

Courses: French (FREN), Italian (ITAL), Spanish (SPAN)

Contact Information:

University of Vermont

Romance Languages Department

571 Waterman Building

85 South Prospect St

Burlington, VT 05405-0160

Phone: (802) 656-3196

Fax: (802) 656-5773

Email: jaboyer@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~romlang/>

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Arts (B. A.)
 - French
 - Spanish
- Undergraduate Minors
 - French
 - Spanish
 - Italian
 - Italian Studies

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Courses in French

FREN 001 - Elementary I

Fundamentals of French composition, comprehension, pronunciation, speaking, reading, writing. Structure of the basic French sentence. No prior knowledge expected.

Credits: 4.

FREN 002 - Elementary II

Continuation of FREN 001. Prerequisite: FREN 001 or equivalent.

Credits: 4.

FREN 009 - Basic French Grammar Review

intermediate level. Considerable emphasis on written exercises.

Credits: 3.

FREN 051 - Intermed Rdg & Conversation I

Designed to help students move from a basic knowledge of French to the ability to read, speak, and understand French better. Some grammar review and short compositions. Prerequisite: FREN 002 or FREN 009 or equivalent.

Credits: 3.

FREN 052 - Intermed Rdg & Conversation II

Less stress

Credits: 3.

FREN 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

FREN 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

FREN 101 - Writing Workshop

Improvement of functional skills: writing, listening, and speaking. Development of techniques to explain, elaborate, support opinions, convince, and persuade in both writing and speaking. Prerequisite: FREN 052 or equivalent.

Credits: 3.

FREN 104 - Contemporary France

Study of selected aspects of France today. Improvement of language skills;

- emphasis on reading, FREN 101. writing, and analysis of a variety of materials (literature, journalism, images). Pre/co-requisite:
Credits: 3.
- FREN 105 - French Culture
FREN 101.
Credits: 3.
- FREN 107 - Focus on Oral Expression
Guided practice of oral-aural skills through vocabulary and pronunciation exercises, readings, and oral presentations. Writing exercises reinforce oral work.
Prerequisite: FREN 052 or equivalent.
Credits: 3.
- FREN 111 - French Lit in Context I
A study of significant texts in the history of French
Credits: 3.
- FREN 112 - French Lit in Context II
their historical and cultural contexts. Prerequisites: FREN 101; Senior French majors with
Credits: 3.
- FREN 195 - Special Topics
See Schedule of Courses for specific titles.
Credits: 1-3.
- FREN 196 - Special Topics
See Schedule of Courses for specific titles.
Credits: 1-3.
- FREN 197 - Readings & Research
Permission of Chair required.
Credits: 1-6.
- FREN 198 - Readings & Research
Permission of Chair required.
Credits: 1-6.
- FREN 201 - Adv Composition & Conversation
Course activities (discussions, exposes, written work, etc.) designed to lead to mastery of French oral and written expression. Prerequisite: 101. (Not offered for graduate credit.)
Credits: 3.
- FREN 209 - Advanced Grammar
problems encountered by Anglophones in written and spoken French.
Prerequisite: 101.
Credits: 3.
- FREN 211 - History of French Language
The development of French through sound and structure, from late Latin through the 12th century. Prerequisite: FREN 101.
Credits: 3.
- FREN 215 - Methods of Text Analysis
Introduction to procedures and terminology used in analysis of texts of various genres. Prerequisite: FREN 101.

Credits: 3.

FREN 216 - Stylistics

Study of idiomatic difficulties faced by people who learn

Credits: 3.

FREN 225 - Medieval French Literature

First semester: Old French language; 12th century epics, e.g. La Chanson de Roland, Breton lays; Marie de France. Prerequisite: Either FREN 111 or FREN 112 or both.

Credits: 3.

FREN 226 - Medieval French Literature

Second semester: Romances: Guillaume de Lorris and Jean de Meung; lyric poetry, Machaut; Pisan; Charles d'Orlians; farces and miracles. Prerequisite: Either FREN 111 or FREN 112 or both.

Credits: 3.

FREN 235 - Lit of French Renaissance

Readings in fiction, poetry, and essays: Rabelais, the lyric poets Ronsard, and Du Bellay, the tales of Marguerite de Navarre; Montaigne. Prerequisites: Either 111 or 112 or both.

Credits: 3.

FREN 245 - The Baroque Age, 1600-1650

The literature after France's civil wars up to the triumph of classicism: religious, lyric, baroque drama; Pascal. Prerequisite: Either FREN 111 or FREN 112 or both.

Credits: 3.

FREN 246 - 17th Century Prose

Creation of the modern novel, evolution of psychological and ethical writing. Topics include women writers, the moralistes, memoirs, relationships between sociopolitical structures and literary production. Prerequisite: Either FREN 111 or FREN 112 or both.

Credits: 3.

FREN 247 - 17th Century Theatre

Works of Corneille, Moliere, and Racine studied in the context of the evolution of 17th century thought. Prerequisites: Either 111 or 112 or both.

Credits: 3.

FREN 255 - 18th Century Literature

Writers of the early Enlightenment. Possible topics: the impact of the new science; the literary reflection of new social types; the "pursuit of happiness." Prerequisite: Either FREN 111 or FREN 112 or both.

Credits: 3.

FREN 256 - 18th C Literature

Rousseau, Diderot, Laclos, Sade: the generation before the Revolution. Possible topics: the attempts to define "natural man;" the relationship between the arts and morality, between liberty and libertinism. Prerequisites: Either 111 or 112 or both.

Credits: 3.

FREN 265 - Rom,Symb,Decadence:19th C Lit

Evolution of the idealist tradition: the Romantic movement (Chateaubriand, Sand, Hugo, Musset, Flaubert); the Symbolists (Baudelaire, Verlaine, Rimbaud); fin de

sihcle Decadents (Huysmans). Prerequisites: Either 111 or 112 or both.

Credits: 3.

FREN 266 - Rev&React in 19th C Narrative

Study of the representations of major social issues of the period, such as power, class, money, and women. Representative authors: Balzac, Flaubert, Sand, Stendhal, Zola. Prerequisites: Either 111 or 112 or both.

Credits: 3.

FREN 275 - 20th Century Literature

Selected topics dealing with poetry and/or narrative related either to an historical period or a literary movement. Prerequisites: Either 111 or 112 or both.

Credits: 3.

FREN 276 - 20th C Literature

Selected topics dealing with poetry and/or narrative related either to an historical period or a literary movement. Prerequisites: Either 111 or 112 or both.

Credits: 3.

FREN 277 - Topics 20th C French Theatre

Subjects may include: le theatre traditionnel, le theatre "de l' absurde", le theatre de la marge, a combination of all of the above.

Credits: 3.

FREN 279 - Women's Autobiographies

Study of several autobiographies written by contemporary French/Francophone women. Representative authors include Colette, de Beauvoir, Sarraute, Duras, Ernaux, Martin. UG only.

Credits: 3.

FREN 285 - Quebec Literature I

A study of contemporary (1960-1985) major works of fiction, poetry, and drama. Authors studied include Anne Hebert, Michel Tremblay, Jacques Godbout, Gaston Miron. Prerequisites: Either 111 or 112 or both.

Credits: 3.

FREN 289 - African Lit: French Expression

Study of West African poetry, theatre, novel, and civilization as an expression of the Black experience in the language of the French colonizer. Prerequisites: Either 111 or 112 or both.

Credits: 3.

FREN 290 - Cntmp Fr Thght:Linguistic Modl

FREN 112 or both.

Credits: 3.

FREN 292 - Topics in French Culture

104 or 105 or permission.

Credits: 3.

FREN 293 - Quebec Culture

Sociocultural study of the Francophone culture of Canada. Prerequisite: One 100-level French course.

Credits: 3.

FREN 295 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing

departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.

FREN 296 - Advanced Special Topics

Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 3.

FREN 297 - Advanced Readings & Research

Permission of Chair required.

Credits: 1-6.

FREN 298 - Advanced Readings & Research

Permission of Chair required.

Credits: 1-6.

FREN 391 - Master's Thesis Research

Credits: 1-18.

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Courses in Italian

ITAL 001 - Elementary I

Fundamentals of Italian composition, comprehension, pronunciation, speaking, reading, writing. Structure of the basic Italian sentence. No prior knowledge expected.

Credits: 4.

ITAL 002 - Elementary II

equivalent.

Credits: 4.

ITAL 051 - Intermediate Rdg & Conv I

Designed to help students move from a basic knowledge of Italian to the ability to read, speak, and understand Italian better. Some grammar review and short compositions. Prerequisite: ITAL 002 or equivalent.

Credits: 3.

ITAL 052 - Intermediate Rdg & Conv II

Continues building on the skills developed in ITAL 051. Less stress on grammar review. Reading selections and compositions are longer and more sophisticated than in ITAL 051. Prerequisite: ITAL 051 or equivalent.

Credits: 3.

ITAL 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

ITAL 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

ITAL 121 - Issues in Italian Culture

from politics to pop music, food to fashion. Emphasis on improving linguistic fluency. Prerequisite: ITAL 052 or equivalent.

Credits: 3.

ITAL 122 - Italian Literature & Film

literary and cinematic texts and their role as a window on Italian culture. Emphasis on improving

Credits: 3.

ITAL 157 - Modern Italian Fictions

cinema, and the Internet. Emphasis on improving linguistic fluency. Prerequisite: ITAL 052 or equivalent.

Credits: 3.

ITAL 158 - Early Italian Lit in Context

An introduction to Italian literature from its beginnings through the early-modern period. Authors may include Dante, Boccaccio, Machiavelli. Emphasis on improving linguistic fluency. Prerequisites: 52 or equivalent.

Credits: 3.

ITAL 170 - Cultures of Women in Italy

Prerequisite: ITAL 052 or equivalent. A study of Italian women writers, journalists, artists, and film directors. Emphasis on reading and discussion.

Credits: 3.

ITAL 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

ITAL 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 3.

ITAL 197 - Readings & Research

Permission of Department Chair required.

Credits: 1-6.

ITAL 198 - Readings & Research

Permission of department chair required.

Credits: 1-6.

ITAL 296 - Directed Readings

Credits: 3.

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Courses in Spanish

SPAN 001 - Elementary I

Fundamentals of Spanish composition, comprehension, pronunciation, speaking, reading, writing. Structure of the basic Spanish sentence. No prior knowledge expected.

Credits: 4.

SPAN 002 - Elementary II

Prerequisite: SPAN 001 or equivalent.

Credits: 4.

SPAN 009 - Basic Spanish Grammar Review

Thorough review of Spanish grammar in preparation for intermediate level. Considerable emphasis on written exercises.

Credits: 3.

SPAN 051 - Intermediate Language Study I

Significant review of grammar, proceeding from basic knowledge of Spanish to increased proficiency in understanding, speaking, reading and writing. Compositions, oral practice, reading. Prerequisite: SPAN 002 or SPAN 009 or equivalent. Placement Exam; 2-3 years in high school; consultation.

Credits: 3.

SPAN 052 - Intermediate Language Study II

Continues building on the skills developed in SPAN 051. More emphasis on accurate language usage and more extensive readings. Prerequisite: SPAN 051 or equivalent. Placement Exam; 3-4 years in high school; consultation.

Credits: 3.

SPAN 095 - Introductory Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-4.

SPAN 096 - Introductory Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

Credits: 1-6.

SPAN 101 - Composition & Conversation

Writing practice, sentence structure, correct expression, and guided discussions in Spanish of assigned topics. A good command of basic grammar expected.

Prerequisite: SPAN 052 or Instructor permission.

Credits: 3.

SPAN 105 - Phonetics & Phonology

The sound system of Spanish: Spanish/English pronunciation contrasted; vowels, consonants, rhythms, intonation. Counts Prerequisite: SPAN 052 or Instructor permission.

Credits: 3.

SPAN 109 - Spanish Grammar

An intensive study of Spanish grammar. Topical approach. Prerequisite: SPAN 052 or Instructor permission.

Credits: 3.

SPAN 140 - Analyzing Hispanic Literatures

permission.

Credits: 3.

SPAN 141 - Intro To Literature of Spain

An introductory survey of major developments in Spanish peninsular literature. Readings and discussions focus on textual analysis, and historical and cultural contexts. Senior majors by permission only. Prerequisites: 140 pre- or co-requisite.

Credits: 3.

SPAN 142 - Intro To Lit Spanish America

Readings and discussion focus on textual analysis, and historical and cultural contexts. Seniors by permission only. Prerequisites: 140 pre- or co-requisite.

Credits: 3.

SPAN 195 - Intermediate Special Topics

See Schedule of Courses for specific titles. Prerequisite: SPAN 140.

Credits: 3.

SPAN 196 - Intermediate Special Topics

See Schedule of Courses for specific titles. Prerequisite: SPAN 140.

Credits: 3.

SPAN 197 - Readings & Research

Permission of chair required. Prerequisite: SPAN 140.

Credits: 1-6.

SPAN 198 - Readings & Research

Permission of Chair required. Prerequisite: SPAN 140.

Credits: 0-4.

SPAN 201 - Adv Composition & Conversation

To improve both written and oral proficiency. Textbook and a weekly composition. Prerequisite: 101 or permission. (Not offered for graduate credit). supplemented by panel discussions, debates, translation,

Credits: 3.

SPAN 202 - Topics in Spanish Lang Study

Varied topics devoted to a special area such as (medicine, business, journalism, law), etc. Prerequisite:

Credits: 3.

- SPAN 210 - Romance Philology
Undergraduate only.
Credits: 3.
- SPAN 211 - History of Spanish Language
The evolution of the Spanish language from its origins to the present.
Prerequisites: One 100-level literature course or equivalent. UG only.
Credits: 3.
- SPAN 235 - Perform Early Cult'l Identity
A study of the most popular entertainment in Spain before 1700: theater. Classic plays explore cultural and personal identities in times of conflict and change.
Prerequisite: SPAN 140.
Credits: 3.
- SPAN 236 - Poetic Voices/Cultural Change
A topical approach to exploration of self and society in Spain's poetic voices before 1700. Verses range from humorous to amorous, from satirical to political.
Prerequisite: SPAN 140.
Credits: 3.
- SPAN 237 - Tricksters/Knights&Wayward Wmn
A topical approach to Spain's diverse cultural panorama before 1700. Adventures in prose about knights, plotting wives, nuns, priests and Jewish and Moorish figures. Prerequisite: 140. UG only.
Credits: 3.
- SPAN 245 - Cervante's Voices & Portraits
Cervantes' innovative short fiction and theater are the media for exploring cultural change and the literary legacies of 16th-century Spain. Prerequisite: SPAN 140.
Credits: 3.
- SPAN 246 - Cervante's Don Quixote
Study of the world's most widely published novel. Don Quixote's crazy adventures with the sword and the pen explore fiction, reality, and life itself." Prerequisite: 140.
Credits: 3.
- SPAN 250 - Dilemma Modernity:19th C Spain
Spain's turbulent 19th century, focusing on the bitter struggle for and against modernization both in literature
Credits: 3.
- SPAN 251 - Pers&Nat'l Ident:Mod Span Lit
Exploration of how 20th-century Spanish writers have sought to define themselves and their nation, including regionalism, gender relations, and ethnicity.
Prerequisite: SPAN 140. Undergraduate only.
Credits: 3.
- SPAN 252 - Span Lit:Dictatorshp-Democracy
Literature in Spain from the Franco dictatorship to the present. Topics to include censorship and dissidence, writing-in-exile, and contemporary trends.
Prerequisite: 140. UG only.
Credits: 3.
- SPAN 279 - Act Out:Perf Cult'l Pol Lat Am
A study of the relationship between Latin-American performance and its political

contexts. Emphasis is placed on works particularly concerned with reshaping culture, politics, and aesthetics. Prerequisite: SPAN 140.

Credits: 3.

SPAN 281 - Contemp Spanish-Amer Fiction

A study of representative works by major authors tracing the development of narrative forms from their roots in the last century to the present. Prerequisite: SPAN 140.

Credits: 3.

SPAN 286 - Span-Am Lit of Social Protest

Readings of major texts. Topics might range from early protests against Spain, to resistance by repressed groups, to contemporary protests against imperialism. Prerequisite: 140.

Credits: 3.

SPAN 287 - Early Span Narratives Americas

Readings and analysis of late 15th and 16th century narratives. Discussion of European and Native American perspectives, religious disputes, and the "Leyenda Negra" (Black Legend). Prerequisite: SPAN 140.

Credits: 3.

SPAN 290 - Hispanic Films in Context

Prerequisite: SPAN 140. Approaching film as reflection and shaper of Hispanic cultures through comparison with texts relevant to cultural context. Includes study of film terminology and analysis.

Credits: 3.

SPAN 291 - Early Cultures of Spain

A study of the Spanish cultures from earliest times through 1700, emphasizing major intellectual, political, and artistic developments. Prerequisite: SPAN 140.

Credits: 3.

SPAN 292 - Modern Cultures of Spain

A study of the cultures of Spain from the Enlightenment to the present, emphasizing the major intellectual, political, and artistic developments. Prerequisite: SPAN 140.

Credits: 3.

SPAN 293 - Early Latin-American Cultures

A study of colonial Latin American cultures from pre-Hispanic times through Independence. Emphasis on major intellectual, artistic, and cultural developments. Prerequisite: SPAN 140.

Credits: 3.

SPAN 294 - Modern Latin-American Cultures

An overview of the cultures of Latin America with a multidisciplinary approach to understanding cultural constructions. Themes included: the city, nationhood, subjectivity, marginality. Prerequisite: 140. UG only.

Credits: 3.

SPAN 295 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: SPAN 140.

Credits: 3.

SPAN 296 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: SPAN 140.

Credits: 3.

SPAN 297 - Advanced Readings & Research

Permission of Chair required. Prerequisite: SPAN 140.

Credits: 1-6.

SPAN 298 - Advanced Readings & Research

Permission of Chair required. Prerequisite: SPAN 140.

Credits: 1-6.

SPAN 299 - Topics in Hispanic Cultures

Focus on a particular cultural topic in the Hispanic world. Study might emphasize regional studies, current conflicts on ecology, ethnicity, and gender. Prerequisite: 140. UG only.

Credits: 3.

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French (B. A.)

College: [Arts and Sciences](#)

Department(s): [Romance Languages](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-three credits in French numbered 100 or above of which fifteen credits must be at the 200-level. Required courses: French 101 and French 111 or 112. Literature requirement: twelve credits (including 111 or 112). Culture requirements: three credits (104, 105 or 292).

Note: Only three credits of Readings and Research (197, 198) and Advanced Readings and Research (297, 298) may be counted toward the major.

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Spanish (B. A.)

College: [Arts and Sciences](#)

Department(s): [Romance Languages](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

A minimum of thirty-three hours of courses numbered above 100*, of which: twelve must be in literature and eighteen must be in courses numbered above 200*. Required courses among those thirty-three hours: Spanish 140; one 3-credit course in Spanish American literature (142, 279, 281, 286, 287 or Topics); one 3-credit course in Spanish Peninsular Literature (141, 235, 236, 237, 245, 246, 250, 251, 252, 255, 256, 257 or Topics); one 3-credit course in culture and civilization (290, 291, 292, 293, 294 or 299). At least one of the literature courses taken must be devoted specifically to literature written before 1800 (Examples are 235, 236, 237, 245, 246, 287 or Topics on pre-1800 literature).

*Only three credits of Readings and Research (197, 198) and Advanced Readings and Research (297, 298) may be counted toward the major.

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Minor in French

College: [Arts and Sciences](#)

Department(s): [Romance Languages](#)

Requirements

Eighteen hours in French numbered 100 or above. Required courses: French 101; and three of the following four: 104, 105, 111, 112. Six of the 18 credits must be in courses at the 200-level. Readings and Research (197, 198) or Advanced Readings and Research (297, 298) may not be counted toward a minor.

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Minor in Spanish

College: [Arts and Sciences](#)

Department(s): [Romance Languages](#)

Requirements

Eighteen hours in Spanish above 100, including: Language: six credits from 101, 201, 202; Literature: six credits (3 of those credits must be in Spanish 140); Electives: six additional credits from courses numbered above 202. Readings and Research (197, 198) or Advanced Readings and Research (297, 298) may not be counted toward a minor.

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Minor in Italian

College: [Arts and Sciences](#)

Department(s): [Romance Languages](#)

Requirements

Eighteen hours in courses taught in the Italian language and numbered 100 or above. Readings and Research (197, 198) or Advanced Readings and Research (297, 298) may not be counted toward a minor.

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Minor in Italian Studies

College: [Arts and Sciences](#)

Department(s): [Romance Languages](#)

Requirements

Eighteen credit hours as chosen from among the following categories:

- Italian content (classes taught in the Italian language numbered 100 or above)
- significant Italian content (Art History 149, 161, 164, 282 [when the topic is Italian]; Classics 122; English 122; World Literature 13, 113; Geography 158; History 124, 125; Latin 51, 52, 101, 102, 111, 112, 155, 156; all 200-level courses in Latin literature; Music 11)
- partial Italian content (Art History 5, 6, and the following where the content is partially Italian: 155, 165; Classics 23, 155, 156, 159; English 125; Film 107, 161; Geography 55, 155; History 24, 25, 26; Political Science 141, 142; Music 12).

At least six hours must be taken from category (a) and no more than six credit hours from category (b) may be applied from any one discipline. No more than three credit hours from category (c) may be applied to this minor.

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Departments and Programs

Sociology Department

Colleges: Arts and Sciences

Faculty: Sociology

Courses: Sociology (SOC)

Contact Information:

*University of Vermont
Sociology Department
Benedict House
31 South Prospect St
Burlington, VT 05405-0176*

Phone: (802) 656-3236

Fax: (802) 656-2131

Email: lhcarew@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~soceval/>

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 - Bachelor of Arts (B. A.)
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- Undergraduate Minors
 - Sociology
 - Gerontology

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Courses in Sociology

SOC 001 - Introduction to Sociology

Fundamental principles and problems in the sociological analysis of the structure and dynamics of modern society.

Credits: 3.

SOC 011 - Social Problems

Introduction to sociology through detailed examination of a selected number of major structural problems characteristic of contemporary societies. Problems treated may vary.

Credits: 3.

SOC 014 - Deviance & Social Control

Analysis of the causes and consequences of social behavior that violates norms. Examines patterns of deviant socialization and social organization and forms of deviance control.

Credits: 3.

SOC 019 - Race Relations in the US

Analysis of racial prejudice, discrimination, and other dominant group practices directed toward Native, Asian-, and African-Americans and their social movements for integration, accommodation, and separatism.

Credits: 3.

SOC 020 - Aging: Change & Adaptation

Development 20/Education.

Credits: 3.

SOC 029 - Sex, Marriage & Family

Description and analysis of contemporary patterns in American sexual, marital, and familial behavior; their historical development, variants, and the evolving alternatives to traditional normative forms.

Credits: 3.

SOC 032 - Social Inequality

Introduction to structured class inequality in the U.S., causes and consequences. Focus on wealth, prestige, and power. Inequalities of age, gender, and ethnicity also examined.

Credits: 3.

- SOC 043 - Survey of Mass Communication
The historical development of the socioeconomic, political, educational, and religious impacts of the press, film, radio, and television in American society.
Credits: 3.
- SOC 057 - Drugs & Society
Patterns of illicit drug distribution, use, abuse, and control in contemporary society. Examines the interaction of cultural, social, psychological, and physiological factors in prohibited drug-taking.
Credits: 3.
- SOC 095 - Introductory Special Topics
See Schedule of Courses for specific titles.
Credits: 1-3.
- SOC 096 - Introductory Special Topics
See Schedule of Courses for specific titles.
Credits: 1-3.
- SOC 100 - Fund of Social Research
Introduction to research methods in social science. Includes examination of research design, measurement, data collection, data analysis, and the presentation and theoretical interpretation of research findings. Prerequisite: Three hours of sociology or six hours in a related social science. Crosslist: Political Science 181.
Credits: 4.
- SOC 101 - Developm't Sociological Theory
intensive. Prerequisites: Six hours of Sociology or equivalent preparation in another social science with Instructor permission.
Credits: 3.
- SOC 102 - Population, Environment & Soc
Analysis of the causes and consequences of varying relationships among population size, distribution and composition, social organization, technology, and resource base. Prerequisite: Three hours of Sociology.
Credits: 3.
- SOC 103 - Environ Crises Modern Society
Examines global, national, and local ecological crises both empirically and theoretically. Emphasis on economic processes, political/legal aspects, and social activism. Prerequisite: Three hours of Sociology.
Credits: 3.
- SOC 105 - The Community
Comparative examination of patterns of social interaction in social groups with common territorial bases in contemporary societies and the analysis of community structure and dynamics. Prerequisite: Three hours of Sociology.
Credits: 3.
- SOC 109 - The Self & Social Interaction
Analysis of the roles of sociocultural and situational factors in individual behavior and experience and the social genesis, development, and functioning of human personality. Prerequisite: Three hours of Sociology or PSYC 001.
Credits: 3.

SOC 115 - Crime

Analysis of the nature and types of behavior that violates law, the mechanisms for defining such behaviors as criminal and their causes and consequences.

Prerequisite: Three hours of Sociology.

Credits: 3.

SOC 118 - Race, Crime&Criminal Justice

A comprehensive examination of race, gender, and class on racial minorities' participation in criminal activities and how individuals are treated by the criminal justice system. Prerequisite: Three hours of Sociology.

Credits: 3.

SOC 119 - Race & Ethnicity

Three hours of Sociology. Cross-listed with: ANTH 187.

Credits: 3.

SOC 120 - Aging in Modern Society

Analysis of contemporary needs and problems of the elderly, including discrimination, poverty, health care, and loneliness, and the evaluation of services and programs for the elderly. Prerequisite: Three hours of Sociology or professional experience working with the elderly.

Credits: 3.

SOC 122 - Women & Society

Crosslist: WGST 101.

Credits: 3.

SOC 132 - Affluence & Poverty in Mod Soc

Examination of structured social inequality in contemporary American society with special attention to the distribution of wealth and its relationship to power, prestige, and opportunity. Prerequisite: Three hours of Sociology.

Credits: 3.

SOC 150 - Popular Culture

Analysis of social significance of a selected range of contemporary non-elite cultural forms in the U.S., such as rock music, television programming, and popular literature. Prerequisite: Three hours of Sociology.

Credits: 3.

SOC 151 - Sociology of Religion&Ideology

cross-cultural and historical perspective. Prerequisites: Beliefs and value systems and their institutional arrangements, focusing on relationships between these systems and the larger social structure, in Three hours of Sociology or six hours of Religion.

Credits: 3.

SOC 154 - Social Org of Death & Dying

Comparative examination of sociocultural adaptations to mortality with special attention to family, medical, legal, religious, and economic responses to fatal illness and death in contemporary society. Prerequisite: Three hours of Sociology.

Credits: 3.

SOC 161 - Sociology of Leisure

Analysis of the sociocultural organization of nonwork activity, emphasizing the relationships of class, life style, education, and work to contemporary recreation

- and leisure use patterns. Prerequisite: Three hours of Sociology.
Credits: 3.
- SOC 171 - Soc Chng&Dev Persp in 3rd Wrld
perspectives on development in the Third World. Prerequisite: Three hours in sociology.
Credits: 3.
- SOC 195 - Intermediate Special Topics
See Schedule of Courses for specific titles.
Credits: 1-3.
- SOC 196 - Intermediate Special Topics
See Schedule of Courses for specific titles.
Credits: 1-3.
- SOC 197 - Readings & Research
Credits: 1-6.
- SOC 198 - Readings & Research
Credits: 1-6.
- SOC 202 - Population Dynamics
permission.
Credits: 3.
- SOC 203 - Adv Environmental Sociology
and individual research projects. Prerequisite: Six hours Examination of theoretical interpretations of environmental problems, sources, and solutions, focusing on the social conditions under which problems arise. Emphasis on writing of sociology.
UG only.
Credits: 3.
- SOC 205 - Rural Communities in Mod Soc
Cross-listed with:CDAE 205
Credits: 3.
- SOC 206 - Urban Communities in Mod Soc
The changing structure and dynamics of urban social organization in context of modernization and urbanization. Emphasis on cities and metropolitan areas in the U.S. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.
Credits: 3.
- SOC 207 - Community Org & Development
Communities as changing sociocultural organizational complexes within modern society. Special attention given to problems of formulation and implementation of alternative change strategies. Prerequisite: Six hours of Sociology including 1 and 100, or 1 and 101, or instructor permission.
Credits: 3.
- SOC 209 - Small Groups
001 and SOC 101, or Instructor permission.
Credits: 3.
- SOC 211 - Soc Movements&Collective Behav
Examination of origins, development, structure, and consequences of crowds, riots, crazes, rumors, panics, and political and religious movements and their

relationships to cultural and social change. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 213 - Women in Dev in 3rd World

An examination of the meaning and measurement of development, sociodemographic characteristics, sex stratification, and effects of Colonialism and Westernization on women's issues in the third world. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission. Cross-listed with: WGST 205.

Credits: 3.

SOC 214 - Delinquency

Analysis of the nature and type of juvenile behavior that violates law, the mechanisms for defining such behaviors as delinquent, and their causes and consequences. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 216 - Criminal Justice

Analysis of the social structures and processes involved in the identification and labeling of individuals as criminal offenders: criminal law, its enforcement and the courts. Prerequisite: Six hours of Sociology including 1 and 100, or 1 and 101, or instructor permission.

Credits: 3.

SOC 217 - Corrections

Analysis of the social structures and processes involved with individuals designated as offenders of criminal law: probation, prison, parole, and programs of prevention and rehabilitation. Prerequisite: Six hours of Sociology.

Credits: 3.

SOC 219 - Race Relations

Examination of American racial subordination in social and historical perspective. Analysis of interracial contacts, racial subcultures and social structures, and responses to racial prejudice and discrimination. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 220 - Internship in Gerontology

1 and 101 or instructor permission or Supervised service or research internship integrating theoretical and practical gerontological issues. Prerequisites: 6 hours of Sociology including 1 and 100, or preparation (Not offered for graduate credit.)

Credits: 3.

SOC 222 - Aging & Ethical Issues

Analysis of selected ethical issues posed by an aging society and faced by older persons, their families, health care and service providers, and researchers. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 223 - Sociology of Reproduction

Crosslist: WGST 201. (not for Graduate credit)

Credits: 3.

SOC 225 - Organizations in Mod Society

Examination of basic classical and contemporary theory and research on the human relations, internal structures, environments, types, and general properties of complex organizations and bureaucracies. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 229 - Family as Social Institution

Examination of the institution of the American family in cross-cultural and historical perspective. Theories and research on family continuity, change, and institutional relationships explored. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 232 - Social Class & Mobility

Comparative and historical analysis of causes, forms, and consequences of structured social inequality in societies. Examination of selected problems in contemporary stratification theory and research. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 240 - Political Sociology

Examination of the social organizations of power and authority in modern societies and the dynamics and institutional relationships of political institutions, interest groups, parties, and publics. Prerequisite: Six hours of Sociology including 1 and 100, or 1 and 101, or instructor permission.

Credits: 3.

SOC 243 - Mass Media in Modern Society

Intensive examination of selected topics in the structure of media organizations and their relationships to and impacts upon the major institutions and publics of contemporary issues. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 250 - Sociology of Culture

The relations of cultural forms and subjective experience to social structure and power; in-depth applications of interpretive approaches in contemporary sociology. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 252 - Sociology of Emotions

SOC 001 and SOC 100, or

Credits: 3.

SOC 254 - Sociology of Health & Medicine

Instructor permission.

Credits: 3.

SOC 255 - Soc Mental Health

Analysis of the social structures and processes involved in the identification, definition, and treatment of mental illness and its sociocultural etiology and consequences. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 258 - Sociology of Law

Analysis of the sociocultural structure of the legal institution and its relationships to other institutions: the social organization of the legal profession, lawmaking, and the courts. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 272 - Soc of African Societies

Current social, cultural, political, and economic changes occurring in African societies, including issues of development, the state and civil society, social class, ethnonationalism, and democratization. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 274 - Research Seminar

Principles of research design, data gathering, ethics, measurement, data analysis, and data presentation. Students will complete a research project. Prerequisites: 6 hours of Sociology including 1 and 100, or 1 and 101, or

Credits: 3.

SOC 275 - Meth of Data Anyl in Soc Rsch

Quantitative analysis of sociological data; includes table, regression, and path analysis, scaling and factor analysis, and the analysis of variance emphasizing multivariate techniques. Prerequisite: 6 hours of Sociology including 1 and 100, or 1 and 101, or instructor permission.

Credits: 3.

SOC 279 - Contemporary Sociological Thry

Critical examination of contemporary functional, conflict, exchange, interactionist, and structural theoretical approaches. A number of other theoretical approaches selected by seminar participants also examined. Prerequisite: 6 hours of Sociology including 1 and 100, or 1 and 101, or instructor permission.

Credits: 3.

SOC 281 - Seminar

Presentation and discussion of advanced problems in sociological analysis. Prerequisite: Twelve hours of Sociology; Instructor permission.

Credits: 3.

SOC 282 - Seminar

Presentation and discussion of advanced problems in sociological analysis. Prerequisite: Twelve hours of

Credits: 3.

SOC 285 - Internship

Prerequisite: Twelve hours of sociology including at least one 200-level course in substantive area relevant to field placement, departmental permission. UG only.

Credits: 1-6.

SOC 286 - Internship

Prerequisite: Twelve hours of sociology including at least one 200-level course in substantive area relevant to field placement, departmental permission. UG only.

Credits: 1-6.

SOC 288 - Rsch Meth Teaching Sociology

The development and evaluation of the teaching of sociology. Prerequisite: Twelve hours of Sociology; permission of Department. Open only to students who serve concurrently as teaching assistants in the Department.

Credits: 3.

SOC 289 - Rsch Meth Teaching Sociology

The development and evaluation of the teaching of sociology. Prerequisite: Twelve hours of Sociology; permission of Department. Open only to students who serve concurrently as teaching assistants in the Department.

Credits: 3.

SOC 295 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 100, or Instructor permission.

Credits: 3.

SOC 296 - Advanced Special Topics

See Schedule of Courses for specific titles. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.

SOC 297 - Readings & Research

Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 1-6.

SOC 298 - Readings & Research

Prerequisite: Six hours of Sociology included SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 1-6.

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Sociology (B. A.)

College: [Arts and Sciences](#)

Department(s): [Sociology](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-four hours in Sociology including Sociology 1; 100 and 101; three hours in each of three different areas at the 100-level (total nine hours); and three hours in each of the three different areas at the 200 level (total nine hours). It is recommended that 1, 100, and 101 be completed before the start of the junior year. 1 and 100, or 1 and 101, or instructor's permission is a prerequisite for enrollment in any 200-level course. Students planning to concentrate in a particular area of study are strongly encouraged to take an additional 200-level course in that area. Students planning postgraduate training in Sociology or related areas are strongly encouraged to take at least two courses from the advanced Theory/Methods area (274, 275, 279). Areas and their approved courses are: Crime, Law, and Deviance: 115, 118, 214, 216, 217, 255, 258; Social Inequality: 119, 122, 132, 219, 232, 240, 254; Social Change and Development: 102, 103, 105, 171, 203, 205, 206, 207, 211, 213, 272; Culture, Institutions, and the Individual: 109, 150, 151, 161, 209, 225, 243, 250, 252, 288, 289; The Life Course: 120, 154, 161, 222, 223, 229; Theory and Methods: 274, 275, 279.

*Courses numbered 195, 196, 281, 282, 295, or 296 may qualify to fulfill area requirements with approval of the student's advisor.

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Minor in Sociology

College: [Arts and Sciences](#)

Department(s): [Sociology](#)

Requirements

Eighteen hours in sociology including Sociology 1; either 100 or 101; three hours in each of two different areas at the 100-level (total six hours); three hours at the 200-level (total three hours). (See Sociology major requirements for list of approved area options.) It is recommended that 1 and 100 or 1 and 101 be completed before the start of the junior year, 1 and 100, or 1 and 101, or instructor's permission, is a prerequisite for enrollment in any 200-level course.

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Minor in Gerontology

College: [Arts and Sciences](#)

Department(s): [Sociology](#)

Requirements

The minor in Gerontology consists of 18 hours. Required courses (12 hours): Sociology 20, 120, 220, and 222. Electives (six hours): Anthropology 189; Human Development and Family Studies 266, 283; Nursing 100; Sociology 154, 254.

Courses used to meet the requirements of the minor should constitute a coherent program and will be selected in consultation with the student's minor advisor. A list of current course offerings suitable for the minor, including special topics courses in individual departments, is available from the Department of Sociology or the Center for the Study of Aging.

Note: The Minor in Gerontology is not available to students majoring in Sociology. Sociology majors interested in Gerontology should, instead, take the Social Gerontology Concentration to fulfill the concentration requirement for the Sociology major.

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Departments and Programs

Theatre Department

Colleges: [Arts and Sciences](#)

Faculty: Theatre

Courses: [Theatre \(THE\)](#), [Speech \(SPCH\)](#)

Contact Information:

University of Vermont

Theatre Department

Royall Tyler Theatre

116 University Place

Burlington, VT 05405-0102

Phone: (802) 656-2094

Fax: (802) 656-0349

Email: theatre@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~theatre/>

Academic Offerings

- Undergraduate Majors
 - Bachelor of Arts (B. A.)
 - [Theatre](#)
- Undergraduate Minors
 - [Speech](#)
 - [Theatre](#)

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Courses in Theatre

THE 001 - Introduction to Theatre

emphasizing history, script analysis, character development, and communicative skills directed toward a modern audience.

Credits: 3.

THE 005 - Oral Interpretation of Lit

Performance of literature that is traditionally non-dramatic. Offered Summer Session only.

Credits: 3.

THE 010 - Acting I: Intro to Acting

Exercises to increase self-awareness and heighten perceptions of human behavior. Basics of script analysis and development of vocal and physical skills through practice and performance.

Credits: 3.

THE 020 - Fundamentals of Lighting

Primary course in the area of stage lighting design and execution.

Credits: 4.

THE 030 - Fundamentals of Scenery

A hands-on introduction to the theory and practical application of the scenic elements involved in play production (drawing, building, and painting techniques).

Credits: 4.

THE 040 - Fundamentals of Costuming

Primary course in area of costume design and construction. Fall.

Credits: 4.

THE 041 - History of Costume

(Same as Community Development and Applied Economics 117 and Womens Studies 78.) Overview of period costume and its adaptation for the stage. Alternating fall semesters.

Credits: 3.

THE 042 - Fund Theatrical Make-up

Focus on the development of drawing, painting, and sculpture skills as they relate to the creation of a dramatic character for the stage. Prerequisite: 40. Alternating Fall semesters.

Credits: 3.

THE 050 - Dramatic Analysis

Examination of structural characteristics of the basic forms and styles of drama and the manner in which they affect theatrical representation.

Credits: 3.

THE 095 - Special Topics

See schedule for specific titles. Fall

Credits: 1-3.

THE 110 - Acting II:Contmp Scene Study

Continuation of Acting I. Development of acting techniques through intensive scene work: refining script analysis and performance skills using contemporary scenes. Prerequisites: 10, permission for non-theatre majors and minors.

Credits: 3.

THE 111 - Acting III:Voice & Speech

Study of the basics of voice production and Standard American Speech; exercises and practice focusing on freeing the voice and developing good vocal habits.

Prerequisites: 10 or permission for non-theatre majors and minors. Spring.

Credits: 3.

THE 112 - Acting IV: Stage Movement

Development of physical freedom and articulate physical expression through techniques promoting relaxation, flexibility, strength, creative spontaneity, and purposeful movement. Techniques applied to short movement performances.

Prerequisite: 10, or permission for non-theatre majors and minors. Fall only.

Credits: 3.

THE 120 - Lighting Design

Explores, through classroom instruction and projects, the development of lighting designs for a variety of live performance situations. Prerequisite: 20. Fall.

Credits: 3.

THE 130 - Scene Design

A practical application of the elements, principles, and styles of theatrical stage design through research, sketching, and rendering techniques. Prerequisite: 30.

Credits: 3.

THE 131 - Scene Painting Concepts&Appl

Lab course to study practical application of painting technique used in theatre, trompe l'oeil. Develops skills introduced in 30. Prerequisites: 30, 130, and either 20 or 40.

Credits: 3.

THE 140 - Costume Design

Elements, principles, and styles of design applied to the visual creation of a dramatic character. Prerequisites: 40; 41 highly recommended. Spring.

Credits: 3.

THE 141 - Adv Costume:Draping&Flat Pattn

Explores the methods of creating period shapes. Students develop a sloper, fit it to a human body, create a researched and completed period costume. Prerequisite:

40. Spring, every fourth year. Spring only.

Credits: 3.

- THE 142 - Adv Cost Const:Per Undrgarmts
Focuses on techniques for creating artificial understructures that support period silhouettes. Corsets, hoop skirts, petticoats, etc., are researched, fit on the human body, and constructed. Prerequisite: 40. Spring, every fourth year.
Credits: 3.
- THE 143 - Adv Costume Constr:Millinery
Explores methods of hat construction, including work in various media. Methods of shaping, covering, and trimming
Credits: 3.
- THE 144 - Adv Costume Constr:Tailoring
Explores traditional methods of tailoring as well as practical adaptations for the stage. Research, discussion, and demonstration lead to completion of a period suit. Prerequisite: 40. Spring, every fourth year.
Credits: 3.
- THE 150 - Hist I:Class/Med/Ren Thtr
A study of the theatrical rituals of Greece, Rome, and the Middle Ages leading to the reinvention of theatre in Renaissance Italy, England, and Spain. Prerequisites: 50 or English 95, Dramatic Analysis.
Credits: 3.
- THE 151 - Hst II:Ren France-20C Eur&USA
Prerequisite: 150. A study of the historical context, theatrical conventions, and the plays representations of Neoclassicism, Romanticism, Realism, and the revolts against Realism.
Credits: 3.
- THE 160 - Stage Management
Theory and practice for stage managing in the non-commercial theatre.
Prerequisites: 10; two of 20, 30, 40, 50. Spring.
Credits: 3.
- THE 190 - Theatre Practicum
Students actively involved in current department productions may earn credit for work on stage or backstage. Project proposals must be approved by department faculty and be of significant scope to qualify for credit. Prerequisite: Variable, see department chair or advisors.
Credits: .5-3.
- THE 195 - Special Topics
See Schedule of Courses for specific titles. Credits: 1-3. Fall only.
Credits: 1-3.
- THE 196 - Special Topics
See Schedule of Courses for specific titles. Credits: 1-3. Spring only.
Credits: 1-3.
- THE 197 - Readings & Research
Credits: .5-9.
- THE 198 - Readings & Research
Credits: .5-9.
- THE 200 - Professional Preparation
Topics include preparing for auditions, portfolio reviews, interviews, and research

papers for entrance into graduate schools or professional theatre venues.

Prerequisite: Junior/Senior standing and by Instructor permission only.

Credits: 1-3.

THE 210 - Acting V:Shakespeare Scene Study

Refining and developing script analysis and performance skills using

Shakespeare, ancient Greek, Moliere, or other stylized texts. Prerequisite: 10. Fall.

Credits: 3.

THE 230 - Advanced Scene Design

An in-depth study of the realization process for a stage design. A combination of script analysis, sketching, model making, rendering, and paint elevations, all as forms of communication. Prerequisites: 30, 130. Alternating fall semesters.

Credits: 3.

THE 250 - Directing I

Theory of theatrical directing, including script analysis; approaches to audition, rehearsal, and performance; coaching actors. Prerequisites: 10, 20, 30, 40, 50; either 130 or 140, either 150 or 151. Fall.

Credits: 3.

THE 251 - Directing II

Development of skills and aesthetic values through the direction of a complete one act play. Not offered as performance opportunity. Enrolled students may not perform as actors in their own projects. Prerequisites: 250, and declared senior Theatre majors only. Spring.

Credits: 3.

THE 283 - Seminar

Fall only. Credits: 3

Credits: 3.

THE 284 - Seminar

Spring only. Credits: 3

Credits: 3.

THE 297 - Senior Readings and Research

Fall only. Credits: 3

Credits: 1-3.

THE 298 - Senior Readings & Research

Spring only. Credits: 1-3

Credits: 1-3.

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Courses in Speech

SPCH 011 - Effective Speaking

Fundamentals course in effective, informative, and persuasive public speaking and critical listening. Includes theory and practice.

Credits: 3.

SPCH 095 - Special Topics

See Schedule of Courses for specific titles. Credits: 1-3. Fall only.

Credits: 1-3.

SPCH 096 - Special Topics

See Schedule of Courses for specific titles. Credits: 1-3. Spring only.

Credits: 1-3.

SPCH 111 - Persuasion

Human motivation, attitudes, emotion, stereotypes, attention and audience psychology as applied in the speaking situation. Prerequisite: SPCH 011.

Credits: 3.

SPCH 112 - Argument & Decision

Inductive, deductive, causal, and analogical reasoning as applied to the speaking situation. Prerequisite: SPCH 011.

Credits: 3.

SPCH 214 - Issues in Public Address

Each semester emphasizes analysis of specific speakers, movements, theses, and strategies encompassed by a selected topic of public address. Prerequisite: Nine hours of related courses, of which three must be at the 100 level.

Credits: 3.

SPCH 283 - Seminar

Seminar topics include: Nonverbal Communication, Rhetorical Criticism, Advanced Argumentation, Advanced Persuasion, Debate, Interpersonal Communication in Group Interaction, Communication in Conflict Management. Prerequisite: Six hours of speech, of which at least three hours must be at the 100 level. Credits: 3. Fall only.

Credits: 3.

SPCH 284 - Seminar

Seminar topics include: Nonverbal Communication, Rhetorical Criticism, Advanced

Argumentation, Advanced Persuasion, Debate, Interpersonal Communication in Group Interaction, Communication in Conflict Management. Prerequisite: Six hours of speech, of which at least three hours must be at the 100 level. Credits: 3. Spring only.
Credits: 3.

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Theatre (B. A.)

College: [Arts and Sciences](#)

Department(s): [Theatre](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

A total of 48 hours to include 10, 20, 30, 40, 50, 110, 130 or 140, 150, 151, 250, 251; three hours in 190: Theatre Practicum; nine hours in selected area of emphasis: Design/Tech; or Performance; or History/Criticism. Design/Tech: 41, 42, 120, 130, 131, 140, 141, 142, 143, 144, 160, 200, 230; Performance: 111, 112, 200, 210; History/Criticism: nine hours from English 127, 128, 152; Classics 153; Theatre 200; or other courses by departmental permission.

Note: Students entering the College of Arts and Sciences should be advised that Theatre 1 is not recommended for students intending to major or minor in Theatre. Those students should enroll in required courses immediately. If Theatre 1 is taken, it will not be counted toward the required 48 hours for the major but will be counted toward the total 122 hours required for graduation.

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Minor in Speech

College: [Arts and Sciences](#)

Department(s): [Theatre](#)

Requirements

Eighteen hours to include 12 hours from Speech 11, 111, 112, 283-4 or Theatre 5; and six hours from Speech 214 or 283-4, or Sociology 141.

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Minor in Theatre

College: [Arts and Sciences](#)

Department(s): [Theatre](#)

Requirements

Nineteen hours to include: 10, 150, 151; two credits of 190; and two of the following: 20, 30, 40.

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Departments and Programs

Vermont Studies Program

Colleges: [Arts and Sciences](#)

Faculty: Vermont Studies

Courses: [Vermont Studies \(VS\)](#)

Contact Information:

University of Vermont

Vermont Studies Program

Nolin House

589 Main St

Burlington, VT 05401-3439

Phone: (802) 656-8363

Fax: (802) 656-8518

Email: crv@uvm.edu

Web Site: <http://www.uvm.edu/~crvt/>

Academic Offerings

- Undergraduate Minors
 - [Vermont Studies](#)

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Courses in Vermont Studies

VS 052 - Introduction to Vermont

Survey of Vermont's geography, history, politics, social issues, ethnic populations, culture, and environment. Special emphasis on an interdisciplinary approach to the study of Vermont.

Credits: 3.

VS 055 - Environmental Geology

See GEOL 055.

Credits: 4.

VS 064 - Native Americans of Vermont

See ANTH 064. Cross-listed with: ANTH 064.

Credits: 3.

VS 092 - Vermont Field Studies

Cross-listed with: GEOG 092.

Credits: 3.

VS 095 - Introductory Special Topics

See schedule of courses for specific titles.

Credits: 1-6.

VS 096 - Introductory Special Topics

See schedule of courses for specific titles.

Credits: 3.

VS 123 - The Vermont Political System

See POLS 123. Prerequisite: POLS 021.

Credits: 3.

VS 160 - The Literature of Vermont

(See English 160.)

Credits: 3.

VS 162 - Geography of Place Names

(See Geography 162.) Prerequisite: three hours in Geography.

Credits: 3.

VS 184 - Vermont History

Cross-listed with: HST 184. Prerequisite: Three Hours in History; HST 011

Credits: 3.

VS 191 - Internships

Prerequisite: Nine hours of Vermont Studies; permission of Director of Vermont Studies; Junior/Senior standing.

Credits: 3.

VS 192 - Vermont Field Studies

Prerequisite: Three hours in Geography. Cross-listed with: GEOG 192.

Credits: 3.

VS 195 - Intermediate Special Topics

See schedule of courses for specific titles.

Credits: 1-6.

VS 196 - Intermediate Special Topics

See schedule of courses for specific titles.

Credits: 3.

VS 197 - Readings & Research

Prerequisite: Declared minor in Vermont Studies.

Credits: 1-6.

VS 198 - Readings and Research

Prerequisite: Declared minor in Vermont Studies.

Credits: 1-6.

VS 230 - The Vermont Economy

(See Economics 230, Seminar C.) Prerequisites: EC 170, 171, 172.

Credits: 3.

VS 284 - Seminar in Vermont History

Topical approach to Vermont history through original research utilizing primary sources available at UVM, (Same as HST 284). the Vermont Historical Society, and the Vermont State Archives. Prerequisites: Junior or senior standing, 12 hours of history, including 184 or permission.

Credits: 3.

VS 295 - Advanced Special Topics

See schedule of courses for specific titles. Prerequisite: Advanced undergraduate or graduate standing.

Credits: 1-3.

VS 296 - Advanced Special Topics

See schedule of courses for specific titles. Prerequisite: Advanced undergraduate or graduate standing.

Credits: 1-3.

VS 297 - Readings & Research

Prerequisite: Declared minor in Vermont Studies.

Credits: 1-3.

VS 298 - Readings & Research

Prerequisite: Declared minor in Vermont Studies.

Credits: 1-3.

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Minor in Vermont Studies

College: [Arts and Sciences](#)

Department(s): [Vermont Studies](#)

Requirements

Eighteen hours (at least five courses), of which at least nine hours must be at the 100 level or above. As an interdisciplinary minor, it must include at least fifteen hours from departments outside the major. Completion of Vermont Studies (VS) 52, three of the following VS courses: 55, 64, 92 or 192, 123, 160, 184, and two additional courses from an approved list chosen in consultation with the Vermont Studies advisor.

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Departments and Programs

Women's Studies Program

Colleges: [Arts and Sciences](#)

Faculty: Women's Studies

Courses: [Women's Studies \(WST\)](#)

Contact Information:

*University of Vermont
Women's Studies Program
228 Old Mill
94 University Place
Burlington, VT 05405-0114*

Phone: (802) 656-4282

Fax: (802) 656-8405

Email: wmst@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~wmst/>

Academic Offerings

- Undergraduate Majors
 - Bachelor of Arts (B. A.)
 - [Women's Studies](#)
- Undergraduate Minors
 - [Women's Studies](#)

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Courses in Women's Studies

WST 073 - Intro to Women's Studies

Survey of feminist theory and its application to specific areas of inquiry, including analysis of the intersections among race, class, and gender.

Credits: 3.

WST 076 - Women in Literature

(See English 42.)

Credits: 3.

WST 078 - History of Costume

(See Theatre 41.)

Credits: 3.

WST 084 - Mothers and Daughters

Interdisciplinary exploration of historical, social, and cultural definitions of the mother/daughter experience informed by contemporary feminist perspectives.

Credits: 3.

WST 095 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

WST 096 - Introductory Special Topics

See Schedule of Courses for specific titles.

Credits: 1-3.

WST 101 - Women and Society

(See Sociology 122.) Prerequisite: 73 or three hours of sociology.

Credits: 3.

WST 111 - Wmns Spirit:Challenge Inst Rel

Women's experience of the sacred and the self in Eastern and Western religious traditions. Analysis of political and cultural structures alienating women from their experience.

Credits: 3.

WST 115 - Studies in Gender & Religion

(See Religion 173.) Prerequisite: Three hours in religion or instructor's permission.

Credits: 3.

WST 121 - Lit Genre:Wmn Writing Autobiog

- (See English 181.) Prerequisite: Three hours in English or Women's Studies.
Credits: 3.
- WST 122 - 19th Century Women's Writing
(See English 147.) Prerequisite: Three hours in English or Women's Studies.
Credits: 3.
- WST 131 - Contemporary Feminist Art
Credits: 3.
- WST 141 - Gender and Law
Feminist jurisprudence and legal theory. Topics include economic consequences of reproduction, sexuality, divorce, custody; sexual harassment, employment discrimination; surrogate motherhood, domestic violence, rape, pornography, prostitution.
Credits: 3.
- WST 151 - Feminism: Theories and Issues
(See Philosophy 170.) Prerequisite: One course in philosophy or instructor's permission.
Credits: 3.
- WST 157 - Greek Feminism
The construction of the status of women in ancient Greek society. Readings include lyric, tragic, and comic poetry, philosophy, oratory, novel, and nonliterary documents. Prerequisite: Sophomore standing; three hours in literature, History, Anthropology, or Sociology. Cross-listed with: CLAS 157/HST 157/WLIT 157.
Credits: 3.
- WST 161 - History of Women in U S
Prerequisite: History 11 or 12, or three hours in Women's Studies. Cross-listed with: HST 182.
Credits: 3.
- WST 165 - Women, Society and Culture
(See Anthropology 172.) Prerequisite: Anthropology 21 or instructor's permission.
Credits: 3.
- WST 170 - Gender, Space & Environment
(See Geography 178.) Prerequisite: Six hours in geography or Women's Studies, or instructor's permission.
Credits: 3.
- WST 172 - Women and Depression
image on women's mental health in our society. The exploration of the impact of gender socialization, sexual oppression, discrimination, self-esteem, and body
Credits: 3.
- WST 174 - Women, Science & Nature
The position of women in relation both to science and nature is considered historically, culturally, and in terms of current feminist perspectives.
Credits: 3.
- WST 179 - Ecofeminism
(See Environmental Studies 179.) Prerequisite: 73 or Environmental Studies 1, 2. Sophomore standing.
Credits: 3.

WST 181 - Women in American Politics

(See Political Science 135.) Prerequisite: Political Science 21 or three hours in Women's Studies.

Credits: 3.

WST 182 - Women and Development

(See Political Science 179.) Prerequisite: Political Science 71 or Women's Studies 73.

Credits: 3.

WST 185 - Women in the US Economy

(See Economics 156.) Prerequisites: EC 11,12 or instructor's permission.

Credits: 3.

WST 191 - Internship

Approved programs of learning outside the classroom. Students work at local women's agencies, in consultation with faculty sponsors. Prerequisites: A contract must be obtained from and returned to the Women's Studies Program office during registration; permission of Director of Women's Studies.

Credits: 3-6.

WST 192 - Internship

Approved programs of learning outside the classroom. Students work at local women's agencies, in consultation with faculty sponsors. Prerequisites: A contract must be obtained from and returned to the Women's Studies Program office during registration; permission of Director of Women's Studies.

Credits: 3-6.

WST 195 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 1-6.

WST 196 - Intermediate Special Topics

See Schedule of Courses for specific titles.

Credits: 0-3.

WST 201 - Sociology of Reproduction

(See Sociology 223.) Prerequisite: Six hours of sociology to include one of 29, 122, or 129; or instructor's permission.

Credits: 3.

WST 205 - Women Dev Third Wrl'd Countries

(See Sociology 213.) Prerequisite: Six hours of sociology or instructor's permission.

Credits: 3.

WST 271 - Psychology of Women

(See Psychology 231.) Prerequisite: One psychology course at the 100 level or instructor's permission.

Credits: 3.

WST 273 - Seminar in Feminist Theory

An interdisciplinary examination of theories accounting for women's position in culture and society. Special emphasis on the relationship between gender, race, class, ethnicity, and sexuality. Prerequisites: 73, six additional hours in Women's Studies, and admission to the Women's Studies major or minor program.

Credits: 3.

WST 295 - Advanced Special Topics

See Schedule of Courses for specific titles. UG only.

Credits: 1-3.

WST 296 - Advanced Special Topics

See Schedule of Courses for specific titles. UG only.

Credits: 1-3.

WST 297 - Independent Study

Selection and development of topic for investigation using assigned faculty member as preceptor. Prerequisites: 73, approval of Director of Women's Studies.

Credits: 3.

WST 298 - Independent Study

Selection and development of topic for investigation using assigned faculty member as preceptor. Prerequisites: 73, approval of Director of Women's Studies.

Credits: 3.

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Women's Studies (B. A.)

College: [Arts and Sciences](#)

Department(s): [Women's Studies](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

A total of thirty-six hours (twelve courses) are required for the major.

- Core (twelve hours): Women's Studies 73, 101, 273, and 191 or 192;
- Electives (nine hours): One additional race/ethnicity class beyond the A&S requirement, one additional non-European culture class beyond the A&S requirement and any one course in fine arts or humanities cross-listed with Women's Studies.
- Concentration (fifteen hours): An individually-designed concentration consisting of five approved Women's Studies electives, at least four of which are at or above the 100 level.

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Minor in Women's Studies

College: [Arts and Sciences](#)

Department(s): [Women's Studies](#)

Requirements

Eighteen hours of course work to include WST 73, 273 and six hours at the 100 level or above to be chosen with the approval of the Women's Studies Committee or the consent of a Women's Studies advisor. Students may take a maximum of nine hours in any one discipline toward the minor. Not all sections of a multisection course will necessarily meet Women's Studies approval for the minor. (Students should consult the course listings each semester for further details.)

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College: [Arts and Sciences](#)

Undergraduate Degrees

- Bachelor of Arts (B. A.)
 - [Anthropology](#)
 - Area and International Studies
 - [Asian Studies Concentration](#)
 - [Canadian Studies Concentration](#)
 - [European Studies \(Western, Northern, Mediterranean\) Concentration](#)
 - [Latin American Studies Concentration](#)
 - [Russian/Eastern European Studies Concentration](#)
 - [Art \(Studio Concentration\)](#) ¹
 - [Art History](#)
 - Biology
 - [Cell and Molecular Biology Concentration](#)
 - [Environmental Biology Concentration](#)
 - [Forensic Biology Concentration](#)
 - [General Biology Concentration](#)
 - [Neurobiology Concentration](#)
 - [Professional Biology Concentration](#)
 - [Botany](#)
 - Chemistry
 - [Biomolecular Chemistry Concentration](#)
 - [Environmental Chemistry Concentration](#)
 - [General Chemistry Concentration](#)
 - [Classical Civilization](#)
 - [Communication Sciences](#)
 - [Computer Science](#) ²
 - [Economics](#)
 - [English](#) ¹
 - [Environmental Studies](#)
 - [French](#)

- [Geography](#)
- [Geology](#)
 - [Environmental Geology Concentration](#)
 - [Solid Earth Concentration](#)
- [German](#)
- [Greek](#)
- [History](#)
- [Individual Design](#)
- [Latin](#)
- [Mathematics](#) ^{1,2}
 - [Applied and Interdisciplinary Mathematics Concentration](#)
 - [Mathematics Concentration](#)
 - [Statistics Concentration](#)
- [Music](#)
- [Philosophy](#)
- [Physics](#)
- [Political Science](#)
- [Psychology](#) ¹
- [Religion](#)
- [Russian](#)
- [Sociology](#) ¹
- [Spanish](#)
- [Statistics](#)
- [Theatre](#)
- [Women's Studies](#)
- [Zoology](#)
- Bachelor of Music (B. M.)
 - [Music Performance](#)
 - [Music Theory](#)
- Bachelor of Science (B. S.)
 - [Biochemistry](#) ³
 - [Biology](#)
 - [Cell and Molecular Biology Concentration](#)
 - [Environmental Biology Concentration](#)
 - [General Biology Concentration](#)
 - [Neurobiology Concentration](#)
 - [Professional Biology Concentration](#)
 - [Chemistry](#)
 - [Environmental Sciences](#) (Concentrations in Environmental Biology, Chemistry, or Geology)
 - [Geology](#)
 - [Environmental Geology Concentration](#)
 - [Solid Earth Concentration](#)
 - [Physics](#)
 - [Psychology](#) ¹

Traditional Concentration

- Biobehavioral Concentration
- Zoology

Undergraduate Minors

- ALANA U.S. Ethnic Studies
- Anthropology
 - Archaeology
 - Social Anthropology
 - Sociolinguistics
- Area and International Studies
 - African Studies
 - Asian Studies
 - Canadian Studies
 - European Studies (Western, Northern, Mediterranean)
 - Latin American Studies
 - Middle Eastern Studies
 - Russian/Eastern European Studies
- Art (Studio Concentration)
- Art History
- Biology
- Botany
- Chemistry
- Chinese
- Classical Civilization
- Communication Sciences
- Computer Science
- Economics
- English
- Environmental Sciences
 - Environmental Biology
 - Environmental Chemistry
 - Environmental Geology
- Environmental Studies
- Film Studies
- French
- Geography
- Geology
- German
- Gerontology
- Greek
- History
- Holocaust Studies
- Individual Design
- Italian

Italian Studies

- Japanese
- Latin
- Mathematics
 - Applied Mathematics
 - Pure Mathematics
 - Statistics
- Music
- Philosophy
- Physics
- Political Science
- Psychology
- Religion
- Russian
- Sociology
- Spanish
- Speech
- Statistics
- Theatre
- Vermont Studies
- Women's Studies¹
- Zoology

Notes:

¹ Available also through the Evening University division of Continuing Education.

² Bachelor of Science degrees in Computer Science, Mathematics, or Statistics are available from the College of Engineering and Mathematics.

³ The Bachelor of Science degree in biochemistry is offered jointly by the College of Arts and Sciences, the College of Agriculture and Life Sciences, and the College of Medicine.

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Minor in Botany

College: [Agriculture and Life Sciences](#), [Arts and Sciences](#)

Department(s): [Botany](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Botany Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

At least 15 hours of course work to include Botany 4 or Biology 1 or 2; plus three additional courses in Botany, at least one at the 200 level.

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Minor in Chinese

College: [Arts and Sciences](#)

Department(s): [East Asian Languages Program](#)

Requirements

Fifteen credit hours of Chinese with at least eight of those hours at the 100 level, including 102 or its equivalent. Three credit hours at or above the 100 level in Chinese linguistics or literature may be substituted for three credits of language study beyond 102 or its equivalent.

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Minor in Environmental Sciences: Biology

College: [Arts and Sciences](#)

Department(s): [Environmental Science](#)

Requirements

Biology 1, 2 or 11, 12; 102, and two additional upper-division non-biology courses chosen in consultation with co-advisor.

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Minor in Environmental Sciences: Chemistry

College: [Arts and Sciences](#)

Department(s): [Environmental Science](#)

Requirements

Chemistry 31, 32; 121 or 42; and two additional upper-division non-chemistry courses chosen in consultation with co-advisor.

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Minor in Environmental Sciences: Geology

College: [Arts and Sciences](#)

Department(s): [Environmental Science](#)

Requirements

Geology 55, 101, 155, and two additional upper-division non-geology courses chosen in consultation with co-advisor.

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Minor in Environmental Studies

College: [Arts and Sciences](#)

Department(s): [Environmental Studies](#)

Requirements

Seventeen hours in Environmental Studies consisting of 1, 2, and nine hours at the 100 level or above, including three hours at the 200 level. (Of the nine hours, one non-ENVS course at the appropriate level may be substituted with the approval of the student's advisor and the Environmental Program.)

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Minor in Japanese

College: [Arts and Sciences](#)

Department(s): [East Asian Languages](#)

Requirements

Fifteen credit hours of Japanese with at least eight of those hours at 100 level, including 102 or its equivalent. Three credit hours at or above 100 level in Japanese linguistics or literature may be substituted for three credits of language study beyond 102 or its equivalent.

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Cross College Minors

College: [Arts and Sciences](#)

The minors listed below have been approved for College of Arts and Sciences students and will fulfill minor requirements for Bachelor of Arts, Bachelor of Science, and Bachelor of Music candidates. In some cases, minor requirements differ for Arts and Sciences students and students from other colleges at UVM. In those cases, Arts and Sciences students must complete the requirements listed separately for "Arts and Sciences majors."

- [Accounting](#)
- [Agricultural and Resource Entrepreneurship](#)
- [Animal Science](#)
- [Applied Design](#)
- [Business Administration](#)
- [Community and International Development](#)
- [Consumer Affairs](#)
- [Consumer and Advertising](#)
- [Forestry](#)
- [Human Development and Family Studies](#)
- [Microbiology](#)
- [Molecular Diagnostics](#)
- [Molecular Genetics](#)
- [Nutrition and Food Sciences](#)
- [Plant and Soil Science](#)
- [Recreation Management](#)
- [Sustainable Agriculture](#)
- [Wildlife Biology](#)

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Minor in Accounting

College: [School of Business Administration](#)

Requirements

Prerequisites:

Economics 11, Economics 12, Mathematics 19 or 21, Statistics 111 or 141. Students must have basic microcomputer literacy, including a working knowledge of word processing and spreadsheet software. Students lacking this basic knowledge are responsible for attaining it through course work, self study, tutorials, or workshops.

Introductory Accounting: BSAD 60 and 61 or BSAD 65. (A student may not receive credit for BSAD 65 after completion of either BSAD 60 or BSAD 61.) Students must earn at least a 2.0 in *each* introductory accounting course taken to continue with an accounting minor. If a 2.0 is not achieved, a student may switch to a business administration minor.

Upper Level Accounting Requirements: BSAD 161, 162, 164, and 168. A student must earn a 2.0 average in these four courses to earn an accounting minor.

Students Majoring in Business

Students majoring in Business Administration are not required to have a minor to meet degree requirements; however, a business student may choose to have a minor outside of Business. The department issuing the minor sets the requirements and determines if the student is eligible to minor in their program. The student must contact the appropriate department to obtain more information.

Non-Business Students

Two different minors are available in the School of Business Administration for non-business majors: Business Administration or Accounting. An application is required and may be obtained at the Student Services Office, 101 Kalkin Hall. Acceptance into the minor program requires completion of the prerequisite courses with a GPA of 2.0 or better in these courses. Admission may be more restrictive if applications exceed the

capacity of the program.

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Minor in Agricultural and Resource Entrepreneurship

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics](#)

Requirements

Any student interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Fifteen to sixteen credits including 12 credits in required courses CDAE 166, 167, 168, 266; one course three to four credits from the following restricted electives: CDAE 157, 264, 267.

Arts and Sciences Majors: This minor is also available for Arts and Sciences students. Courses required are: CDAE 61, 166, 167, 168, and 266. Arts and Sciences students should note that BSAD 65, MATH 19, and CS 2 or instructor permission are listed as prerequisites for some of the upper level courses.

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Minor in Animal Science

College: [Agriculture and Life Sciences](#)

Department(s): [Animal Science](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Animal Science department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Five courses with a minimum of 15 credit hours including Introductory Animal Sciences (ASCI 1); two courses selected from core sciences including 43, 110, 122, 141, 205, 215 or 216; two courses selected from applied sciences including 113, 115, 117, 118, 125, 134, 135, 161, 220, 231, 233, 234, 263, or 264. At least three credits must be at 200 level or above.

For students in the College of Arts and Sciences:

Five courses with a minimum of 15 credit hours, including Introductory Animal Science (ASCI 1), two courses in Core Science including ASCI 43, 110, 122, 141, 205, 215, 216, and two courses selected from Applied Sciences including 115, 117, 118, 134, 135, 161, 211, 220, 231, 233, 234, 263, 264. At least 8 credits must be at the 100 level, 3 of which must be at the 200 level. Acceptance into this program is by application only. Contact Dept. of Animal Science, 102 Terrill, for more information.

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Minor in Applied Design

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics Department](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Nine credits in required courses: CDAE 15; 1 or 16, 101 or 231 plus two additional elective courses at or above the 100 level, approved by the student's advisor to define an applied design focus for a total of 15 credits.

Arts and Sciences Majors: Nine of the 15 hours must be at the 100 level or above. The Applied Design minor is not available to students majoring or minoring in Studio Art.

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Minor in Business Administration

College/School: [School of Business Administration](#)

Requirements

Prerequisites:

Economics 11, Economics 12, Mathematics 19 or 21, Statistics 111 or 141. Students must have basic microcomputer literacy, including a working knowledge of word processing and spreadsheet software. Students lacking this basic knowledge are responsible for attaining it through course work, self study, tutorials, or workshops.

Accounting: BSAD 60 and 61 or BSAD 65. (A student may not receive credit for BSAD 65 after completion of BSAD 60 or BSAD 61.)

Other Business requirements: Three businessfield courses (numbered 100-299), at least one of which must be from the followinglist: BSAD 120, 132, 141, 150, 173, or 180.

One year MBA opportunity: A student minoring in Business Administration may complete an MBA at UVM in one year after earning a bachelor's degree if: (1) BSAD 60 and 61 are completed; (2) three of BSAD 120, 132, 150, 173, and 180 are selected to meet the minor requirement; (3) the other two courses on this list are taken as electives; and (4) the student applies and is admitted to the MBA program under regular criteria.

Students Majoring in Business

Students majoring in Business Administration are not required to have a minor to meet degree requirements; however, a business student may choose to have a minor outside of Business. The department issuing the minor sets the requirements and determines if the student is eligible to minor in their program. The student must contact the appropriate department to obtain more information.

Non-Business Students

Two different minors are available in the School of Business Administration for non-business majors: Business Administration or Accounting. An application is required and

may be obtained at the Student Services Office, 101 Kalkin Hall. Acceptance into the minor program requires completion of the prerequisite courses with a GPA of 2.0 or better in these courses. Admission may be more restrictive if applications exceed the capacity of the program.

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Minor in Community and International Development

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics Department](#)

Requirements

Any student interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

A total of 15 credit hours with nine from required courses CDAE 2, 61, and 171; and six hours from a list of restricted electives as follows: CDAE 166, 167, 196, 218, 237, 251, 255, 272, 273, or 296.

Arts and Sciences Majors: This minor is also available for Arts and Sciences students. Courses required are: a total of 15 credits with 12 from required courses CDAE 2, CDAE 61 or EC 12, CDAE 102, and either CDAE 171, 273, or 296; and three hours from a list of restricted electives as follows: CDAE 166, 167, 237, 251, 255, 272, EC 140.

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Minor in Consumer Affairs

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics Department](#)

Requirements

Any student interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Fifteen credits including CDAE 127, 128, 157, 159; plus one of the following restricted electives: CDAE 102, 250, or 255. *Note: CDAE majors must take CDAE 250 as their "elective."*

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Minor in Consumer and Advertising

College: [Agriculture and Life Sciences](#)

Department(s): [Community Development and Applied Economics Department](#)

Requirements

Any student interested in enrolling in this minor should contact the Community Development and Applied Economics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections.

Fifteen credits including CDAE 15, 127, 128, 183, and an advisor-approved elective.

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Minor in Forestry

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Forestry Program](#)

Requirements

The Bachelor of Science degree in Natural Resources does not require completion of a minor. However, many students in The Rubenstein School do complete minors, either within the School or in other departments across campus. Interested students should contact the chair of the minor program or department.

Applications for the minor must be filed no later than June 1 of the year preceding graduation. A minimum of 16 credit hours is required, with at least nine at the 100-level or higher.

Required courses: FOR 1* or 73; FOR 21; additional FOR courses to total 16 credits.

* Students in the The Rubenstein School may not count FOR 1 towards completion of a Forestry minor.

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Minor in Human Development and Family Studies

College: [Education and Social Services](#)

Department(s): [Integrated Professional Studies](#)

Overview

The minor in Human Development and Family Studies affords students a foundation in the processes of development across the life span, focusing on individual development, family relationships, and major influences on both.

This minor cannot be the sole minor for sociology or psychology majors but is acceptable as a second minor, especially for persons interested in careers involving work with families and youth. For other majors, it can be the sole minor.

Requirements

Eighteen hours including HDFS 5, 60, 65; three 100 or 200 level HDFS courses except [291, 296]. This minor cannot be the sole minor for sociology or psychology majors but is acceptable as a second minor, especially for persons interested in careers involving work with families and youth.

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Minor in Microbiology

College: [Agriculture and Life Sciences](#)

Department(s): [Microbiology and Molecular Genetics](#)

Requirements

Core requirements are MMG 101 and 102, Botany 132, plus an additional six credit hours of MMG courses chosen from MMG 195/196, 201, 203, 211, 220, 222, 223, 225, 295/296 depending on student needs.

Agriculture and Life Sciences Majors: Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Microbiology and Molecular Genetics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Arts and Sciences Majors: A student may minor in Microbiology and Molecular Genetics upon permission of the departmental Undergraduate Affairs Committee and assignment of a minor advisor within the department who will direct the student's program plan and course selection.

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Minor in Molecular Diagnostics

College: [Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Requirements

The Department of Biomedical Technologies offers a cross-college minor in Molecular Diagnostics. The minor emphasizes the applications of molecular biology techniques to diagnostic testing. The program of study includes 15-16 credit hours of both didactic and laboratory experiences. Prerequisite courses include at least one semester each of general and organic chemistry and two semesters of biology, or anatomy and physiology. Acceptance into the program requires the completion of the prerequisite courses with a GPA of 2.5 or better. An application is required for admission and may be obtained in 302 Rowell Building.

Required Courses: Immunology (BMT 242), Immunology Laboratory (BMT 244), Molecular Applications (BMED 281), Research Concepts (BMED 293), Undergraduate Research (BMED 297); plus 3-4 credit hours from BMT 4, 34, 54, 123, MLS 222, 231, 255.

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Minor in Molecular Genetics

College: [Agriculture and Life Sciences](#)

Department(s): [Microbiology and Molecular Genetics](#)

Requirements

Core requirements are MMG 101, 102, 211, Botany 132; plus an additional six credit hours of MMG courses chosen from MMG 195/196, 201, 203, 223, 225, 295/296 depending on students needs.

Agriculture and Life Sciences Majors: Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Microbiology and Molecular Genetics Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Arts and Sciences Majors: A student may minor in Microbiology and Molecular Genetics upon permission of the departmental Undergraduate Affairs Committee and assignment of a minor advisor within the department who will direct the student's program plan and course selection.

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Minor in Nutrition and Food Science

College: [Agriculture and Life Sciences](#)

Department(s): [Nutrition and Food Science](#)

Requirements

A total of fifteen credit hours in Nutrition and Food Sciences, 9 credit hours consisting of 43, 53, 143, and six credits of NFS courses from the following: 63, 123, 150, 153, 165 or any 200-level course approved by the student's minor advisor that will define a particular focus. Independent study, field experience and undergraduate research cannot be counted in this total.

Agriculture and Life Sciences Majors: Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Nutrition and Food Science Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Arts and Sciences Majors: Arts and Sciences students must select at least eight credits of NFS course work at or above the 100 level.

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Minor in Plant and Soil Science

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Requirements

Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Plant and Soil Science Department. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Sixteen credits including Plant and Soil Science 10 or 11, 161, plus an additional 9 credits in Plant and Soil Science courses at the 100 level or above.

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Minor in Recreation Management

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Recreation Management](#)

Requirements

The Bachelor of Science degree in The Rubenstein School of Environment and Natural Resources does not require completion of a minor. However, many students in the Rubenstein School do complete minors, either within the School or in other departments across campus. Interested students should contact the chair of the minor program or department.

The minor requires a planned course of study which will provide a substantive introduction into the field of recreation management. Interested students should contact the Program Chair. A total of 15 credit hours are required. A minimum of nine credits are to be selected from RM 1, 50, 138, 153, 157, 158. A minimum of six credits are to be selected from RM 230, 235, 240, 255, 258.

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Minor in Sustainable Landscape Agriculture

College: [Agriculture and Life Sciences](#)

Department(s): [Plant and Soil Science](#)

Requirements

Fifteen hours including nine in required courses ASCI 230 or CDAE 208, CDAE 61 and PSS 152; three or four credits from the following restricted electives: ASCI 110, 113, 115, 118, 213, 214, 220, 231, 233, 234, 264 or CDAE 171, 205, 218, 272, 273, or PSS 106, 161, 122, 123, 124, 125, 126, 127, 138, 141, 145, 154, 210, 215, 217, 221, 232; and a three to six credit hour internship: AGRI 195 – Special Topics, ASCI 197 or 297, CDAE 196, or PSS 197 or 297.

Agriculture and Life Sciences Majors: Any student in the College of Agriculture and Life Sciences interested in enrolling in this minor should contact the Plant and Soil Science, Community Development and Applied Economics, or Animal Science departments. If accepted, the student will be assigned a "minor advisor" from the department who must approve all program plans and course selections. Students in the College of Agriculture and Life Sciences may enroll, on a space available basis, in minors listed under the School of Natural Resources and in minors offered campus wide.

Arts and Sciences Majors: Fifteen hours to include: CDAE 61, CDAE 208, PSS 152, one elective at 100 or 200 level in ASCI/CDAE/PSS (see list of approved electives in Department or Dean's Offices) and three to six hours of internship at 100 or 200 level in AGRI/ASCI/CDAE/PSS. Note: Students should take their four academic courses **before** they design their internship experience. Thus the intership will serve as a culminating event in this program of study. The College of Arts and Sciences requires their students to receive a letter grade for internships taken in minor programs of study.

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Minor in Wildlife Biology

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Wildlife and Fisheries Biology](#)

Requirements

The Bachelor of Science degree in The Rubenstein School of Environment and Natural Resources does not require completion of a minor. However, many students in The Rubenstein School do complete minors, either within the School or in other departments across campus. Interested students should contact the chair of the minor program or department.

Applications for the minor must be filed no later than June 1 of the year preceding graduation or of the completion of the requirements for the minor. A minimum of 15 credit hours is required in prescribed and elective courses. Required courses: WFB 130, WFB 174; WFB 271 or 273. Elective courses: WFB 131, 150, 176, 185/186, 187/188, 271, 272, 273, 274, 275, 279, 285/286, 287/288; NR 224.

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College of Arts and Sciences First-Year Programs

College: [Arts and Sciences](#)

The first year of university-level study is challenging. The College of Arts and Sciences offers students two programs that help them complete the first year successfully and acquire the skills and background necessary for success throughout their university careers.

In their first semester, students are encouraged to enroll in the Teacher-Advisor Program (TAP), which is designed to help students begin a successful liberal arts education. TAP combines interactive courses with careful academic advising. In TAP seminars, students approach significant issues from a variety of points of view, develop their critical thinking, and improve their skills in oral and written communication. Students' TAP instructors are also their academic advisors and help first-year students discover their interests and reach academic goals. TAP courses all satisfy the College's distribution requirements. Typical topics for TAP courses include "Science as a Way of Knowing," "Coming to America: Autobiography and Ethnicity," "Geology and Ecology of Lake Champlain," "Rationality: Belief in God," and "Student Movements in the Twentieth Century." More than forty different courses like these are available to first-year students each year.

As students enter their second semester, it is important for them to continue developing the critical thinking, speaking and writing skills cultivated in TAP, and also to reflect on their choices of majors and minors. Our second-semester program, STEP (Sophomore Transition and Engagement Program) is designed to facilitate the transition into the sophomore year. Courses encourage the intellectual shift from a broad exposure to the liberal arts to in-depth study in a particular field. STEP courses are available in all disciplines and are interactive, with significant writing, speaking, or other kinds of engagement that cultivates critical thinking skills.

The combination of TAP and STEP will allow you to get your university education off to a strong start.

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College of Arts and Sciences John Dewey Honors Program

College: [Arts and Sciences](#)

The [John Dewey Honors Program](#) brings together academically committed students who seek an especially challenging and creative undergraduate experience. John Dewey Scholars participate in seminars with other honors students from across the liberal arts, take one or more honors-level courses and complete their senior year with an honors thesis or creative project. A variety of special seminars and cultural, social, and service activities round out the program. John Dewey scholars have an honors advisor to help them design the best possible schedule of courses, and are given priority enrollment for courses. The Honors Program lounge offers students a quiet space for studying and socializing.

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College of Arts and Sciences Preprofessional Preparation

College: [Arts and Sciences](#)

Whether you are interested in medical, dental or law school, or graduate work in other fields, the College of Arts and Sciences offers you excellent opportunities to complete your preprofessional education.

Medicine and Dentistry

Minimum requirements for entry into medical and dental schools include one year each of biology, general chemistry, organic chemistry, physics and calculus. Increasing numbers of medical and dental schools also are requiring a year of English, work in the humanities, social sciences, and languages. There is however no required or preferred major. As long as you complete the courses required by your chosen professional schools, you may pursue any undergraduate major in UVM's College of Arts and Sciences. Medical and dental schools are primarily concerned with the overall scope and quality of undergraduate work. Only about half the first-year students in medical or dental schools have majored in a science, for example. Thus, you should follow your true interests and work to achieve the academic standing necessary for. Your academic advisor will help you plan your program. In addition, the Center for Career Development coordinates pre-medical and pre-dental advising, and has information about the requirements of specific medical and dental schools.

Because the UVM College of Arts & Sciences offers the advantages of a small liberal arts college within a comprehensive university, students have the opportunity to do research with faculty who are nationally and internationally recognized leaders in their fields. We have an excellent record of placing graduates in medical and dental schools. Among the institutions where recent pre-medical graduates are now studying are Albert Einstein College of Medicine, Baylor, Boston University, Columbia, Cornell, Dartmouth, Hanaman Hospital and the Mayo Clinic, while pre-dental graduates are studying at Boston University, Columbia, NYU, Northwestern, and University of Pennsylvania.

Law

A significant number of UVM students consider attending law school immediately or a few

years after graduation. UVM is successful in placing its graduates in leading law programs around the country, including at Yale University, New York University, Columbia University, and the University of Michigan.

Arts & Sciences students have the opportunity to participate in the accelerated BA/JD Program with Vermont Law School. The Program allows exceptionally qualified students to complete both a Bachelor of Arts in the College of Arts and Sciences and a Juris Doctor at Vermont Law School in six rather than seven years. For application and program information, contact the program Coordinator, Professor Howard Ball, Department of Political Science, 656-6263, or the College of Arts and Sciences, 656-3166.


The University of Vermont provides guidance to its pre-law students through the Center for Career Development and a Faculty Pre-Law Advisory Committee. We begin working with students as soon as they express an interest in law and provide guidance throughout the undergraduate career.

Unlike pre-medical programs, where students must take a prescribed set of courses, there is no pre-law curriculum. "What law schools seek in their entering students is not accomplishment in mere memorization," states the Association of American Law Schools, "but accomplishment in understanding, the capacity to think for themselves, and the ability to express their thoughts with clarity and force." The Association does not prescribe a specific course of study to prepare undergraduates for law school, but rather suggests a broad approach to liberal arts including work in English, humanities, logic, mathematics, social sciences, history, philosophy, and the natural sciences.

Graduate Study in Other Fields

In addition to medical, dental or law school, Arts and Sciences students pursue graduate education in a variety of fields ranging from ethnomusicology to journalism or immunology. Recent UVM College of Arts and Sciences graduates have been accepted at such institutions as the University of Wisconsin, Brandeis, Harvard, University of Michigan, Yale, New York University, Princeton, Cornell, Berkeley, Tufts, and Duke.

Secondary Teaching

Students in the College of Arts and Sciences who are interested in becoming eligible to teach in secondary grades (7-12) should review the College of Education and Social Services section titled Teacher Education. All requirements must be fulfilled as listed in the CESS Secondary Education State Approved program and not simply the sequence of Professional courses. The requirements are also available at [the CESS Web site](#) .

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College of Arts and Sciences Requirements for the Bachelor of Arts Degree

College: [Arts and Sciences](#)

Students must comply with the degree requirements as stated in one edition of the Catalogue in place during the time they are enrolled. However, since the curriculum is viewed as a coherent whole, selected parts from different catalogues may not be counted. Students who do not complete the degree within seven years must comply with the requirements in the catalogue current at the date of readmission. Disputed rulings may be appealed to the Committee on Academic Standing.

- A. A student must earn a cumulative grade-point average of 2.0 in a program comprised of a minimum of 122 semester hours to include two hours of physical education activities. Students receiving degrees from the College of Arts and Sciences may apply no more than 10 credits of Physical Education toward the 122 required for graduation. Students 25 years of age or older at the time of admission to the University or students with a documented medical condition which precludes participation in such activities are exempt from the physical education requirement and must present a total of 120 hours of academic credit.

Of the 122 hours of credit required, students electing a minor offered by the College must complete 96 hours in courses offered by departments and programs in the College of Arts and Sciences. The remaining 24 hours may be taken in courses offered by any academic unit at The University of Vermont. Students electing an approved minor offered by another school or college of the University (a cross-college minor), must complete 84 hours in courses offered by the departments and programs in the College of Arts and Sciences. The remaining 36 hours of credit, to include courses required for the minor, may be taken in courses offered by any academic unit of The University of Vermont.

No more than eight hours of Military Studies credit may apply toward the degree. Courses taken on a pass/no pass basis may not be used toward completion of any requirement listed below under sections C and D and E.

- B. A student must be matriculated in the College of Arts and Sciences and in

residence at The University of Vermont during the period in which he or she earns 30 of the last 45 hours of academic credit applied toward the degree.

- C. A student must complete the following courses which comprise the general and distributive requirements for the Bachelor of Arts degree. All courses used to satisfy these requirements must carry at least three hours of credit and may not be taken on a pass/no pass basis. Each semester Special Topics and cross-listed courses (95, 96, 195, 196, 295, 296) are offered which may meet general and distributive requirements. Check in the Dean's office if you have a question about a specific course.

General Requirements

1. *Non-European Cultures*: One course, other than a foreign language, which deals with non-European cultural traditions.¹ The course selected to satisfy this requirement may also be used to fulfill the distributive requirement, but one course cannot be used to satisfy both General Requirements 1 and 2.
2. *Race Relations and Ethnic Diversity in the United States*: One course which addresses centrally the question of race relations and ethnic diversity in the U.S.² The course selected to satisfy this requirement may also be used to fulfill the distributive requirement, but one course cannot be used to satisfy both General Requirements 1 and 2.

Distribution Requirements

Six of the seven categories must be completed. No more than two courses from the same department may be used to satisfy the distribution requirement. No single course may satisfy more than one category, except that a foreign language course which fulfills the literature category simultaneously fulfills the category of foreign language. Courses which satisfy major and minor requirements may also be used to satisfy distribution requirements.

1. *Foreign Language*: One course numbered 52, or in Latin, 51 and 52, or one course numbered 100 or above (except Spanish 105). A student who has achieved a score of 4 or better on an appropriate Advanced Placement Test will be exempt from this requirement.³ Exemption will also be granted to those students who achieve a score of 650 or better on the appropriate CEEB Achievement Test and who pass oral and written tests administered by the appropriate foreign language department.
2. *Mathematics*: One course numbered 13, 14, 17 or above or Statistics 51 or above. A student who has achieved a score of 4 or better on the Calculus AB or a score of 3 or better on the Calculus BC Advanced Placement Tests will be exempt from this requirement.³
3. *Fine Arts*: One course in Studio Art or Art History, Music,⁴ Theatre,⁵ or Film.

4. *Literature*: One course selected from a list of approved offerings in Classics, English, French, German, World Literature, Greek, Italian, Latin, Russian, and Spanish.⁶
5. *Humanities*: Two courses selected from a list of approved offerings in ALANA U.S. / Ethnic Studies, Art History, Classics, Greek, History, Latin, Philosophy, Political Science, and Religion.⁷
6. *Social Sciences*: Two courses selected from a list of approved offerings in Anthropology, Communication Sciences, Economics, Geography, Area and International Studies, Political Science, Psychology, Sociology, Vermont Studies, and Women's Studies.⁸
7. *Natural Sciences*: Two courses, one of which must include laboratory experience, from among the offerings in Astronomy, Biology, Botany, Chemistry, Geology, Physics.

D. A student must complete an approved Major in the College of Arts and Sciences by satisfying the requirements specified by the department or program supervising the major and by maintaining a cumulative grade-point average of 2.0 in the major field. No more than 45 hours of credit in the major field may be used toward completion of the 122 hours of credit required for graduation. At least one-half of the credit hours used toward the major requirements must be taken at The University of Vermont. Of these, at least 12 credits must be at or above the 100 level. Application of credits earned elsewhere to completion of the major is subject to approval by the appropriate department chairperson or program director. No courses applied toward satisfaction of major requirements may be taken on a pass/no pass basis.

E. A student must complete a minor approved by the College of Arts and Sciences in a field other than the major by satisfying the requirements specified by the department or program supervising the minor.⁹ Also, a student must maintain a cumulative grade-point average of 2.0 in the minor field.¹⁰ Completion of a second major will satisfy the minor requirement. As with the major, at least one-half of the credit hours used toward completion of the minor requirements must be taken at The University of Vermont, and application of credits earned elsewhere toward completion of the minor is subject to approval by the appropriate department chairperson or program director. No courses applied toward satisfaction of the minor requirements may be taken on a pass/no pass basis.

See also: [Internships](#)

Footnotes

¹ The following courses have been approved for this category: Anthropology 21, 23, 24, 28, 64, 160, 161, 162, 163, 165, 166, 167, 170, 172, 179, 180; Art 8, 146, 185, 187, 188,

192, 285; Classics 145; English 61, 172, 173; French 289; Geography 1, 51, 56, 151, 154, 173; History 9, 10, 40, 41, 45, 46, 50, 51, 62, 63, 140, 141, 149, 150, 151, 152, 161, 163, 164, 240, 241, 250, 252; Music 15; Philosophy 3, 121, 122, 221; Political Science 157, 168, 170, 174, 175, 177, 179; Religion 20, 21, 130, 131, 132, 134, 141, 145, 230; Sociology 171, 213, 272; World Lit 145.

² The following courses have been approved for this category: All ALANA U.S. / Ethnic Studies courses; Anthropology 160, 64, 169, 187, Communication Sciences 160, Economics 153, English 57, 166, 167, 168, 170, Geography 60, History 68, 168, 169, 187, 188, 189, Political Science 29, 129, Psychology 269, Religion 80, 128, Sociology 19, 31, 118, 119, 219. Art 295 "Working With Culturally Diverse Sources" and Art 295 "Cultural Transformations" will meet this requirement. Anthropology 187 is cross-listed with Sociology 119, WLIT 16, 116.

³ See Admissions Section for information concerning academic credit for Advanced Placement Testing.

⁴ Music Performance courses (one and two credit hours each) may be used to satisfy the Fine Arts requirement if their cumulative credit hour total is equal to or greater than three.

⁵ Speech courses will not satisfy the Fine Arts requirement.

⁶ The following courses have been approved for this category: Classics 37, 42, 153, 155, 156; all English courses except: 1, 4, 30, 50, 53, 101, 102, 103, 104, 108, 109, 111, 112, 117, 118, 119, 120; all French courses numbered 111 or above except 191, 201, 209, 211, 215, 216, 292, 293; all World Literature courses; all German courses numbered above 100 except: 103, 104, 121, 122, 201, 202, 213; all Greek courses numbered above 200; Italian 157, 158; all Latin courses numbered above 100 except 111, 112, 255; all Russian courses numbered above 100 except: 101, 121, 122, 141, 142, 161, 221, 222, 251, 271; all Spanish courses numbered 140 or above except: 201, 202, 210, 211, 290, 291, 292, 293, 294, 299.

⁷ The following courses have been approved for this category: all Art History, History, Philosophy, Religion courses; ALANA U.S. / Ethnic Studies 55, 159; Classics 21, 23, 24, 35, 121, 122, 149, 154, 157, 158, 159, 221, 222; Greek 203, 205; Latin 255; Political Science 1, 141, 142, 143, 144, 146, 241, 242, 243, 249.

⁸ The following courses have been approved for this category: all Anthropology, Economics, Geography, Psychology, and Sociology courses; Communication Sciences 20, 80, 90, 94; Area and International Studies 91A, 91B; all Political Science courses except: 41, 141, 142, 143, 144, 146, 241, 242, 243, 249; Vermont Studies 52, Women's Studies 73.

⁹ Only one course may be applied toward completion of both a major and a minor requirement.

¹⁰ The minor grade-point average will be calculated from the first set of courses which satisfy the minor requirements. However, if a student's grade-point average in these

courses falls below 2.0, and there are additional courses which are approved for inclusion in the minor, a student may elect to drop for purposes of the grade-point average calculation, one course graded below C and to replace this course with an approved alternate.

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College of Arts and Sciences Requirements for the Bachelor of Science Degree

College: [Arts and Sciences](#)

Students must comply with the degree requirements as stated in one edition of the Catalogue in place during the time they are enrolled. However, since the curriculum is viewed as a coherent whole, selected parts from different catalogues may not be counted. Students who do not complete the degree within seven years must comply with the requirements in the catalogue current at the date of readmission. Disputed rulings may be appealed to the Committee on Academic Standing.

- A. A student must earn a cumulative grade-point average of 2.0 in a program comprised of a minimum of 122 semester hours to include two hours of physical education activities. Students receiving degrees from the College of Arts and Sciences may apply no more than 10 credits of Physical Education toward the 122 required for graduation. Students 25 years of age or older at the time of admission or students with a documented medical condition which precludes participation in such activities are exempt from the physical education requirement and must present a total of 120 hours of academic credit. Of the 122 hours of credit required, 96 hours must be taken in courses offered by departments and programs in the College of Arts and Sciences. The remaining 24 hours of credit may be taken in courses offered by any academic unit of The University of Vermont, although no more than eight credits of Military Studies may apply toward the degree. Courses taken on a pass/no pass basis may not be used toward the completion of any requirement listed below under sections C and D and E.
- B. A student must be matriculated in the College of Arts and Sciences and in residence at UVM during the period in which he or she earns 30 of the last 45 hours of academic credit applied toward the degree.
- C. A student must complete the [General Requirement Race Relations and Ethnicity](#) in the United States. A student must complete the Distributive Requirement for the Bachelor of Science degree by completing six courses selected from at least two of the following areas: Foreign Language, Fine Arts, Literature, Humanities, and

Social Sciences. Students opting for a Bachelor of Science degree in Psychology must also complete the College of Arts and Sciences distribution requirements for a Bachelor of Science degree and they may not use Psychology courses to fulfill the social sciences category. No courses applied toward satisfaction of the distributive requirements may be taken on a pass/no pass basis.

- D. A student must complete an approved Major in the College of Arts and Sciences by satisfying the requirements specified by the department or program supervising the major, and by maintaining a cumulative grade-point average of 2.0 in the major field. No more than 50 hours of credit in the major field may be used toward completion of the 122 hours of credit required for graduation. At least one-half of the credit hours used toward the major requirements must be taken at UVM. Of these at least 12 credits must be at or above the 100 level. Application of credits earned elsewhere toward completion of the major is subject to approval by the appropriate department chairperson or program director. No courses applied toward satisfaction of major requirements may be taken on a pass/no pass basis.

Bachelor of Science (with optional minor) degree: A student electing this degree program must satisfy all of the requirements specified in sections A, B, C, and D (above), as well as:

- E. A student must complete an approved minor in a field other than the major by satisfying the requirements specified by the department or program supervising the minor and by maintaining a cumulative grade-point average of 2.0 in the minor field. Students electing a minor offered by the College must complete 96 hours in courses offered by departments and programs in the College of Arts and Sciences. The remaining 24 hours may be taken in courses offered by any academic unit at The University of Vermont. Students electing an approved minor offered by another school or college of the University (a cross-college minor) must complete 84 hours in courses offered by the departments and programs in the College of Arts and Sciences. The remaining 36 hours of credit, to include courses required for the minor, may be taken in courses offered by any academic unit of The University of Vermont. At least one-half of the credit hours used toward completion of the minor requirements must be taken at The University of Vermont, and application of credits earned elsewhere toward completion of the minor is subject to approval by the appropriate department chairperson or program director. No courses applied toward satisfaction of the minor requirements may be taken on a pass/no pass basis. No more than two of the courses from section C distribution requirements may be applied toward the completion of the minor requirements.

See also: [Internships](#)

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College of Arts and Sciences Requirements for the Bachelor of Music Degree

College: [Arts and Sciences](#)

Students must comply with the degree requirements as stated in one edition of the Catalogue in place during the time they are enrolled. However, since the curriculum is viewed as a coherent whole, selected parts from different catalogues may not be counted. Students who do not complete the degree within seven years must comply with the requirements in the catalogue current at the date of readmission. Disputed rulings may be appealed to the Committee on Academic Standing.

- A. A student must earn a cumulative grade-point average of 2.0 in a program consisting of a minimum of 122 semester hours of academic credit for a Music Theory Concentration, or 125 semester hours of academic credit for Music Performance Concentration. Of these hours of required credit, two hours must be associated with physical education activities. Students receiving degrees from the College of Arts and Sciences may apply no more than 10 credits of Physical Education toward the 122 required for graduation. Students 25 years of age or older at the time of admission or students with a documented medical condition which precludes participation in such activities are exempt from the physical education requirement and must present a total of 120 hours of academic credit. Courses taken on a pass/no pass basis may not be used toward the completion of any requirement listed below under sections C, D, and E.
- B. A student must be matriculated in the College of Arts and Sciences and in residence at UVM during the period in which he or she earns 30 of the last 45 hours of academic credit applied toward the degree.
- C. A student must complete the Distributive and General Requirements identical to that required for the Bachelor of Arts degree.
- D. A student must complete a Major with a concentration in either theory or performance by satisfying the requirements specified by the department, and by maintaining a cumulative grade-point average of 2.0 in the major field. An admission audition, junior standing jury examination, and senior recital are also

required for the performance concentration. At least one-half of the credit hours used toward the major requirements must be taken at The University of Vermont. Of these, at least 12 credits must be at or above the 100 level. Application of credits earned elsewhere to completion of the major is subject to approval by the appropriate department chairperson or program director. No courses applied toward satisfaction of major requirements may be taken on a pass/no pass basis.

Bachelor of Music (with optional minor) degree. A student electing this degree program must satisfy all of the requirements specified in sections A, B, C, and D (above) as well as:

- E. A student must complete an approved minor in a field other than the major by satisfying the requirements specified by the department or program supervising the minor and by maintaining a cumulative grade-point average of 2.0 in the minor field. Students electing a minor offered by the College must complete 96 hours in courses offered by departments and programs in the College of Arts and Sciences. The remaining 24 hours may be taken in courses offered by any academic unit at The University of Vermont. Students electing an approved minor offered by another school or college of the University (a cross-college minor) must complete 84 hours in courses offered by the departments and programs in the College of Arts and Sciences. The remaining 36 hours of credit, to include courses required for the minor, may be taken in courses offered by any academic unit of The University of Vermont. At least one-half of the credit hours used toward completion of the minor requirements must be taken at The University of Vermont, and application of credits earned elsewhere toward completion of the minor is subject to approval by the appropriate department chairperson or program director. No courses applied toward satisfaction of the minor requirements may be taken on a pass/no pass basis.

See also: [Internships](#)

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College of Arts and Sciences Internships

College: [Arts and Sciences](#)

Arts and Sciences students are encouraged to do internships and may count up to 12 hours of internship credit towards their B. A. or B. S. Full information on internships and the regulations governing them is found in the Arts and Sciences Internship brochure, available in 304 Waterman.

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College of Arts and Sciences Regulations

College: [Arts and Sciences](#)

Regulations Governing Independent Study

A student may receive credit for a project or program of [independent study](#) which is supervised by an academic department or program within the University. Such independent study projects may be carried out under registration in courses entitled Readings and Research or Internship. All such projects must conform to University guidelines for independent study. There is no limit on the number of independent study credits which may be earned, but prior approval by the Committee on Honors and Individual Studies is required if a student wishes to elect nine or more such credits in a single semester.

Regulations Governing College Honors

- A. The College Honors program, designed for the superior student with unusual initiative and intellectual curiosity, provides an opportunity for the pursuit of a two-semester, six-credit (3-3) independent research, scholarly, or creative project under the direction of a faculty sponsor. A student in the College of Arts and Sciences may apply for College Honors in a particular subject if, at the end of the junior year, he or she has a grade-point average of at least 3.20 and has been on the Dean's List for three semesters. The program must have been approved by the sponsoring department and by the Committee on Honors and Individual Studies. All application materials must be turned in to the Committee by September 30 of the candidate's senior year. Students must present a satisfactory written report and pass an oral examination upon completion of the honors project. Students who wish to consider undertaking a College Honors project during the junior year should contact the Office of the Dean for information concerning the circumstances in which such an exceptional arrangement is possible. College Honors credit will be counted toward the 45-hour limit (50-hour limit for B. S. candidates) in the major.
- B. Some departments in the College, including Economics, English, History, Mathematics, Political Science, Religion, and Sociology, sponsor Departmental Honors programs. Participation in these programs is limited to those students who

are specifically recommended by their department. Each department will define what is required to earn Departmental Honors. A student who successfully completes this program is granted a degree with Departmental Honors. These programs are administered directly by the sponsoring department and information concerning them may be obtained from faculty advisors.

- C. Students may also earn College Honors through the John Dewey Honors Program. Ground work for the senior honors thesis is laid with John Dewey Honors seminars in the junior year. In the senior year, John Dewey Scholars complete College Honors as described in Section A above. Application is restricted to students with a G.P.A. of 3.2 or higher, and must be made during the second semester of the first year. For further information, contact the College.

Regulations Governing Study Abroad

Students should refer to the general University regulations and procedures pertaining to Study Abroad. For Arts and Sciences students the following additional policies pertain to the application of credit earned in a Study Abroad program:

- A. Regardless of the number of credits accepted in transfer by the University, a maximum of 16 credits earned in a one-semester Study Abroad program will be applied toward satisfaction of degree requirements. For year-long programs, a maximum of 32 credits will be applied toward the degree.
- B. Students must complete 30 of the last 45 hours of degree credit in residence at UVM. One-half of the hours applied toward the satisfaction of major requirements, including 12 hours at the 100 level or above, must be completed at The University of Vermont. One-half of the hours applied toward the satisfaction of minor requirements must be completed at The University of Vermont.
- C. Under no circumstances will a student in the College of Arts and Sciences be permitted to enroll in a University-sanctioned Study Abroad program while on trial.

Regulations Governing Transfer into the College

A student who wishes to transfer into the College of Arts and Sciences from another college or school at the University must comply with the Intercollege Transfer policy in the section on Academic and General Information (page 35). Applications for internal transfer may be submitted to the Office of the Dean at any time, and they will be reviewed on a continuous basis.

Regulations Governing Academic Standards

The following criteria for academic trial and dismissal, while making allowances for the student in the first semester, are designed to encourage academic work of quality at least equal to the minimum which is required for graduation.

Trial

- A. A student who earns a semester grade-point average higher than that which merits dismissal but below 2.00 is placed on trial. In order to avoid dismissal from the University, a student who has been placed on trial must in the following semester earn a 2.00 semester average, enroll in all courses for a letter grade, and maintain a program of 12 or more credit hours. No student will be removed from trial until both the semester and cumulative averages are at least 2.00. A student who is on trial may not enroll in a University-sanctioned study abroad program.
- B. First-Year Students. Following the first semester of enrollment, a student who earns a semester grade-point average higher than that which merits dismissal, but below 1.67, is placed on trial and must in the following semester satisfy the same probationary requirements as described above. All first-year students who have a cumulative grade-point average which is below 2.00 after completion of the second semester will be placed on trial.

Dismissal

- C. A student who does not satisfy the conditions of trial, or who earns a semester grade-point average of 1.00 or lower, or who earns failing grades in one-half of the semester credit hours attempted (excluding courses in physical education and military studies) will be dismissed for low scholarship. The period of dismissal is one year. Dismissed students must receive written approval from the Arts and Sciences Dean's Office before enrolling in any University course.

Readmission Following Dismissal

- D. A dismissed student who presents evidence of his/her ability to perform satisfactorily may be considered for readmission on trial. A student who has been dismissed for a second time will not be considered for readmission on trial until at least three years have elapsed. Further information regarding readmission may be obtained from the Office of the Dean.

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- College of Agriculture & Life Sciences
- College of Arts & Sciences
- **College of Education & Social Services**
- College of Engineering & Mathematics
- College of Nursing & Health Sciences
- Rubenstein School of Environment and Natural Resources
- School of Business Administration
- Graduate College

Faculty

Colleges and Schools

College of Education and Social Services

Contact Information:

University of Vermont

College of Education and Social Services

Dean's Office

309 Waterman Building

85 South Prospect St

Burlington, VT 05405-0160

Phone: (802) 656-3424 (Dean's Office), (802) 656-3468 (Student Services)

Fax: (802) 656-0855

E-mail: Beth.Mohler@uvm.edu(student services)

Web Site: <http://www.uvm.edu/~cess/> , <http://www.uvm.edu/~cess/stservices/> (student services)

- [Administrative Departments](#)
- [Academic Offerings](#)
- [Undergraduate Degree Requirements](#)
- [UVM Students Transferring to Education and Social Services](#)
- [Articulation Agreements with the Community College of Vermont](#)

Overview

Undergraduate Programs: The College of Education and Social Services (CESS) offers undergraduate programs in Human Development and Family Studies, Social Work, and Teacher Education (Art, Early Childhood Education PreK-3, Elementary, Family and Consumer Sciences, Middle Level, Music, Physical Education, and Secondary Education). First-year students may elect an Undecided major while exploring the above options within the College. Students who have completed one year of course work at UVM and who demonstrate interest in an area of study related to CESS offerings may pursue an Individually Designed program. All programs require course work in the liberal arts and sciences along with professional preparation through course work and

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internships in school and community settings.

Graduate Programs: The College offers numerous opportunities for graduate study in preparation for special competencies in a variety of fields which include practica, research problems, and in-service relationships with cooperating school systems and social service agencies.

Satisfactory performance on the Graduate Record Examination (GRE) General Test is required for consideration for assistantships and fellowships in all programs.

Aptitude test scores are not required for admission to the Doctor of Education program and for the Master of Education programs, except the program in Higher Education and Student Affairs (HESA). The HESA program accepts either GRE scores or scores from the Miller Analogies Test (MAT).

The Master of Science in Counseling program and the Master of Social Work program both require satisfactory performance on the Graduate Record Examination (GRE) General Test.

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Education Department

Colleges: [Education and Social Services](#), [Graduate College](#)

Faculty: Education

Courses: [ArEducation \(EDAR\)](#), [Elementary Education \(EDEL\)](#), [Foundations \(EDFS\)](#), [Health Education \(EDHE\)](#), [Library Science \(EDLI\)](#), [Leadership and Policy Studies \(EDLP\)](#), [Middle Level Education \(EDML\)](#), [Music Education \(EDMU\)](#), [Physical Education \(EDPE\)](#), [Secondary Education \(EDSC\)](#), [Special Education \(EDSP\)](#), [Education \(EDSS\)](#)

Contact Information:

*University of Vermont
Education Department
533 Waterman Building
85 S. Prospect St.
Burlington, VT 05405-0160*

Phone: (802) 656-3356

Fax: (802) 656-0004

Email: James.Mosenthal@uvm.edu

Web Site: <http://www.uvm.edu/~cess/>

[Page=education.html&MM=departmentsmenu.html](http://www.uvm.edu/~cess/?Page=education.html&MM=departmentsmenu.html) ↗

Academic Offerings

- Undergraduate Majors
 - Bachelor of Science in Art Education (B. S.)
 - [Art Education \(K-12\)](#)
 - Bachelor of Science in Education (B. S.)
 - [Elementary Education \(K-6\)](#)
 - [Individually Designed Program](#)
 - [Middle Level Education \(5-8\)](#)
 - [Physical Education \(K-12\)](#)

- Secondary Education (7-12)
- Bachelor of Science in Music Education(B. S.)
 - Music Education (K-12)
- Undergraduate Concentrations
 - Athletic Training (Concentration)
- Undergraduate Minors
 - Special Education (Minor)

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Courses in Art Education

EDAR 140 - Foundation Studio EI Ed Majors

Students select a foundation studio course, ART 002, ART 003 or ART 004 from those sections designated each semester on the course schedule. See course descriptions listed under ART.

Credits: 3.

EDAR 177 - Curriculum & Pract in Elem Art

Study and implementation of curriculum in elementary school. Students work directly in an elementary classroom. Lectures and discussions. Prerequisite: Eighteen hours Studio Art; Junior standing.

Credits: 4.

EDAR 178 - Curriculum&Pract Middle/HS Art

Study and implementation of curriculum in middle and high school. Students work directly in a middle or high school. Lectures and discussions. Prerequisite: Eighteen hours Studio Art; Junior standing.

Credits: 4.

EDAR 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisites: Twelve hours in education and related areas. One to six hours.

Credits: 1-6.

EDAR 283 - Current Issues in Art & Ed

Research and discussion of issues relevant to contemporary art and the teaching of art. Prerequisite: Senior standing or permission.

Credits: 3.

EDAR 284 - Current Issues in Art & Ed

Research, discussions, and field work relevant to contemporary art and the teaching of art. Prerequisite: Junior standing or permission.

Credits: 3.

EDAR 295 - Laboratory Experience in Educ

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences; One to six hours.

Credits: 1-15.

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Courses in Elementary Education

EDEL 010 - Intro to Teaching & Learning

Orientation to professional program. Introduction to research base for meaningful teaching and learning. Analysis of teaching autobiographies by successful teachers. One credit each semester for two consecutive semesters.

Credits: 1-2.

EDEL 011 - Computers in EI Ed Classroom

Students use the University's network and internet, exchange e-mail, construct electronic portfolios, and examine software to help them in their studies and future classrooms.

Credits: 3.

EDEL 024 - Learners and Learning Process

Distinctions among dominant theories of learning and development. Learning theories applied to selected issues derived from context of schools. Students work with individual learner in appropriate setting.

Credits: 3.

EDEL 055 - Special Topics

Credits: 2-6.

EDEL 056 - Teachers&the Teaching Process

Students examine lives of teachers, demands of the profession, and selected models of teaching. Student observation of teachers in appropriate settings and knowledge of learning and development. Prerequisite: EDEL 010, EDEL 024; concurrent with EDEL 177, EDSP 005.

Credits: 3.

EDEL 155 - Lab Experience in Inquiry

Supervised practicum in field sites. Implementation of teaching methods from Inquiry Block. Documentation of classroom work, child study, and development of portfolio. Prerequisite: Admission to Elementary Teacher Education Program; concurrent with EDEL 157, EDEL 158, EDEL 159.

Credits: 3.

EDEL 156 - Teaching Math for Meaning

Methods of teaching mathematics in elementary school. Research base for how children learn mathematics and how math curriculum is organized. Special focus

on teaching diverse groupings of learners. Prerequisite: Admission to Elementary Teacher Education Program; concurrent with EDEL 175, EDEL 176, EDEL 178.

Credits: 3.

EDEL 157 - Social Ed and Social Studies

Methods of social education for elementary-aged school children. Promoting children's efficacy by nurturing personal interests. Development of folio of developmentally-sound examples of social studies learning. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 155, 158, 159.

Credits: 2.

EDEL 158 - Teaching Science for Meaning

Methods of science education for elementary-aged school children. Translate science content into meaningful science inquiry. Preparation of demonstration teaching lessons. Prerequisites: Admission to the Elementary Teacher Education Program; concurrent with EDEL 155, 157, 159.

Credits: 2.

EDEL 159 - Visual & Performing Arts, K-6

Incorporation of the visual and performing arts in elementary school curriculum. Focus on artistic expression as a way of learning. Emphasis on cross-cultural art, music, drama. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with 155, 157, 158.

Credits: 2.

EDEL 175 - Lab Experience in Literacy

Supervised practicum in a field site. Implementation of teaching methods from Literacy Block. Documentation of classroom work, child study, and development of portfolio. Prerequisite: Admission to Elementary Teacher Education Program; concurrent with EDEL 156, EDEL 176, EDEL 178.

Credits: 3.

EDEL 176 - Language Arts&Literacy Skills

Cognitive research base for the social context of children's learning. Methods of language arts as literate activity. Emphasis on emergence of literacy in the child of special need. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 156, EDEL 175, EDEL 178.

Credits: 2.

EDEL 177 - Children's Lit & Literacy

Learning about the breadth of literature available for use in elementary school. Developing the ability to evaluate and use literature in reading and writing activities. Emphasis on bias-free methods. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 56, EDSP 5.

Credits: 2.

EDEL 178 - Mtg Indiv Needs:Assmt&Instruct

Methods of responding to individual differences within a heterogeneous classroom. Sources of student variability, developing settings of least restriction, and appropriate assessment strategies. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 156, 175, 176.

Credits: 2.

- EDEL 181 - Student Teaching
Credits: 3-12.
- EDEL 185 - Student Teaching Internship
Supervised student teaching internship in field site. Fifteen-week total immersion as a beginning teacher. Responsibilities specified in internship handbook. Documentation of activities for professional portfolio. Concurrent with EDEL 187 and EDEL 188. Prerequisite: Method Blocks in Inquiry and Literacy. Variable credit.
Credits: 3-12.
- EDEL 186 - Seminar in Student Teaching
Credits: 3.
- EDEL 187 - Plan, Adapt, Deliver Reading Instruction
Methods of diagnostic teaching in reading and writing. Identifying components of effective programs and use of research findings to deliver instruction in meaningful contexts. Documentation of personal model of literacy for professional portfolio. Prerequisite: Method Block in Literacy; EDEL 156, EDEL 176, EDEL 177.
Credits: 3.
- EDEL 188 - Principles of Classroom Management
Method Blocks in Inquiry and Literacy.
Credits: 2.
- EDEL 189 - Portfolio Development & Reflective Practice
This course develops candidates' critical reflectivity on their knowledge and expertise of classroom teaching through the construction of a professional portfolio. Prerequisite: Concurrent with EDEL 185 and EDEL 188.
Credits: 1.
- EDEL 197 - Readings & Research
Credits: 1-4.
- EDEL 200 - Contemporary Issues
Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.
Credits: 0-3.
- EDEL 222 - Cultivate Children's Literacy
Contemporary research and practice related to the development of strategic, motivated, and independent readers and writers. Emphasis on integrating reading and writing within collaborative environments. Prerequisite: Twelve hours in education and/or related areas including an introductory course in reading or Instructor permission.
Credits: 3.
- EDEL 234 - Literature & Language for Children & Youth
Characteristics, interests, reading habits of children and youth; selection, evaluation of literature. Organizing book units for teaching literature, for content areas. Emphasis on development of oral, written expression. Prerequisite: Twelve hours in education and related areas or Instructor permission.
Credits: 3.
- EDEL 236 - Multicultural Children's Literature

Current research in multicultural education and literacy informs examination of representation and perspective in literature for children and youth. Perspectives include religion, race, gender, SES.

Credits: 3.

EDEL 241 - Science for Elem Schools

Examination of elementary school science programs. Emphasis on methods and materials relating to construction, use of science units for children in grades K-6.

Prerequisite: Twelve hours in education and related areas or Instructor permission.

Credits: 3.

EDEL 244 - Social Studies in Elem Schls

Study of literature, research, and problems in teaching social studies in the elementary school. Prerequisite: Twelve hours in education and related areas.

Credits: 3.

EDEL 256 - Methods & Materials in Math

Evolution of mathematical concepts, notations. Meaning of numbers, number-systems. Theory underlying fundamental operations, metric measurements, analysis of modern approach to mathematics. Manipulative approach to teaching mathematics. Prerequisite: Twelve hours in education and related areas.

Credits: 3.

EDEL 270 - Kindergarten Methods & Org

Objectives, organization, curriculum, methods and materials, and relationships of kindergarten preschool experiences. Prerequisite: Twelve hours in Education and related areas.

Credits: 3.

EDEL 271 - Kindergarten Educ W/Lab

working with children of kindergarten age. Prerequisite: Designed to acquaint the prospective kindergarten teacher with educational research conducted by Piaget, Bruner, Montessori, and others with experiences provided for Twelve hours in Education and related areas.

Credits: 3.

EDEL 295 - Lab Experience in Education

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 1-12.

EDEL 319 - Internshp Specialzd Personnel

Prerequisite: Instructor permission.

Credits: 1-6.

EDEL 375 - Lit Assmt:Understand Indiv Dif

Prerequisite: EDEL 222 or Instructor permission.

Credits: 3.

EDEL 376 - Lab Exp Rdg&Related Lang Instr

Approaches for prevention, correction of reading and written language difficulties. Supervised teaching of individuals and/or small groups experiencing reading and language problems. Apprenticeships in reading instructional programs.

Prerequisite: EDEL 375.

Credits: 3.

EDEL 378 - Advanced Study & Research

Survey of research, comparison and evaluation of emerging programs design and development of projects in reading. Prerequisite: Fifteen hours in education including nine hours in the field of reading and language education or Instructor permission.

Credits: 3.

EDEL 379 - Seminar in Reading Instruction

Study of reading relative to total curriculum. Significant trends, concepts related to specific problems, programs in reading and language arts instruction; role of supervisor education including nine hours in the field of reading and language education or Instructor permission.

Credits: 3.

EDEL 380 - Professional Problems in Ed

Designed to cover selected educational problems in depth. The major emphasis will be on intensive and critical analysis of the literature and practice in a given area.

Credits: 3.

EDEL 382 - Teaching Internship

Supervised teaching experiences on a full-time basis, with related seminars in teaching subject. Prerequisite: Permission of coordinator of Professional Laboratory Experiences.

Credits: 3-8.

EDEL 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1-18.

EDEL 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 1-6.

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EDFS 197 - Readings and Research

Credits: 1-4.

EDFS 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

Credits: 3.

EDFS 203 - Soc, Hst & Phil Found of Educ

Critical examination of central educational/social issues and values with special emphasis on the struggle for justice and equality. Themes include schooling and social class, race, and gender; the purposes of education; and the responsibilities of teachers. Prerequisite: Enrollment in teacher licensing program.

Credits: 3.

EDFS 204 - Sem in Educational History

Selected topics in history of education. Education in democratic and authoritarian social orders. Topics: education of women, black heritage, American higher education in transition. Prerequisite: Twelve hours in Education and related areas or Instructor permission.

Credits: 3.

EDFS 205 - History of American Education

Educational principals and practices in the U.S. as they relate to the main currents of social history. Key ideas of historic and contemporary significance. Prerequisite: Twelve hours in Education and related areas or Instructor permission.

Credits: 3.

EDFS 206 - Comparative Education

Examines educational challenges confronting countries around the world. Explores issues related to sustainable development, diversity, citizenship, and justice in formal and nonformal educational contexts. Prerequisite: Twelve hours in Education and related areas.

Credits: 3.

EDFS 209 - Intro to Research Methods

Seminars and research projects. Methods of historical, descriptive, experimental,

quasi-experimental, field studies, and survey research.

Credits: 3.

EDFS 255 - School as Social Institution

Examination of the school and related social institutions, focus on themes, including: social class, race, ethnicity, socialization, role of the family, social change. Prerequisite: Twelve hours of Education and related areas.

Credits: 3.

EDFS 295 - Lab Experience in Education

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 1-6.

EDFS 302 - Philosophy of Education

Critical examination of key beliefs and values in current philosophies of helping, e.g. phenomenological, behavioral, holistic, as practiced in a variety of educational and social service institutions. Prerequisite: Twelve hours in education and related areas.

Credits: 3.

EDFS 303 - Ethics Helping Relationships

Clarification of ethical dimensions of professional rights and obligations for educators, counselors, administrators, other helping professionals. Examination of selected ethical controversies currently facing the helping professionals.

Prerequisite: Twelve hours in education and related areas.

Credits: 3.

EDFS 304 - Religion, Spirituality & Ed

and educational leadership. A narrative approach to thinking about religion and spirituality and theoretical and practical implications for policy making, pedagogy, curriculum development,

Credits: 3.

EDFS 309 - Schol Pers Narr Writing:ED&SS

A workshop for educational writers of theses, dissertations, and scholarly articles. Students will be introduced to critical theory, postmodern, feminist, and narrativist conceptions of educational writing.

Credits: 3.

EDFS 314 - Modes of Inquiry

A critical analysis of the various conceptual and methodological foundations of theory and practice in education and the human services. Prerequisite: Twelve hours in education and related areas.

Credits: 3.

EDFS 322 - Chall Multicultrsm/Ed&Soc Inst

Critical analysis of social, historical, and philosophical dimensions of multiculturalism. Examination of identity, empowerment, and justice and their relationships to educational/social policies and practices. Prerequisite: Twelve hours in education and related areas.

Credits: 3.

EDFS 347 - Qualitative Research Methods

Introduces students to qualitative methods as a research paradigm and develops skills in ethnographic techniques of field observation, interviewing, and data analysis. Out-of-class fieldwork required. Prerequisite: Master's or doctoral level standing or Instructor permission.

Credits: 3.

EDFS 348 - Analyze&Write Qualitative Rsch

the course. This course extends students' knowledge of and experience with qualitative research analysis and writing. Students must come with data collected previous to the start of Prerequisite: EDFS 347 or Instructor Permission.

Credits: 3.

EDFS 352 - Aesthetic Ed & Social Justice

Exploration of art that deepens understanding of educational and social problems. Focus on artists who challenge dominant powers. Incorporates democratic perspectives on art and aesthetics. Prerequisite: Twelve hours in education and related areas.

Credits: 3.

EDFS 354 - Anth Persp on Ed & Soc Serv

Examination of formal and non-formal education as means to produce and alleviate cultural conflict. Incorporates an autobiographical approach to studying socio-cultural implications of schooling and social services. Emphasis on Third World situations. Prerequisite: Twelve hours in education and related areas.

Credits: 3.

EDFS 369 - Ethics in Ed & Soc Serv Admin

Critical examination of theories of ethical decision making. Implications for leadership in educational, social service settings. Ethical investigation utilizing research, scholarship, actual incidents, case studies, role playing. Prerequisite: Ed.D. students have priority.

Credits: 3.

EDFS 377 - Seminar Educational Psychology

Personal values, attitudes, beliefs related to learning. Psychological research of the teaching-learning process. Research use in analysis of educational processes. Applications for educational settings. Prerequisite: Twelve hours in education and related areas.

Credits: 3.

EDFS 380 - Professional Problems in Educ

Designed to cover selected educational problems in depth. The major emphasis will be on intensive and critical analysis of the literature and practice in a given area.

Credits: 3.

EDFS 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1-18.

EDFS 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 1-6.

EDFS 455 - Soc Process & Institutional Chg

Critical analysis of theory and research related to justice, caring, and change in education and other social institutions. Focus: ideology, diversity, and management of knowledge. Prerequisite: Doctoral level standing.

Credits: 3.

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Courses in Health Education

EDHE 046 - Personal Health

Concepts of personal health related to problems of daily living. Mental health, sex education, nutrition and weight control, fatigue and relaxation, chronic and communicable disease, stimulants and depressants.

Credits: 3.

EDHE 150 - Sem: Health Educ

Research, discussion, and critical examination of selected topics and special issues in health not currently covered in existing courses. Prerequisite: Six hours in health education or Instructor permission. Variable credit, one to four hours.

Credits: 1-4.

EDHE 173 - Practicum in Field Experience

Individually prescribed teaching experience involving work with health agencies, both public and private. Responsibilities approximate those commonly associated with student teaching. Prerequisite: Permission. Variable credit.

Credits: 1-4.

EDHE 182 - Health Methods and Materials

Fundamental methods of teaching health as applied to school and public health education. Consideration of materials applicable to health education, evaluation techniques, preparation of teaching units and bibliographies. Prerequisite: EDHE 046.

Credits: 3.

EDHE 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

Credits: 1-6.

EDHE 208 - School Health Programs

Organization of the total school health program. Problems and administration in the area of school environment, health services, health education, and school-community relationship. Prerequisite: EDHE 046 or equivalent.

Credits: 3.

EDHE 211 - Community Health Ed

Government and voluntary agencies' sociological, historical, educational, environmental, and medical influences. Role of community health educator in these influences and major American health concerns. Prerequisite: EDHE 046 or equivalent.

Credits: 3.

EDHE 220 - Stress Mgmt Hlth Professionals

Physiological, psychological, and sociological aspects of stress. Theory, practices, teaching techniques, and application relevant to teaching students and/or clients.

Prerequisite: EDHE 046 or equivalent.

Credits: 3.

EDHE 295 - Lab Experience in Educ

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 1-6.

EDHE 319 - Internshp Specializd Personnel

Students will undertake an approved internship in an institution which reflects the particular area of interest and needs of the student. Prerequisite: Instructor permission.

Credits: 1-12.

EDHE 380 - Prof Problems in Education

Designed to cover selected educational problems in depth. The major emphasis will be on intensive and critical analysis of the literature and practice in a given area.

Credits: 3.

EDHE 382 - Teaching Internship

Supervised teaching experiences on a full-time basis, with related seminars in teaching subject. Prerequisite: Permission of coordinator of Professional Laboratory Experiences.

Credits: 3-8.

EDHE 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1-12.

EDHE 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 1-6.

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Courses in Library Science

EDLI 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in education and related areas.

Credits: 1-6.

EDLI 272 - Manage Schl Library Media Ctrs

Overview of administrative issues, including development of policies and procedures, budget preparation, personnel administration, and public relations. Focus on information technology and literacy. Prerequisites: Twelve hours in education and related areas, or Instructor permission.

Credits: 3.

EDLI 273 - Organizing Schl Libr Media Ctr

Introduction to cataloging of print and non-print materials, Dewey Decimal Classification, application of microcomputers to catalog and circulation services. Prerequisite: EDLI 272 or equivalent.

Credits: 3.

EDLI 274 - Design Instr Sch Lbr Media Ctr

Designing library instruction for integration with curricula and collaborating to create effective lessons. Issues surrounding active learning, critical thinking, learning styles, and assessment are examined. Prerequisite: EDLI 272 or equivalent.

Credits: 3.

EDLI 275 - Dev Sch Libr Media Ctr Collect

Evaluating and selecting books, periodicals, audiovisuals, software, and other materials for full range of student ages and ability levels. Maintaining collection, weeding, using interlibrary loan, and dealing with censorship. Prerequisite: EDLI 272 or equivalent.

Credits: 3.

EDLI 276 - Information Sources & Services

Helping students and teachers find information using print, online, CD-ROM and other resources. Developing interview skills and selecting materials for elementary and secondary core collections. Prerequisite: EDLI 272 or equivalent.

Credits: 3.

EDLI 277 - Info Tech Schl Libr Media Ctrs

Selecting, using, and maintaining full range of media equipment, including audiovisual and computer based systems. Designing and improving presentation facilities for media. Prerequisite: EDLI 272 or equivalent.

Credits: 3.

EDLI 295 - Lab Experience in Educ

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 1-6.

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Courses in Leadership and Policy Studies

EDLP 200 - Contemporary Issues

boundaries of an existing course. Prerequisite: Twelve hours in education and related areas.

Credits: 0-6.

EDLP 264 - Evaluation in Ed & Soc Srvcs

For educational and social service personnel. Overview of the state-of-the-art of evaluation, emerging concepts, related models. Potential applications to settings; systematic data analysis. Prerequisite: Twelve hours in education or Instructor permission.

Credits: 3.

EDLP 266 - Educational Finance

National, state, and local practices in educational financing and taxation; educational policies and incentives in funding; other revenue sources; financial expenditure procedures. Prerequisite: Twelve hours in education or Instructor permission.

Credits: 2-3.

EDLP 268 - Educational Law

Legal basis for education. State and Federal statutes; related court cases; Attorney General opinions; Special Education procedures; Vermont State Board and State Education Department policies; regulations. Prerequisite: Twelve hours in education or Instructor permission.

Credits: 2-3.

EDLP 280 - Schl Business Mgmt

Analysis of basic management concepts applied to administering schools. Topics include leadership/management trends, types of budgets, risk management, planning, and other personnel and business operations issues. Prerequisite: Twelve hours in education.

Credits: 3.

EDLP 291 - Spec Tpcs in Org&Hum Res Dev

Special issues in counseling, administration and planning, social work, or higher education not appropriate to content of existing courses. Courses will reflect the social services orientation of the Department of Education.

Credits: 1-6.

EDLP 295 - Lab Experience

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 1-6.

EDLP 319 - Internship

Prerequisite: Instructor permission.

Credits: 1-6.

EDLP 332 - Seminar in Admin & Planning

Opportunity for students to experience, apply selected administration and planning concepts, skills through seminar and selected simulations of public school and social service organizational settings.

Credits: 3.

EDLP 334 - Effecting & Managing Change

Change processes and models, the dynamics of change within the organization, and external factors affecting change. Managerial, leadership, and organizational factors and conditions impacting on innovations; change phases of initiation, implementation, and institutionalization. Prerequisite: Twelve hours of Graduate study.

Credits: 3.

EDLP 335 - Staff Evaluation & Development

Supervisory roles, behavior, responsibilities, and relationships in educational and social service organizations; processes for evaluating the performance, promoting the development of staff, and increasing organization effectiveness.

Credits: 3.

EDLP 336 - Curr Mgmt in Ed & Soc Srv Org

Prerequisite: Eighteen hours of education and related

Credits: 3.

EDLP 337 - Political Proc in Ed & Soc Srv

Political and operational relationships between schools, agencies, and other organizations at all governmental levels. Policy development, working with policy boards, and coordinating organizational and community activities.

Credits: 3.

EDLP 352 - Analysis of Educ & Soc Srv Org

Organizations as open or closed systems; examinations of goals, power, conflict, leadership, decision-making roles, communication; diagnosing causes of organizational problems; factors aiding, impeding organizational change.

Credits: 3.

EDLP 353 - Sem:Organizational Leadership

Roles, functions, relationships and responsibilities in maintaining and changing organizations; leadership styles and behavior; trends and issues impacting on organizations.

Credits: 3.

EDLP 354 - General & Soc Systems Theory

General Systems Theory is analyzed in terms of its utility for examining social

systems, macrosystems analysis of research, planning, and interdisciplinary dialogue.

Credits: 3.

EDLP 355 - System Analysis & Planning

An analysis of and experience with planning theories and techniques that derive from General Systems Theory.

Credits: 3.

EDLP 356 - Sem in Futurism & Planning

Knowledge, values, attitudes relating to concepts about the future; alternative futures, trend analysis, goal setting; planning processes applied to educational and social service organizations.

Credits: 3-6.

EDLP 357 - Sem in Futurism & Planning

Knowledge, values, attitudes relating to concepts about the future; alternative futures, trend analysis, goal setting; planning processes applied to educational and social service organizations.

Credits: 3-6.

EDLP 358 - Sem in Community Education

The seminar participants will analyze the Community Education process, relate the process to community development, and develop strategies for the planning and implementation of Communication Education.

Credits: 3.

EDLP 367 - Human Behavior in Educ Systems

This course will enable students in the Doctorate in Education program to understand and assess human behavior as it affects and is affected by education systems. Prerequisite: Ed.D. students have priority.

Credits: 3.

EDLP 372 - Leadership & Creative Imaginatio

Leadership in societal organizations as presented in literature, other media. Students will demonstrate abilities to integrate leadership theory, principles, personal beliefs, practices with literary and other media models. Prerequisite: Ed.D. students have priority.

Credits: 3.

EDLP 380 - Professional Problems in Educ

analysis of the literature and practice in a given area.

Credits: 0-3.

EDLP 386 - Org & Human Resource Dev

The concept and practice of organization development, analysis of and laboratory experience in the utilization of intervention methodologies. Prerequisite: One course relating to human relations; one course relating to organizations or equivalent, or Instructor permission.

Credits: 3.

EDLP 387 - Collaborative Consultation

Cross-listed with: EDSP 387.

Credits: 3.

EDLP 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1-12.

EDLP 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisites: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 1-6.

EDLP 409 - Applied Educational Research

readers and synthesizers of research studies. Prerequisite: Doctoral level standing.

Credits: 3.

EDLP 431 - Adv Sem Organizational Ldrshp

Students inquire into new theories on leadership and the cognitive processes that define the intentions, values,

Credits: 3.

EDLP 432 - Adv Sem:Org Chng&Hum Res Dev

Students inquire into new theories, themes, and multicultural dimensions of organizations. Strategies for managing human resources, structural issues, and future trends in organizations are analyzed. Prerequisite: Doctoral level standing.

Credits: 3.

EDLP 437 - Sem on Educational Policy

education policy formulation and implementation. Prerequisite: Doctoral level standing.

Credits: 3.

EDLP 491 - Doctoral Dissertation Research

Credits: 1-12.

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Courses in Middle Level Teacher Education

EDML 010 - Introduction to Teaching

young adolescent students, teachers' roles, middle schooling and the middle school concept. Prerequisites: Admission to Pre-professional teaching education. Credits: 1.

EDML 024 - Learners, Development&Learning

Students learn about the interrelated processes of development and learning throughout childhood but with special emphasis on the approximate ages of ten to Credits: 3.

EDML 055 - Special Topics I

Credits: 2-6.

EDML 056 - Teachers & Teaching Process

Students examine professional responsibilities of middle level teachers as defined by Vermont and national standards via classroom observations. Prerequisite: EDML 010, EDML 024. Credits: 3.

EDML 171 - Teaching Practicum II

Second teaching practicum on a middle level team to learn policy, curriculum, exemplary pedagogy, assessment in second of two academic concentrations defined by student's IDIMC plan. Prerequisite: Admission to Middle Level Professional Program. Credits: 3.

EDML 197 - Readings & Research

Credits: 1-4.

EDML 200 - Contemporary Issues

Credits: 1-6.

EDML 207 - Adoles Lrng&Beh&Cog Perspect

Indepth examination of cognitive learning theory and its background in behavioral and other learning theories, with application to teaching in a middle or secondary setting. Pre/co-requisites: Acceptance to licensing program. (Crosslisted with EDSC 207). Credits: 3.

EDML 260 - Teaching Young Adolescents

Focus on understanding and reflecting on an integrative developmental approach to the design of middle level curriculum, with an emphasis on literacy and numeracy.

Credits: 3-6.

EDML 261 - Middle Level Teaching Pract

Teaching practicum on middle level team in two areas of academic concentration, acquiring knowledge of and skills in curriculum, pedagogy, and assessment.

Pre/co-requisite: Admission to Middle Level Professional Program.

Credits: 3.

EDML 270 - Middle School Org & Pedagogy

Focuses on exploring theory and practice in responsive school organization for young adolescents, including interdisciplinary/partner teaming, block scheduling, and teacher advisories, as well as teaching lessons in one area of specialization.

Pre/co-requisite: EDML 260, EDML 261.

Credits: 3-6.

EDML 285 - Middle Level Student Teaching

Full-time supervised student teaching internship as a member of a middle school team. Development of a professional portfolio as stipulated in the Middle Level Program Handbook. Pre/co-requisite: EDML 260, EDML 261, EDML 270, and Instructor permission.

Credits: 9-12.

EDML 286 - Internship Support Seminar

Seminar addresses and responds to internship experiences including planning, classroom management, team work, and assessment of learning. Guidance in development of Professional Teaching Portfolio. Pre/co-requisites: EDML 260, 261, 270.

Credits: 1.

EDML 287 - Literacy & Mathematics

All middle level teachers are expected to teach reading, writing, literature and mathematics. This course is the capstone for work previously done in these pedagogies. Pre/co-requisite: Successful completion of EDML 260, EDML 261, and EDML 270.

Credits: 3.

EDML 295 - Laboratory Experience

Credits: 1-6.

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Courses in Music Education

EDMU 055 - Special Topics I

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Open to first-year students.

Credits: 2-6.

EDMU 181 - Music for Elementary Teachers

Development of musical skills, understandings, and attitudes pertinent to the teaching of music in elementary classroom. Prerequisite: Elementary majors; acceptance into teacher education program.

Credits: 3.

EDMU 197 - Readings and Research

Individual research problem or directed reading in an area of special interest to the student. Prerequisite: Instructor permission.

Credits: 1-4.

EDMU 240 - Mus Creativity in Gen Music

Designing a course of study for the general music class. Developing musical concepts and perception through individual differences. Prerequisites: Undergraduate major in Music Education or Instructor permission.

Credits: 3.

EDMU 243 - Recent Trends in Music Ed

Study of recent thought and practices in music education. Examination of current trends. Prerequisites: Undergraduate major in Music Education or Instructor permission.

Credits: 1-4.

EDMU 253 - Practicum in Music Education

Prerequisite: Teaching experience, or Instructor permission.

Credits: 1-8.

EDMU 281 - Elementary Music Ed Methods

Methods and materials for teaching music in elementary schools. Five hours classroom observation per week required. Prerequisite: Junior standing in Music Ed. UG only.

Credits: 3.

EDMU 282 - Secondary Music Ed Methods

Methods and materials in the teaching of vocal and instrumental music in secondary schools. Five hours classroom observation per week required.

Prerequisite: Junior standing in Music Education. UG only.

Credits: 3.

EDMU 290 - Basic Concepts in Music Ed

Disciplinary backgrounds; historical and philosophical foundations; fundamental considerations of the functions of music in the schools; development of a personal philosophy.

Credits: 3.

EDMU 295 - Special Topics

Laboratory Experiences. Undergraduate only. Supervised field work designed to give students experience in specialized areas for their professional development.

Prerequisite: Permission of the Coordinator of Professional

Credits: 1-6.

EDMU 390 - Org & Admin of Music Ed

Study of the organization and administration of vocal and instrumental music in the public schools. Prerequisite: Teaching experience or Instructor permission.

Credits: 3.

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Courses in Physical Education-Prof

EDPE 021 - Foundations of Phys Educ

as an academic discipline and profession, its foundations, current trends, issues and career opportunities. Prerequisite: Physical Education
Credits: 3.

EDPE 023 - Amer Red Cross Emergency Resp

To meet the needs of individuals who are in a position to provide first aid and emergency care frequently. Red Cross certification for successful performance in Advanced First Aid Emergency Care. Prerequisite: PE, HDS, and Health majors; others by Instructor permission.
Credits: 3.

EDPE 024 - Life Skills: Student Athletes

This course provides students with skills training for academic and athletic success, alcohol education and prevention, and moral reasoning and decision-making.
Credits: 1.

EDPE 026 - Water Safety Instructor

Advanced performance skills in swimming, diving, survival, and rescue techniques. Theory and practice in techniques of teaching aquatic skills. Red Cross certification as Water Safety Instructor or Instructor for Beginning Swimming. Prerequisite: Current Red Cross Lifesaving Certificate.
Credits: 2.

EDPE 032 - Recreational Sport Officiating

Basic techniques and skills of rule interpretation for officiating recreational sport competition.
Credits: 2.

EDPE 054 - Hist, Phil, and Trends in Rec

Review of chronological history of evolution of recreation movement; examination of past and emerging theories and philosophies of recreation and leisure; exploration of trends in recreation and leisure and probable impact on our life styles.
Credits: 3.

EDPE 055 - Special Topics I

Credits: 1-6.

EDPE 100 - Integ Movement/Elem School Cur

Planning and implementing movement-based lessons and integrating movement across the curriculum

Credits: 2.

EDPE 104 - Phys Educ Teaching Experience

Experience-based course sequence emphasizing relationship of motor development to learning. Includes age level needs and appropriate physical education activity sequences. First semester: grades K-3; second semester (EDPE 105); grades 4-6. Prerequisites: EDPE 023 or EDPE 157; Junior standing.

Credits: 5.

EDPE 105 - Phys Educ Teaching Experience

Junior standing.

Credits: 5.

EDPE 121 - Coaching Baseball

Theory and technique of coaching interscholastic baseball. Includes practice, game, and schedule organizations. Prerequisite: Skill competency in baseball; Sophomore standing, or Instructor permission.

Credits: 0-2.

EDPE 123 - Coaching Softball

Theory and technique of coaching interscholastic softball. Includes practice, game, and schedule organizations. Prerequisite: Skill competency in softball; Sophomore standing, or Instructor permission.

Credits: 2.

EDPE 145 - Seminar in Athletics

Contemporary issues, strategy, analysis, and problems areas related to selected comparative sports.

Credits: 3.

EDPE 155 - Phys Educ in Secondary Schl

Theories of teaching which include unit plan development, classification and grouping of students for instruction, and a variety of teaching methods. Laboratory experience in teaching activity skills to youth aged 12-18. Prerequisites: Junior standing; PE majors only.

Credits: 3.

EDPE 157 - Care & Prevent Athletic Injury

Prevention, recognition, and care of injuries related to school physical education and athletic programs.

Credits: 3.

EDPE 158 - Dir Observ Exp Athletic Trng I

A laboratory sequence offered for those students seeking admission into the Athletic Training Education Program. Includes training room procedures and basic injury assessment skills. 158, emergency protocols; 159, basic injury assessment. Must be taken with EDPE 157.

Credits: 1.

EDPE 159 - Dir Obser Exp Athl Training II

A laboratory sequence offered for those students seeking admission into the

Athletic Training Education Program. Includes training room procedures and basic injury assessment skills. 158, emergency protocols; 159, basic injury assessment. Must be taken with EDPE 157.

Credits: 1.

EDPE 166 - Kinesiology

Designed for the teacher/coach to analyze factors of peak physical performance. Muscle actions, mechanical principles, related factors enhancing movement are emphasized. Prerequisite: One year of biological science; PE majors, coaching minors, students enrolled in Athletic Training Concentration, Sports Nutrition; others by instructor's permission.

Credits: 3.

EDPE 167 - Exercise Physiology

of bodily responses during exercise. Content includes energy metabolism, muscular, cardiovascular, Prerequisites: PE majors, coaching minors, sports nutrition, Athletic Training; others by instructor's permission.

Credits: 4.

EDPE 168 - Measurement&Data Analysis

Introductory statistics and research design class. Covers basic statistics--t-tests, measurement scales, discussed. Prerequisites: EXSS majors only; others by instructor's permission. Anova, correlations, etc. Application in physical education and exercise science are specifically

Credits: 1 or 3.

EDPE 173 - Practicum in Field Experience

Individually prescribed teaching experience involving work with youth groups in activities related to physical education, health, or recreation. Responsibilities approximate those commonly associated with student teaching. Prerequisites: EDPE 104, EDPE 105, or EDPE 155; Instructor permission.

Credits: 1-4.

EDPE 181 - Student Teaching

Teaching in elementary or secondary schools under guidance of cooperating teachers, principals and college supervisors. A full-time, full semester, 12-credit experience. Prerequisites: Acceptance into the teacher education program; must meet criteria for student teaching. Variable credit, three to twelve hours.

Credits: 3-12.

EDPE 182 - Student Teaching Seminar

Prerequisite: Concurrent with EDPE 181.

Credits: 2.

EDPE 185 - Injury Eval&Rec: Athl Training

Course is integrative and clinical in nature, consisting of injury evaluation and recognition skills. Injury mechanisms, etiology, pathology, clinical signs and symptoms. Prerequisites: EDPE 157, EDPE 158.

Credits: 4.

EDPE 186 - Therapeutic Modal Athletic Trn

Practical use of therapeutic modalities in treatment and rehabilitation of musculoskeletal injuries. Physiological effects, indications, and contraindications of treatment are addressed. Prerequisites: EDPE 157, EDPE 158, EDPE 185.

Credits: 3.

EDPE 187 - Rehab Techniques Athletic Trng

Post-injury and post-operative rehabilitation and conditioning techniques involved in returning an active individual to normal and athletic activity. Prerequisites:

EDPE 157, EDPE 158, EDPE 185, EDPE 187.

Credits: 3.

EDPE 188 - Admin in Athletic Training

An examination of topics related to administration, budget management, health insurance issues, and policies/procedures in the profession of athletic training.

Prerequisites: EDPE 157, EDPE 158.

Credits: 2.

EDPE 195 - Hlth/Fitness Ldrshp&Programmng

Practical approach to significance, theories, and characteristics of leadership content, and methods of program planning. Field work practice in planning and leadership techniques. Prerequisite: EDPE 021.

Credits: 3.

EDPE 197 - Readings & Research

Credits: 1-4.

EDPE 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in education and related areas.

Credits: 1-6.

EDPE 201 - Admin of Athletic Programs

Background for effective administration of the athletic program of schools. Include scheduling, budgeting, management, equipment, policy, public relations, and education justification. Prerequisite: Twelve hours of education and Psychology.

Credits: 3.

EDPE 203 - Principles of Physical Ed

Principles basic to sound philosophy of physical education for appraisal of historical development; relationship to health education, recreation, and other areas; foundation and functions of physical education. Prerequisite: Admission to the program and Instructor permission.

Credits: 3.

EDPE 220 - Sport in Society

Examines sport as a social institution, emphasizing interrelationships between sport and the social context in which it exists; analyzes functions and dysfunctions of sport in contemporary society. Prerequisite: SOC 001, SOC 019, or equivalent.

Credits: 3.

EDPE 240 - Motor Skill Learning & Control

Nature of motor learning; factors affecting motor learning (motivation, emotion, stress); concepts of transfer, retention; alternatives in teaching, coaching methodologies based upon applied principles in motor learning. Prerequisites: 166, ECHD 62 or 63, or equivalent.

Credits: 3.

EDPE 241 - Sem in Phys Educ & Athletics

Examination and analysis of contemporary issues and trends in physical education and athletics not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in physical education and related areas.
Credits: 2-4.

EDPE 260 - Adapted Physical Activity

Recognition, prevention, correction of functional, structural deviations from normal body mechanics. Organization of programs adapted to needs of handicapped individuals in both special class and mainstreamed settings. Prerequisite: 155, 104, 105 or equivalent teaching experience.
Credits: 3.

EDPE 265 - Exercise & Sport Science

aspects of sport. Prerequisites: 166, 167, 220, 240; senior standing, or permission. UG only.
Credits: 3.

EDPE 295 - Lab Experience in Education

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.
Credits: 1-12.

EDPE 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.
Credits: 1-12.

EDPE 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.
Credits: 1-6.

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Courses in Secondary Education

EDSC 011 - Ed Tech in Sec Ed Classroom

applications to stimulate and manage a student-centered classroom.

Credits: 3.

EDSC 050 - Exploring Education

Introduction to philosophical, psychological, sociological questions basic to teaching and learning. Exploration of beliefs and understandings about personal learning and the field of education.

Credits: 3.

EDSC 055 - Special Topics

Credits: 1-6.

EDSC 197 - Readings & Research

Credits: 1-4.

EDSC 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in education and related areas.

Credits: 3.

EDSC 207 - Adoles Lrng/Beh&Cog Perspect

Prerequisites: Acceptance to licensing program. Indepth examination of cognitive learning theory and its background in behavioral and other learning theories, with application to teaching in a secondary setting. (Crosslisted with EDML 207).

Credits: 3.

EDSC 209 - Practicum in Teaching

Working with teachers and students in a secondary school, licensing candidates will assess the needs of students, document effects of direct service and the need for new curriculum. Prerequisites: 203, 207 or concurrent enrollment.

Credits: 3.

EDSC 215 - Reading in Secondary Schools

Design of methods and materials for integrating reading and learning skills in content instruction. Focus on learning support for at risk learners. Prerequisites: 203, 207, 209 or concurrent enrollment.

Credits: 3.

EDSC 216 - General Methods for Sec Tchrs

Development of teaching methods for secondary instruction, adaptation to learning styles, models of teaching with design, lesson planning and assessment, with focus on cross-disciplinary collaboration. Prerequisites: 203, 207, 209 or concurrent enrollment.

Credits: 3.

EDSC 225 - Tchg Soc Studies in Sec Schls

Includes multiple teaching modes, questioning techniques, micro-teaching laboratory, analysis of historical content to determine students' prerequisite cognitive skills and processes for construction of historical scenarios. Prerequisite: Twelve hours of education and related areas.

Credits: 3.

EDSC 226 - Teaching Internship

EDSC 215, EDSC 216, and Special Methods.

Credits: 8-12.

EDSC 227 - Tchng Science in Sec Schls

Consideration of science curricula and instructional strategies for grades 7-12. Topics may include: teaching science as problem solving, research in science teaching, affective education through science. Prerequisite: Twelve hours in education and related areas or Instructor permission.

Credits: 3.

EDSC 230 - Teaching for Results

Analysis of planning, curriculum, design, teaching, evaluation and classroom management from the perspective of research and practice. Special focus on the student with special needs. Prerequisites: Concurrent enrollment in 226.

Credits: 3.

EDSC 240 - Teach English:Secondary School

English language in secondary school. Prerequisite: Acceptance into licensure program.

Credits: 3.

EDSC 257 - Tchg Math in Secondary Schools

Contemporary secondary school mathematics curricula and instructional strategies for grades 7-12. Topics may include problem solving, research in mathematics education, use of calculators and computers, manipulatives, and evaluation. Prerequisite: Twelve hours in education and related areas or permission.

Credits: 3.

EDSC 259 - Tchg Foreign Lang in Sec Schls

An overview of language teaching methodology. The learning/ teaching process as it relates to language learning; techniques used in the teaching and testing of second language skills and culture. Prerequisite: Acceptance into

Credits: 3.

EDSC 295 - Lab Experience

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 1-6.

EDSC 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 1-6.

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Courses in Special Education

EDSP 005 - Iss Aff Persons W/Disabilities

Students explore the effects of severe disabilities. Best service practices, current legislation, advocacy, and family issues for children and adults are emphasized.
Credits: 3.

EDSP 197 - Independent Study

Credits: 1-3.

EDSP 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve
Credits: 1-3.

EDSP 201 - Foundations of Special Ed

Examination of historical, current trends in the treatment of individuals with disabilities, including the effects of litigation, legislation, and economic considerations on educational and residential service delivery systems. Prerequisite: Twelve hours in education and related areas, or permission.
Credits: 3.

EDSP 202 - Stdnt w/Signif Dis:Char&Ed Int

Normal development - birth through six years, developmental disorders, disabilities, medical/health considerations. Management of significant disabilities through the employment of such procedures as handling, positioning, and feeding. Prerequisites: Permission
Credits: 3.

EDSP 207 - Cooperative Learning

Theoretical and experiential instruction in procedures to increase social acceptance and settings through cooperative learning. Prerequisites: Permission. Three hours.
Credits: 3.

EDSP 216 - Curr&Instr Needs/All Students

Introduction to curriculum and instruction for all students with a focus on individuals who present academic and behavioral challenges. Emphasis on assessment, evaluation, curriculum, instruction, theories of learning and social

development. Prerequisite: Permission.

Credits: 3.

EDSP 217 - Instr Indiv/Significant Disab

Individualized instruction for learners with significant disabilities emphasizing objectives, assessment, task analysis, and behavior analysis. Prerequisite: Permission.

Credits: 3.

EDSP 221 - Family Centered Services

An in-depth study of families of children with special needs; family ecology; interaction and life cycle. Development and implementation of family/professional collaboration strategies. Practicum required. Prerequisite: Instructor permission.

Credits: 3.

EDSP 224 - Meeting Inst Needs/All Stdnts

Students apply principles of learning and social development to improve academic and social skills of all individuals with a focus on those who present academic and behavioral challenges. Prerequisite: Instructor permission.

Credits: 3.

EDSP 228 - Instr for Severely Handicapped

Students apply advanced principles of behavior analysis in the development and implementation of instructional programs for learners with moderate and severe disabilities. Prerequisite: Instructor permission and introductory behavior analysis course.

Credits: 3.

EDSP 275 - Voc Instr Students W/Spec Need

Development of instructional strategies for including students with disabilities in vocational education. Procedures for developing, implementing, and evaluating individualized vocational plans. Prerequisite: Admission to an approved teacher certification program or Instructor permission.

Credits: 3.

EDSP 280 - Assessment in Special Ed

Course covers assessment knowledge and skills essential for special educators, including test selection, administration and scoring, and legal issues related to special education assessment. Prerequisite: Admission to Graduate Program in Special Education or permission of the Instructor.

Credits: 3.

EDSP 290 - Meeting Curr Needs of Students

Study of curriculum and technology areas related to the development, adaptation, and assessment of all students focusing on students with academic and behavioral challenges. Prerequisite: Permission.

Credits: 3.

EDSP 295 - Laboratory Exp in Education

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 0-6.

EDSP 296 - Laboratory Exp in Education

Credit as arranged.

Credits: 1-6.

EDSP 297 - Curr for Indvls W/Handicaps

Students develop and implement an objectives-based curriculum for learners with learning disabilities, mental retardation, behavior disorders, and/or multidisabilities.

Prerequisite: Permission.

Credits: 3.

EDSP 298 - Special Educ Practicum

Students provide direct instruction for six learners with learning disabilities, mental retardation, behavior disorders, and/or multidisabilities. Prerequisite: Instructor permission.

Credits: 1-6.

EDSP 301 - Hst of Serv/Hndicapped Individ

Historical and current trends in treatment of individuals with disabilities, including effects of litigation, legislation, economic consideration in education, vocational, residential service delivery systems. Prerequisite: Acceptance as candidate for M.Ed. degree in special education, or permission.

Credits: 3.

EDSP 302 - Phys&Dev Char of Indiv w/Disab

Normal development - birth through six years, developmental disorders, disabilities, medical/health considerations. Management of significant disabilities through the employment of such procedures as handling, positioning, and feeding. Prerequisite: Instructor permission.

Credits: 3.

EDSP 305 - Res Dev&Coll:Fam/Sch/Com/Agncy

An overview of collaborative teaming, function assessment and Vermont's System of Care for students with emotional and behavioral disabilities. A practicum experience is included. Prerequisite: BA.

Credits: 3.

EDSP 306 - Emot&Behav Dis/Child&Adolesc

This course provides an overview of emotional disorders (e.g., depression, anxiety, ADHD, conduct disorder) experienced by youth and relevant assessment tools for an educational setting. Prerequisite: BA.

Credits: 3.

EDSP 307 - Prev&Interv Strategy:Students

classroom management, social skills training, anger This course covers effective prevention and intervention strategies with, or at-risk, for emotional and behavioral disorders. It covers such topics as management, internalizing disorders.

Prerequisite: BA in Education/related field.

Credits: 3.

EDSP 310 - Curr & Tech in Spec Education

Curricular and assessment areas essential to education of students with disabilities. Development, adaptation of curricula and assessment in early education, elementary and secondary and adult levels for mild, moderate, and severe disabilities. Prerequisite: Instructor permission.

Credits: 3.

- EDSP 311 - Curr & Tech in Spec Education
Curricular and assessment areas essential to education of students with disabilities. Development, adaptation of curricula and assessment in early education, elementary and secondary and adult levels for mild, moderate, and severe disabilities. Prerequisite: Instructor permission.
Credits: 3.
- EDSP 312 - Adv Behavior Prin in Spec Ed
A survey on behavior theory and research applications for learners with learning disabilities, mental retardation, behavior disorders, and multidisabilities.
Prerequisite: Acceptance to M.Ed. program or Instructor permission.
Credits: 3.
- EDSP 313 - Adv Behavior Prin in Spec Ed
A survey on behavior theory and research applications for learners with learning disabilities, mental retardation, behavior disorders, and multidisabilities.
Prerequisite: Acceptance to M.Ed. program or Instructor permission.
Credits: 3.
- EDSP 316 - Research Sem in Spec Educ
Research which addresses key issues in special education is reviewed and evaluated. Students write and present a research review with attention to practitioner needs. Prerequisite: EDSP 301, EDSP 310, EDSP 312; a course in quantitative research design.
Credits: 3.
- EDSP 317 - Dsgn & Eval of Ed/Sev Handcpd
Prerequisite: Instructor permission.
Credits: 3.
- EDSP 319 - Intern Sp Personnel in Spec Ed
Prerequisite: Instructor permission.
Credits: 1-6.
- EDSP 320 - Lab Exp:Ed Prgmng/Sev Handcppd
Students identify, evaluate severely disabled learners, demonstrate competency in handling, positioning, feeding. Current skill levels assessed, educational programs designed, including objectives, teaching/learning procedures, evaluation, measurement. Prerequisite: Master's degree or equivalent; Instructor permission.
Credits: 3.
- EDSP 322 - Intern: Triadic Model Consult
Competency-based instruction in oral and written communication, consultation, and workshop level training is provided. Students apply the consultation model in an educational setting. Prerequisite: EDSP 310, EDSP 312, or Instructor permission.
Credits: 1-6.
- EDSP 323 - Intern: Systems Development
Competency-based instruction in planning for system level development and change. Students apply systems theory in an educational setting. Prerequisite: EDSP 310, EDSP 312, or Instructor permission.
Credits: 1-6.
- EDSP 380 - Professional Problems in Educ

analysis of the literature and practice in a given area.

Credits: 3.

EDSP 382 - Teaching Internship

Supervised teaching experiences on a full-time basis, with related seminars in teaching subject. Prerequisite: Permission of coordinator of Professional Laboratory Experiences.

Credits: 3-8.

EDSP 384 - Intern: Course Dev & Implement

Instruction in developing competency-based courses in special education for inservice teacher training. Practicum involves team teaching with University special education faculty. Prerequisite: Certification as a Consulting Teacher/Learning Specialist and Instructor permission.

Credits: 6.

EDSP 385 - Intern: Adv Syst Dev & Mgmt

Competency-based instruction in developing and adapting technological programs for advanced system-level change. Prerequisite: EDSP 319 for six hours; Instructor permission.

Credits: 3-6.

EDSP 386 - Intern:Mgmt Lrng Env for Hdcpd

Implementation of data-based individualized education in one-to-one, small group, and large group instruction for severely disabled student(s) in special or regular classrooms. Prerequisite: EDSP 217, EDSP 290, EDSP 228 or Instructor permission.

Credits: 1-6.

EDSP 387 - Collaborative Consultation

Adult development and group dynamics theory provide the knowledge base for collaborating with parents and teachers to meet the diverse needs of students with disabilities. Cross-listed with: EDLP 387, EDSS 387.

Credits: 3.

EDSP 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1-6.

EDSP 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 1-6.

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Courses in Education

EDSS 001 - Schooling, Learning & Society

Introduction to issues and problems in American education: schools and learning, professional careers, individuals in systems, characteristics of learners. Required readings and papers.

Credits: 3.

EDSS 010 - Conquering College

Transition course for students with disabilities. Students

Credits: 1.

EDSS 011 - Race and Culture

Introduction to issues of diversity, multiculturalism and in our country as a whole. and cultural pluralism in our different communities

Credits: 1.

EDSS 012 - Race&Culture Contemp Issues

Gives an expanded introduction to US social justice issues. Forms of discrimination that shape US culture explored and skills in self-reflection and critical analysis developed.

Credits: 1.

EDSS 055 - Special Topics

Credits: 1-6.

EDSS 195 - Intermediate Special Topics

Topics vary. See Schedule of Courses for specific titles.

Credits: 1-6.

EDSS 196 - Intermediate Special Topics

Topics vary. See Schedule of Courses for specific titles.

Credits: 1-6.

EDSS 197 - Readings & Research

Credits: 1-4.

EDSS 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

Credits: 0-6.

EDSS 211 - Educational Measurements

Topics include validity, reliability, principles of test construction, item analysis, and analysis of standardized tests as they apply to the classroom. Prerequisite: Twelve Credits: 3.

EDSS 215 - The Gifted Child

Credits: 3.

EDSS 238 - Teaching W/Global Perspective

Approaches to teaching global and multicultural issues:

Credits: 3.

EDSS 239 - S.L.I.P. Seminar

Professional education course designed to facilitate student's integration of academic, social, personal, and career objectives through seminar or project syllabus method of support for internship experience in the community.

Prerequisite: Instructor's permission, junior

Credits: 1-12.

EDSS 245 - Microcomp Appl in Education

For elementary, secondary educators with experience in simple programming. Design of instructional procedures, integrating computers into school curriculum. Use of computer software to teach basic skills, reasoning, thinking skills.

Prerequisite: CS 003 or equivalent; Instructor permission.

Credits: 3.

EDSS 248 - Educational Media

Modern instructional aids, theory and practice, educational media related to psychology of teaching and learning. Prerequisite: Twelve hours in Education and related areas.

Credits: 3.

EDSS 261 - Current Dir:Curric&Instruction

Current trends, issues, literature, programs, and organizational activities in fields of curriculum and instruction emphasizing areas of individual concern. Focus on elementary and secondary school levels. Prerequisite: Twelve credits in education or equivalent.

Credits: 3.

EDSS 295 - Laboratory Exp in Education

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 0-6.

EDSS 309 - Interdisciplinary Seminar

Introduction to interdisciplinary study; the field of policy analysis and social change. Core academic experience for Interdisciplinary Majors. Prerequisite: Interdisciplinary majors; others by Instructor permission.

Credits: 3.

EDSS 313 - Stat Meth Ed & Social Services

Basic concepts of descriptive and inferential statistics. Topics: frequency distributions; measures of central tendency, dispersion; correlation, hypothesis testing. Application of concepts to educational situations.

Credits: 3.

EDSS 319 - Internship

Students will undertake an approved internship in an institution which reflects the particular area of interest and needs of the student. Prerequisite: Instructor permission.

Credits: 1-6.

EDSS 321 - School Improvement:Thry & Prac

Analysis of research and practices pertinent to improvement of American schools. Student assignments include synthesis papers and site-specific research projects derived from course studies. Prerequisite: Twelve hours of Graduate study in education.

Credits: 4-6.

EDSS 333 - Curr Concepts, Planning & Dev

Overview of conceptions of curriculum for elementary and secondary education; examination of contemporary curriculum trends, issues; processes for initiating, planning, developing curriculum activities and programs. Prerequisite: Twelve hours of education or Instructor permission.

Credits: 3.

EDSS 336 - Professional Writing

Problems in writing faced by professionals in educational and human service settings. Students write reports, critiques, reviews; analyze examples of published work; receive detailed critiques of their work.

Credits: 3.

EDSS 343 - The Study of Teaching

Study of the art and science with emphasis on students' own teaching. Current research on teaching and self-study are major foci. Prerequisite: Twelve hours of education; teaching experience.

Credits: 3.

EDSS 349 - Quasi-Experiment in Ed & SS

Quasi-experimental designs are analyzed, compared, and contrasted with "true experiments." Strategies for addressing threats to the validity of quasi-experiments are studied. Design exemplars are evaluated. Prerequisite: EDSS 313, PSYC 340, STAT 211, or equivalent.

Credits: 3.

EDSS 363 - Sem:Anyl of Curr & Instruction

A case study analysis of the design, implementation, and evaluation of selected curricular and instructional improvements. Prerequisite: Ed.D. students have priority.

Credits: 3.

EDSS 380 - Professional Problems in Ed

Designed to cover selected educational problems in depth. The major emphasis will be on intensive and critical analysis of the literature and practice in a given area.

Credits: 3.

EDSS 382 - Teaching Internship

Supervised teaching experiences on a full-time basis, with related seminars in

teaching subject. Prerequisite: Permission of coordinator of Professional Laboratory Experiences.

Credits: 3-12.

EDSS 387 - Collaborative Consultation

Adult development and group dynamics theory provide the knowledge base for collaborating with parents and teachers to meet the diverse needs of students with disabilities. Cross-listed with: EDSP 387.

Credits: 3.

EDSS 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1-6.

EDSS 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 1-6.

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Art Education: Teacher Education/Art Education (Grades K-12)(B. S.)

College: [Education and Social Services](#), [Arts and Sciences](#)

Departments: [Education](#), [Art](#)

Overview

The College works cooperatively with the [Art Department](#) in the [College of Arts and Sciences](#) to offer a program in Art Education which leads to both degree and licensure for grades K-12.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Teacher Education](#)

Specific Requirements

Students fulfill course requirements in general education, professional art education, professional education courses, studio art, art history, and related subjects. Graduates satisfy College of Education and Social Services requirements for teacher licensure and partake in coursework in the Art Department in the College of Arts and Sciences. The program allows sufficient additional advanced courses as recommended by the Art Department for admission to graduate school.

Students must be enrolled in the College of Education and Social Services. Those admitted as first-year students or sophomores to the Art Education Program are considered Candidates in the Program. Admission as Majors is made at the beginning of the junior year following formal review procedures during the second semester of the sophomore year.

Students must meet with their advisors and get approval to set up student teaching and accompanying courses prior to enrolling in student teaching.

A minimum of 124 approved semester hours is required for the degree including three

semester hours of teaching reading for teacher licensure.

Students are responsible for obtaining information regarding teacher licensure and degree requirements from the Office of Student Services, 528 Waterman.

Possible Curriculum

First Year

	Fall Spring	
HDFS 5, Human Development	3	
Studio Art Foundation	3	3
Art History	3	3
General Education Electives	6	6
EDSP 5, Issues Affecting Persons with Disabilities		3
Race & Culture		1
Total	15	16

Sophomore Year

	Fall Spring	
Studio Art Foundation	3	
Art History Elective	3	
Studio Art	3	6
Physical Education Elective	1	1
General Education Electives	6	9
Total	16	16

Students apply to the Art Education Major during second semester of sophomore year. Students must be accepted in order to enroll in required methods courses.

Junior Year

	Fall Spring	
EDAR 177, Curriculum & Pract. in Elem. Art	4	
EDAR 178, Curriculum & Pract. in Middle/HS Art	4	
Studio Art	6	6
General Education Electives	3	3
EDAR 284, Current Issues in Art & Ed.		3
EDSC 215, Rdg. in Sec. Schools or other approved reading courses		3
Total	17	14-15

Senior Year

	Fall Spring	
EDFS 203, Soc Hist & Phil Found of Ed	3	
Studio Art	6	

General Education Electives	6	
EDSC 226, Teaching Internship	12	
EDAR 283, Current Issues in Art & Ed	3	
Total	15	15

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Education: Teacher Education/Elementary Education (Grades K-6)(B. S.)

College: [Education and Social Services](#)

Departments: [Education](#)

Overview

The Elementary Education Program prepares teachers for assignments in grades kindergarten through six. The Bachelor of Science in Education is awarded upon satisfactory completion of the approved program which includes a planned sequence of professional courses, field experiences, and a full-semester internship experience.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#)
- [Teacher Education](#)

Specific Requirements

The Elementary Education Program is a designed sequence of professional course work that achieves coherence from its theme "teaching all children strategically in diverse communities." Embedded in a state known for its progressive schooling traditions, Elementary Education students have ample opportunity to learn about and practice the art and science of teaching. Through a web of unique relationships with area schools, Elementary Education majors build friendships with a diverse variety of children by the second year of their professional program.

Several features distinguish the program:

Blocked Professional Course Work: Grounded in a theoretical orientation that seeks to limit the necessity for piecemeal education, faculty of the program have designed course work that fits together in naturally occurring curricular blocks: literacy (reading/writing, children's literature, mathematics), inquiry (social education, science, visual and

performing arts), and the professional internship (student teaching, classroom management, and portfolio development).

Integrated Fieldwork: Professed theory about teaching is constantly exposed to the reality of public school practice. Each curriculum block has field experience attached to it. Students are thus placed in situations where theory and practice reside in reciprocal tension.

Authentic Assessment The State of Vermont requires a results-oriented demonstration of teaching competence to qualify for the teaching license. The Elementary faculty have built in portfolio driven authentic assessments at every step of the professional program. Interns thus learn the portfolio process from the inside out and are able to apply it to themselves while learning to apply it within their public school classes.

Full Inclusion: The State of Vermont has the highest rate of inclusion of learners with special challenges in the regular classroom setting. Being educated at UVM means elementary education students learn about and practice the application of instructional adaptations for learners of exceptional need.

Elementary Education Curriculum: The elementary education curriculum includes a general education component of 60 credits from the academic areas outlined earlier. Included in the 60 hours must be two semester hours of physical education activities. Students are required to complete an approved major concentration, consisting of at least 30 hours of study in a liberal arts and sciences discipline. Specific information may be obtained from advisors or from the Office of Student Services, 528 Waterman. In addition to the major concentration and professional education requirements, certain courses are recommended to meet specific state and national requirements in elementary education.

Full-time students enroll in 12 to 18 credits. Elementary education students enroll in the required education courses each semester, along with several additional required courses.

Possible Curriculum

First Year

	Fall	Spring
EDEL 010-Intro to Teaching & Learning	1	1
EDEL 011-Computers in El. Ed. Classroom	3	or 3
EDEL 024-Learners and Learning Process	3	or 3
Major Concentration	3	6
PEAC	1	or 1
Diversity	1-3	or 1-3
Gen. Ed.; Electives	6	6
Total	12-18	12-18

Sophomore Year

	Fall	Spring
¹ EDEL 056-Teachers & the Teaching Process	3	or 3
¹ EDEL 178-Meeting Indiv. Needs: Assessment and Instruction	2	or 2
EDSP 005-Issues Affecting Persons With Disabilities	3	or 3
EDPE 197-Issues in Health Education	1	or 1
EDPE 100-Integrating Movement Across the Elementary School Curriculum	2	or 2
Major Concentration	3	6
PEAC	1	or 1
Gen. Ed.; Electives	6	6
Total	12-18	12-18

During the sophomore year, students must complete an Application to Teacher Education form available in 533 Waterman Building. Students will follow requirements specified in the Application to Teacher Education. Students will not be permitted to enroll in advanced education courses until they have been accepted to teacher education. The advanced courses include:

Junior Year

	Fall	Spring
² EDEL 155-Lab Experience in Inquiry	3	or 3
² EDEL 157-Social Ed. & Social Studies	2	or 2
² EDEL 158-Teaching Science for Meaning	2	or 2
² EDEL 159-Visual & Performing Arts, K-6	2	or 2
³ EDEL 156-Teaching Math for Meaning	3	or 3
³ EDEL 175-Lab Experience in Literacy	3	or 3
³ EDEL 176-Language Arts & Literacy Skills	3	or 3
³ EDEL 177-Children's Literature and Literacy	2	or 2
⁴ EDEL 187-Planning, Adapting and Delivering Reading Instructions	3	or 3
Major Concentration	3	3
Gen. Ed.; Electives	3	3
Total	12-18	12-18

Students are required to complete a student teaching internship application in their junior year before being assigned a placement as seniors. Students will be notified by the Professional Education Office of a general meeting and are expected to attend to initiate this process. Students will follow requirements specified in the Application to Student Teaching. The course work for this stage of the program follows.

Senior Year

	Fall	Spring
⁵ EDEL 185-Student Teaching Internship	12	or 12
⁵ EDEL 188-Principles of Classroom Management	2	or 2
⁵ EDEL 189-Portfolio Development & Reflective Practice	1	or 1
EDFS 203-Social, Hist. & Phil. Foundations of Education	3	or 3
Major Concentration	6	or 6
Gen. Ed.; Electives	6	or 6
Total	12-18	12-18

A minimum of 127 approved credit hours is required for the degree.

Notes:

¹ Courses taken concurrently

² Courses taken concurrently

³ Courses taken concurrently

⁴ EDEL 187 must be taken after completing the Literacy Block and before student teaching.

⁵ Courses taken concurrently

APPLY

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Education and Social Services Individually Designed Program (B. S., Education)

College: [Education and Social Services](#)

Overview

Students enrolled in the College of Education and Social Services who are interested in an area of study, which isn't offered as one of the current options, may propose an individually designed program of study. Specific criteria and degree requirement information are available in 528 Waterman.

General Requirements

- [University](#)
- [Education and Social Services](#)

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Education: Teacher Education/Middle Level Education (Grades 5-8)(B. S.)

College: [Education and Social Services](#)

Departments: [Education](#)

Overview

The organizing theme of the Program is "Education for High Achievement and Personal Efficacy." The Program provides a minimum of four supervised internships whereby university students participate in the most highly successful middle level school programs that are within reasonable commuting distance.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#) (IDIMC Required)
- [Teacher Education](#)

Specific Requirements

Students who satisfactorily complete the program earn a minimum of 127 credit hours of study across three areas: General Education, Academic Concentration, and Professional Studies. This design ensures that each student achieves a balance of academic and professional preparation to meet the expectations and challenges associated with teaching at any level. During the students' first year they enroll in a required two semester advising course, EDML 10 "Introduction to Teaching," where faculty guide them in devising an eight semester plan that is balanced across three areas of study. Those three areas are briefly described below.

General Education: Students earn at least 39 credits in liberal arts and sciences from an array of disciplines such as: English, Mathematics, Social Science, History, Political Science, Humanities, Diversity, Art and Physical Education. Six credits are designated as Electives. Most of these courses are generally completed during the first three to four semesters, and since students sometimes transfer from one program to another, these

credits easily transfer to other degree programs in the College of Education and Social Services as well as other colleges within the University.

Academic Concentration: Every Teacher Education student is required to complete an academic major referred to as a "major concentration." Students enrolled in the Middle Level Program organize their concentration around two disciplines in order to accomplish the middle level licensure requirement for two teaching areas. This design is referred to as an IDIMC (Individually Designed Interdisciplinary Major Concentration), and it consists of 18 credits in each of two disciplines for a total of 36 credits. For example, one student might choose to combine Science and English while another decides on Mathematics and Social Studies. These academic combinations enable a student to teach in multiple areas as a member of a middle level team consisting of two to five or more teachers. Program advisors and students work closely together, especially over the first two years, to design an IDIMC that accommodates the student's interests and fits the needs of middle level teachers.

Professional Studies: Courses that concentrate on the professional work of teaching, span all four years. These studies are grounded in theory, research and policies associated with the very best practices in middle level education. Studies of young adolescent learning and development, teachers and teaching, literature for young adult readers, special education and technology are taken in the first two years as Pre-Professional Requirements. These courses include a minimum of one field placement with a middle level team of teachers. More heavily field-linked courses in curriculum, pedagogy, assessment, team organization, literacy, mathematics, and evaluation and assessment are taken the last two years. Required professional courses over four years total of 52 credits.

Fieldwork: The faculty is committed to providing students as much field experience as possible and practical. Four courses (EDML 56, 171, 261, 285) are primarily field-based, and while taking these courses students will enjoy working with teachers on four different teaching teams. Emphasis is placed on high levels of integration between campus-based learning and field experience to insure that students are sufficiently oriented and prepared for the real work of exemplary middle level schools.

Cohort: Cooperation and collaboration among teachers is a hallmark of middle level teaching teams. That same spirit is given emphasis through building a cohort of middle level teacher education students who receive group advising, who take courses together, and who participate in professional activities such as school events and professional conferences. Additionally, the Middle Level Teacher Education Program includes a Teacher Advisory Committee composed of exemplary middle level teachers from area schools who consult with students and faculty about the Program, field placements, job searches and other issues related to advancing one's professional development and beginning career.

Professional Portfolio: In the aforementioned EDML 10 course, students are introduced to the process of documenting and preserving samples of their professional work and development. These samples are maintained in individual portfolios that grow cumulatively semester by semester. A final Professional Portfolio is assembled during the student

teaching semester to more fully define the professional background and aspirations of the novice teacher. These final portfolios constitute completion of the Program, and they are valuable to seniors reflecting on their preparation and accomplishments as well as beginning a job search. These full portfolios are drawn upon to create a more succinct "presentation portfolio" for use in interviews. Seniors also receive faculty guidance in creating resumes and applying and interviewing for teaching positions. The demand for teachers well prepared for teaching middle level schools is such that the portfolio is an excellent and comprehensive way to present one's candidacy.

Possible Curriculum

First Year

	Fall Spring	
EDEL 11, Computers in El. Ed. Classroom	3	
Diversity	1	
EDML 10, Introduction to Teaching	1	1
Physical Education Elective	1	1
General Education Electives	9	6
EDML 24, Learners, Development & Learning		3
IDIMC		6
Total	15	17

Sophomore Year

	Fall Spring	
EDML 56, Teachers & the Teaching Process	3	
EDSP 5, Issues Affecting Persons with Disabilities	3	
EDEL 177, Children's Lit. & Literacy	2	
IDMIC	6	6
General Education Electives	3	9
Total	17	15

Junior Year

	Fall Spring	
EDML 260, Teaching Young Adolescents	6	
EDML 261, Teaching Practicum I	3	
IDIMC	6	6
General Education Electives	3	3
EDML 270, Middle School Organization and Pedagogy		6
EDML 171, Teaching Practicum II		3
Total	18	18

Senior Year

	Fall Spring	
IDIMC	6	

General Education Electives	3	
EDML 287, Literacy & Mathematics	3	
EDFS 203, Soc Hist & Phil Found of Ed	3	
EDML 285, Student Teaching Internship	12	
EDML 286, Internship Support Seminar	1	
Total	15	13

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Education: Teacher Education/Physical Education (Grades K-12) (B. S.)

College: [Education and Social Services](#)

Department(s): [Education](#)

Overview

The Physical Education Program qualifies candidates for licensure to teach in grades K-12. Course work around the program theme, Moving and Learning, includes a series of courses designed to provide a background to the field of physical education. Specialty courses assist the student in the development of physical education program content and teaching skills important in providing developmentally appropriate programs of physical education to children and youth in today's schools. Laboratory experiences in schools throughout the program aid students in recognizing the relationship between theory and practice.

An [Athletic Training Concentration](#) also is offered.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#)
- [Teacher Education](#)

Specific Requirements

Courses in general education and professional education as well as a liberal arts and sciences major/major concentration are required. A major concentration in Exercise and Sport Science is available to students in the Physical Education program.

Possible Curriculum

First Year

Fall Spring

EDPE 21, Foundations of Phys. Ed.	3	
EDHE 46, Personal Health	3	
PEAC 50, Individual Sports	1	
PEAC 125, Team Sports 1	1	
Major Concentration	3	6
General Education Electives	6	6
PEAC 70, Racquet Sports		1
PEAC 126, Team Sports 2		1
EDPE 157, Care & Prevent. Athletic Injury	3	
Total	17	17

Sophomore Year

		Fall	Spring
EDPE 23, ARC Emergency Response*	3		
HDFS 5, Human Development	3		
ANPS 19, Hum Anatomy & Physiology	4		
PEAC 16, Gymnastics	1		
PEAC 28, Conditioning	1		
Major Concentration	6	6	
ANPS 20, Hum Anatomy & Physiology		4	
PEAC 190, Dance		1	
PEAC 105, Outdoor Recreation		1	
EDPE 104, Phys Ed Teaching Experience	5		
Diversity		1	
Total	18	18	

* or evidence of American Red Cross Basic Emergency Response certification.

Junior Year

		Fall	Spring
EDPE 105, Phys. Ed. Teaching Exper.	5		
EDPE 167, Exercise Physiology	4		
EDPE 220, Sport in Society	3		
EDPE 260, Adapted Physical Activity	3		
General Education Electives	3	3	
EDPE 155, Phys Ed in Secondary Schools		3	
EDPE 166, Kinesiology		3	
EDPE 240, Motor Skills Learning & Control		3	
Major Concentration		3	
Total	18	15	

Students are required to complete a student teaching application before being assigned a placement.

Senior Year

	Fall	Spring
EDSC 215, Reading in Secondary Schools	3	
EDFS 203, Soc Hist & Phil Found of Ed or EDFS Elective	3	
Major Concentration	6	
General Education Electives	3	
EDPE 181, Student Teaching		12
EDPE 182, Student Teacher Seminar		2
Total	15	14

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Education: Teacher Education/Secondary Education (Grades 7-12) (B. S.)

College: [Education and Social Services](#)

Department(s): [Education](#)

Overview

The Secondary Education Program prepares teachers to work with students with diverse needs in public school classrooms in grades 7-12. The curriculum includes general education; a major, a minor, or a broadfield major; a professional education component; and electives.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#)
- [Teacher Education](#)

Specific Requirements

A minimum of 124 approved semester hours is required for the degree. Specific requirements, including PRAXIS information, as approved by the State Department of Education, may be obtained from the Office of Student Services, 528 Waterman. Program information is also available from the Secondary Education Program, 405A Waterman or on the [Web](#).

During the first two years, students enroll in a CESS course each semester, concentrating on completing their general education, major, and minor requirements while also taking selected coursework in education. The majority of professional education coursework is completed in the junior and senior years.

General Education Component (Minimum of 27 credits): The general education courses must include the following courses. Two semester hours of physical education activities must be included.

English Composition and English Literature
Science
Mathematics
U.S. History
American Government
Psychology 1
Humanities (Philosophy, Religion, Foreign Language)
Physical Education activities
Race and Culture

Academic Major and Minor Components (major minimum of 30 credits, minor minimum of 18 credits or broadfield major of 48-52 credits): Students who successfully complete their Teacher Education programs are recommended for licensure with a first endorsement in their major, and may apply directly to the State Department of Education for an endorsement to also teach their minor. Students are therefore encouraged to select a minor which is also a licensure area. (Approved majors and minors are listed in the Academic Majors box appearing earlier in this section.)

Professional Education Component (45 credits): By the time students begin the professional education component of their program as juniors, they should have completed most of their general education requirements, have taken 12 credits of professional education coursework, and be well into their academic major (15-18 credits completed) and their academic minor (six-12 credits completed). Students must complete the remainder of their requirements as they complete the following phases of the professional education component:

I. Exploring Learners' Needs in the Context of Schools: EDFS 203, EDSC207, 209.

Following completion of this first phase, students must submit their Initial Portfolio and their application to the Teacher Education Program. The Initial Portfolio documents learning, professional knowledge, collegiality, advocacy and accountability. Provided the Initial Portfolio is assessed as satisfactory, the student has achieved passing scores on PRAXIS I, and has a minimum 2.5 GPA overall, 2.5 in his or her major, and was successful in EDFS 203, EDSC207 and 209 (3.0 or better), the student is accepted into Teacher Education and may begin work on the second phase of the program.

II. Designing and Adapting Instruction: EDSC 215, 216 and subject methods.

Subject methods for major: EDSC 225 (Social Studies), EDSC 227 (Science), EDSC 240 (English), EDSC 257 (Mathematics), or EDSC 259 (Foreign Languages).

During this phase of the program, prior to student teaching, students must achieve passing scores on PRAXIS II. Students must also have an overall GPA of 3.0 and a minimum GPA of 2.75 in their major. Following a successful faculty review of a student's records, he or she is nominated for a placement. Students must complete the interview process for placement by the school in order to be confirmed for

student teaching. Students complete a semester of full-time student teaching as the third phase of the program. (In some cases, students must arrange to live off-campus during the student teaching semester.)

III. Achieving Results in Schools: EDSC 226, 230.

As students complete their degree program, they must submit their Licensure Portfolios which document Learning, Professional Knowledge, Collegueship, Advocacy and Accountability. Recommendation for licensure is based on successful completion of student teaching, an overall grade-point average of 3.0, as well as on submission of a satisfactory Licensure Portfolio, and meeting state accreditation standards.

Student's Responsibility: Information about application and assignment procedures for the Secondary Education Program may be obtained from 405A Waterman Building. Students are responsible for obtaining information regarding the process and requirements, and for notifying the office as to changes in their status, address, or intentions for completion of their program.

Language Proficiency: A Language Proficiency Test is required for the Secondary Education Foreign Language majors.

Speech/Theatre: All students must demonstrate competence in the area of speaking by taking a speech or theatre course or by submitting evidence of competence (go to 405A Waterman Building for more information).

Possible Curriculum

First Year

	Fall	Spring
EDSC 50, Exploring Education	3	
Minor	3	
Race & Culture	1	
Major	3	6
General Education Electives	6	6
Physical Education Elective		1
EDSP 5, Issues Affecting Persons with Disabilities		3
Total	16	16

Sophomore Year

	Fall	Spring
Physical Education Elective		1
EDSC 11, Educational Technology in the Secondary Education Classroom	3	
Major	3	6
General Education Electives	9	3

Minor	6
EDSC 197 (or other field-based elective)	3
Total	16 18

Junior Year

Fall Spring

EDSC 207, Adolescent Learning from a Behavioral & Cognitive Perspective	3
EDSC 209, Practicum in Teaching	3
EDFS 203, Soc Hist & Phil Found of Ed	3
Major	6 6
EDSC 215, Reading in Secondary Schools	3
EDSC 216, General Methods for Sec Teachers	3
Special Methods	3
Minor	3
Total	15 18

Senior Year

	Fall	Spring
EDSC 226, Teaching Internship	12	or 12
EDSC 230, Teaching for Results	3	or 3
Minor	6	or 6
General Education Electives	4	or 4
Total	12-18	12-18

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Education: Teacher Education/Music Education (Grades K-12) (B. S.)

College: [Education and Social Services](#)

Department(s): [Education](#), [Music](#)

Overview

The College works cooperatively with the [Music Department](#) in the [College of Arts and Sciences](#) to offer a program in Music Education which leads to both degree and licensure for grades K-12.

The curriculum in music education leading to the degree of Bachelor of Science in Music Education is recommended to students who have sufficient training and natural musical ability to justify a career in music. Prospective students must audition before entering the program. Those admitted as first-year students or sophomores to the Music Education program are considered Candidates in the program. Admission as a Major is made at the beginning of the junior year following formal review procedures during the second semester of the sophomore year. Graduates are qualified for positions as instructors and supervisors of music in public schools.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Teacher Education](#)

Specific Requirements

A minimum of 128 approved semester hours is required for the degree including three semester hours of teaching reading for teaching licensure. Students must pass the piano proficiency examination prior to student teaching. Students are responsible for obtaining information regarding teaching licensure and degree requirements from the College of Education and Social Services' Office of Student Services, 528 Waterman.

Pedagogy classes are taken as available.

Possible Curriculum

First Year

	Fall Spring	
HDFS 5, Human Dev. or EDEC 63, Child Dev.	3	
MUS 5, Piano Lab I	1	
MUS 31, Basic Musicianship	3	
MUS 151, Private Lessons	2	
MUS Pedagogy	1	1
Ensemble	1	1
PEAC	1	1
General Education Electives	3	3
MUS 6, Piano Lab II	1	
MUS 32, Basic Musicianship	3	
MUS 152, Private Lessons	2	
EDSP 5, Issues Affecting Persons with Disabilities	3	
Race & Culture	1	
Total	15	16

Sophomore Year

	Fall Spring	
MUS 7, Piano Lab III	1	
MUS 11, Survey of Western Music	3	
MUS 131, Intermed. Theory: Music of Tonal Era	3	
MUS 133, Intermediate Theory Lab	1	
MUS 281, Elem. Music Ed. Methods	3	
MUS 153, Private Lessons	2	
Ensemble	1	1
MUS Pedagogy	1	1
MUS 8, Piano Lab IV	1	
MUS 12, Survey of Western Music	3	
MUS 132, Intermediate Theory: Music of Tonal Era	3	
MUS 134, Intermediate Theory Lab	1	
MUS 154, Private Lessons	2	
MUS 259, Conducting	3	
Total	15	15

Students apply to the Music Education major during the second semester of their sophomore year.

Junior Year

Fall Spring

MUS 231, Adv Theory: 20th Century Music	3	
MUS 233, Arranging	3	
MUS 251, Private Lessons	2	
MUS Pedagogy	2	2
Ensemble	1	1
General Education Electives	6	6
MUS 252, Private Lessons		2
MUS 282, Sec Music Ed Methods		3
EDSC 215, Reading in Secondary Schools		3
Total	17	17

Students are required to complete a student teaching internship application before being assigned a placement

Senior Year

Fall Spring

Ensemble	1	
MUS 256-Perform Study: Senior Recital	2	
EDFS 203, Soc Hist& Phil Found of Ed	3	
MUS Pedagogy	1	
General Education Electives	9	
MUS 041, Basic Electronic Music		3
EDSC 226, Teaching Internship		12
MUS 253, Private Lessons		2
Total	16	17

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Athletic Training Concentration

College: [Education and Social Services](#)

Department(s): [Education](#)

Overview

An Athletic Training concentration is offered in Physical Education and is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). Upon completion of the concentration and 800 clinical experience hours, students are eligible to sit for the National Athletic Trainers' Association Board of Certification (NATABOC) examination.

Certified athletic trainers are highly trained health professionals qualified to work in a number of settings to enhance the quality of health care for athletes and those engaged in physical activity. Working closely with physicians and other allied health professionals, their expertise includes the prevention, evaluation, management, and rehabilitation of injuries incurred by the physically active.

Admission to the program is contingent upon successful completion of 60 hours of directed observation, pre-admission course work, overall GPA, and an interview with the program faculty. Students are also required to submit a formal application to the program director. In addition, students must meet technical standards consistent with the practice of Athletic Training as a profession. These standards are published in the Athletic Training Education Program Policies and Procedures Manual.

Due to accreditation standards, the program is selective and space limited. A competitive review of applicants takes place at the end of each academic year. Advanced Placement in the ATEP is available to transfer students with prior experience and coursework relative to Athletic Training. Students must be enrolled in a degree program at UVM to be eligible for enrollment in the Athletic Training Concentration. It is often combined with the Teacher Education / Physical Education program. For more information, call (802) 656-4456.

General Requirements

- [University](#)

- [Education and Social Services](#)
- [Teacher Education](#)

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Minor in Special Education

College: [Education and Social Services](#)

Departments: [Education](#)

Overview

The minor in special education is for students wishing to learn about and work with students with disabilities and to obtain an understanding of special education. Students apply to the minor through contacting the Special Education Program in the Department of Education.

Requirements

A total of 18 hours (6 courses) of coursework is required, at least 9 hours of which must be at the 100 level or above. Course offerings cover the areas of foundations of special education, assessment practices, and methods for supporting students with disabilities in general education classrooms. Students may apply their coursework to becoming certified in special education.

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Integrated Professional Studies Department

Colleges: [Education and Social Services](#), [Graduate College](#)

Faculty: Integrated Professional Studies

Courses: [Essential Early Education Special Education \(ECSP\)](#), [Counseling \(EDCO\)](#), [Early Childhood/Teacher Education PreK-3 \(EDEC\)](#), [Family and Consumer Sciences Education \(EDFC\)](#), [Higher Education \(EDHI\)](#), [Human Development and Family Studies \(HDFS\)](#)

Contact Information:

University of Vermont

Integrated Professional Studies Department

C150 Living/Learning Building

633 Main St.

Burlington, VT 05405-0388

Phone: (802) 656-4050

Fax: (802) 656-2687

Email: Tori.Lathrop@uvm.edu

Web Site: <http://www.uvm.edu/~ips1/>

Academic Offerings

- Undergraduate Majors
 - Bachelor of Science (B. S.)
 - [Early Childhood Education \(PreK-3\)](#)
 - [Family and Consumer Sciences Education \(7-12\)](#)
 - [Human Development and Family Studies](#)
- Undergraduate Minors
 - [Human Development and Family Studies](#)

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Courses in Early Childhood Special Educ

ECSP 200 - Contemporary Issues

Credits: 1-6.

ECSP 295 - Lab Experience in Education

Undergraduate only.

Credits: 1-6.

ECSP 310 - Curriculum & Tech Special Ed

See EDSP 310,311.

Credits: 3.

ECSP 311 - Curriculum & Tech Special Ed

See EDSP 310,311.

Credits: 3.

ECSP 319 - Intern Specialized Personnel

Undergraduate only.

Credits: 1-6.

ECSP 380 - Professional Problem:Education

Undergraduate only.

Credits: 3.

ECSP 382 - Teaching Internship

Undergraduate only.

Credits: 3-8.

ECSP 386 - Intern:Mgmt Lrng Env for Hdcpd

See EDSP 386.

Credits: 1-6.

ECSP 391 - Master's Thesis Research

Credits: 1-12.

ECSP 397 - Problems in Education

Credits: 1-6.

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Courses in Counseling

EDCO 220 - Developmental Persp in Counsel

Survey of major and emerging theories of human development and application of theoretical concepts to self and others from a counseling perspective.

Prerequisite: Graduate standing; others by Instructor permission.

Credits: 3.

EDCO 291 - Special Topics in Counseling

Special issues in counseling, administration and planning, social work or higher education not appropriate to content of existing courses. Courses reflect the social services orientation of the Department of Integrated Professional Studies.

Credits: 1-3.

EDCO 310 - Counseling Strats for Teachers

Counseling strategies appropriate for use in the classroom

Credits: 3.

EDCO 340 - Development Guidance in Schls

An introduction to the role of the school counselor including developmental guidance program planning and implementation, consultation, crisis intervention, parent education and ethical issues. Prerequisite: Counseling majors or Instructor permission.

Credits: 3.

EDCO 344 - Counseling Children&Adolescent

Students learn theories and will practice counseling children and adolescents: assessment intervention planning, and play therapy, client-centered, behavioral, cognitive, Adlerian, brief and narrative approaches. Prerequisites: EDCO 374- Counseling Theory and Practice, EDCO 375-Laboratory Experience in Counseling, Counseling Majors or permission.

Credits: 3.

EDCO 350 - Prof Issues in Counseling

A seminar in which professional, ethical, and legal issues facing counselors in schools and mental health settings are addressed through reading, research, presentation, and discussion. Prerequisite: Graduate standing or Instructor permission.

Credits: 3.

EDCO 351 - Using Tests in Counseling

Exploration of tests and testing process used in counseling and school settings. Includes necessary statistics. Experience in taking, administering, interpreting various tests; study projects for application to any setting. Prerequisites: Graduate standing or permission.

Credits: 3.

EDCO 361 - Practice of Mental Hlth Cnslng

Introduction to issues, needs, models and sociopolitical factors present in community and private-practice mental health counseling, with an emphasis on prevention and wellness. Prerequisite: Graduate standing or Instructor permission.

Credits: 3.

EDCO 363 - School Counseling Practicum

Introductory supervised experience in counseling in a school field setting. Includes 100 hours working as a counselor with a minimum of 40 hours of direct counseling experience. Prerequisites: Counseling Majors or Permission.

Credits: 1.

EDCO 364 - Internship School Counseling

Supervised counseling experience in a school counseling setting with direct client work. Prerequisite: Counseling majors or Instructor permission.

Credits: 1-8.

EDCO 374 - Counseling Theory & Practice

Theoretical and practical approach to understanding the counseling process. Refinement of personal philosophy, theory of counseling, and implementation in practice. Prerequisite: Graduate standing or Instructor permission.

Credits: 3.

EDCO 375 - Lab Experience in Counseling

Students learn and practice basic counseling skills and techniques. Videotaped practice sessions are supervised by course instructor. Prerequisite: EDCO 374. Counseling majors only.

Credits: 3.

EDCO 376 - Chem Dependency: Etiology & Trtmt

Graduate standing or permission.

Credits: 3.

EDCO 377 - Diversity Issues in Counseling

Students examine personal, cultural, political, and social factors affecting a diverse range of people with focus on developing appropriate and effective counseling skills. Prerequisite: Instructor permission.

Credits: 3.

EDCO 378 - Diagnose & Treat Plan/Child & Adol

Etiology and diagnosis of mental disorders in children and adolescents according to DSM. Includes intake, evaluation, treatment planning, and clinical documentation skills. Prerequisite: Counseling majors or Instructor permission.

Credits: 3.

EDCO 379 - Diagnose & Treat Plan w/Adults

Prerequisite: Counseling majors or Instructor permission. Etiology and diagnosis of mental disorders in adults according to DMS. Includes intake, evaluation,

treatment planning, and clinical documentation skills.

Credits: 3.

EDCO 380 - Prof Problems in Counseling

Designed to cover selected educational problems in depth. The major emphasis will be on intensive and critical analysis of the literature and practice in a given area.

Credits: 3.

EDCO 381 - Counsel/Career&Lifestyle Dev

An exploration of the theories, assessment instruments, counseling techniques, and issues most relevant in counseling for career and lifestyle development.

Prerequisite: EDCO 374, EDCO 375; Graduate standing or Instructor permission.

Credits: 3.

EDCO 383 - Mental Health Counseling Pract

Introductory supervised experience in counseling in a mental health field setting. Includes 100 hours working as a counselor with a minimum of 40 hours of direct counseling experience. Prerequisite: Counseling majors or Instructor permission.

Credits: 1-12.

EDCO 384 - Intern:Mental Hlth Counseling

Supervised counseling experience in a mental health counseling setting with direct client work. Prerequisite: Counseling majors or Instructor permission.

Credits: 1-12.

EDCO 386 - Org Dev for Cnslng & Services

The concept and practice of organization development, analysis of and laboratory experience in the utilization of intervention methodologies. Prerequisite: Instructor permission.

Credits: 3.

EDCO 387 - Therapeutic Psychopharmacology

Introduction to neuroanatomy, neurophysiology, and pharmacology as they pertain to mental health counseling. Course also covers commonly prescribed medications, ethical issues and the referral process. Prerequisite: EDCO 360 or program permission.

Credits: 3.

EDCO 388 - Family Counseling: Systems

Theory and process of counseling with families, including family theory and current family therapy orientations and intervention skills. Includes practice of counseling interventions. Prerequisites: 220, 374, permission.

Credits: 3.

EDCO 389 - Family Counseling:Interventns

Supervised practice in family counseling. Prerequisites: 388, permission.

Credits: 3.

EDCO 390 - Advanced Counseling Seminar

Analysis and practice of advanced counseling skills with focus on new developments. Emphasis on integration of theory and technique into a consistent counseling model. Prerequisites: EDCO 374, EDCO 375, and Instructor permission.

Credits: 3.

EDCO 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1-18.

EDCO 392 - Group Dynamics:Theory & Exp

Encounter group experiences for prospective counselors providing increased awareness of self and models relating to others. Theory, practice of group dynamics. Prerequisites: Graduate standing and permission.

Credits: 3.

EDCO 393 - Adv Group Counseling

Group leadership skills are developed, practiced, and refined through in-class experiences that focus on feedback exchange, group techniques, ethical issues, and group theory. Prerequisites: 220, 374, 375, 392 and permission.

Credits: 3.

EDCO 394 - Special Topics in Counseling

Special issues in counseling, administration and planning, social work, higher education not appropriate to content of existing courses. Prerequisite: Instructor permission. Variable credit.

Credits: 1-3.

EDCO 397 - Independent Study

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 1-6.

EDCO 399 - Program Completion Seminar

Students are aided in preparation of a scholarly paper to be presented and discussed in seminar and submitted for publication review. Prerequisite: Counseling majors in final or next to final semester; Instructor permission.

Credits: 1.

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Courses in Early Childhood Pre K-3

EDEC 001 - Infant/Toddler Curr Block

Study of infant/toddler development through a combination of lecture, discussion, observation, and participation in an infant/toddler group setting. Prerequisite: Majors only or permission. Offered spring semester only.

Credits: 4.

EDEC 055 - Special Topics I

Credits: 2-6.

EDEC 063 - Child Development

The biological, psychological, and social growth and development of children and their relationships with family, peers, and institutions.

Credits: 3.

EDEC 100 - Preschool Curriculum Block

Examines the development and education of children three to five years of age through lecture, discussion, observation and participation in an early childhood preschool setting. Prerequisite: EDEC 1. Offered fall semester only.

Credits: 10.

EDEC 187 - Field Practicum

Full semester student teaching internship in a primary (K-3) setting. Prerequisite: EDEC 189; Instructor permission.

Credits: 12.

EDEC 189 - Early Childhood Practices

Supervised planning and conducting the Early Childhood Laboratory Center. Integrated Readings and Research, Early Childhood Seminar, and Curriculum Workshop. Prerequisite: Permission. Variable credit.

Credits: 0-15.

EDEC 195 - Special Topics

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once, accumulation up to 12 hours.

Prerequisite: Varies with course.

Credits: 1-6.

EDEC 197 - Readings & Research

Credits: 1-4.

EDEC 200 - Contemporary Issues

Credits: 1-6.

EDEC 291 - Special Problems

Reading, discussion, and special field and/or laboratory investigations.

Prerequisite: Department permission. Students may enroll more than once up to 12 hours.

Credits: 1-6.

EDEC 295 - Special Topics

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once. Prerequisite: Department permission.

Credits: 1-6.

EDEC 296 - Field Experience

Professionally-oriented field experience under joint supervision by faculty and community representative, credit arranged up to 15 hours. Prerequisite: Department permission.

Credits: 1-15.

EDEC 397 - Problems in Education

Credits: 1-6.

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Courses in Family&Consumer Sciences

EDFC 055 - Special Topics I

Credits: 2-6.

EDFC 123 - Methods In Nutrition Education

institutional settings emphasizing interpersonal communication and group process skills.

Credits: 3.

EDFC 197 - Readings and Research

Credits: 1-4.

EDFC 200 - Contemporary Issues

Credits: 1-6.

EDFC 220 - Fam&Consumer Sci/Contemp Schl

Required for licensure. Exploration of education options in a variety of family and Consumer Sciences related areas and in different types of schools and programs. (Not offered for graduate credit).

Credits: 3.

EDFC 221 - Mgmt School Youth Organization

Includes observation and participation in school related activities. (Not offered for graduate credit).

Credits: 2.

EDFC 222 - Curriculum Dev Human Sciences

contributions of human science education as related to Spring in odd number years.

Credits: 3.

EDFC 224 - Evaluation In Human Sciences

Test, questionnaire, interview schedule construction, and other non-testing means of evaluation. Usability, objectivity, validity, reliability, and discrimination of evaluation instruments. Selected sociometric techniques and evaluation in affective domain. Spring.

Credits: 3.

EDFC 225 - Teaching Pract: Human Sciences

Teaching in middle or secondary schools under guidance of cooperating teachers and college supervisor. Credits variable up to 15 hours per semester. (Not offered

for graduate credit).

Credits: 1-15.

EDFC 295 - Lab Experience in Education

Credits: 1-15.

EDFC 296 - Special Topics

Credits: 1-15.

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Courses in Higher Education

EDHI 055 - Special Topics

Credits: 2-6.

EDHI 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

Credits: 1-6.

EDHI 202 - Human Rel in Univ Res Halls

residential environment. Prerequisite: Residence hall Emphasis on human relations, group dynamics, advising models, student development theory, organizational development, and contemporary student issues in a staff. (Not offered for graduate credit.)

Credits: 1.

EDHI 213 - Ldr:Theories,Styles&Realities

Introductory course in leadership development designed for student leaders. Includes study of planning, time management, organizational theory, communication skills, group process, team building. (Not offered for graduate credit.)

Credits: 2.

EDHI 214 - Adv Seminar in Leadership

Focuses on student leaders' experiences and how those experiences relate to activities beyond the University setting.

Credits: 2.

EDHI 295 - Lab Experience in Education

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 1-3.

EDHI 297 - Special Topics

Learning modules may vary each semester as the need to address topics arises. Learning modules are five week classes.

Credits: 1.

EDHI 319 - Internship

Students will undertake an approved internship in an institution which reflects the particular area of interest and needs of the student. Prerequisite: Instructor permission.

Credits: 1-6.

EDHI 332 - Adult Development & Education

Critical examination of research on adult learners in higher education, development theory, and reentry issues facing older students. Analysis and application of proposals for new adult-oriented educational programs.

Credits: 3.

EDHI 360 - Higher Education in America

Critical, contemporary overview of the American university. Implications of conflicting value philosophies for theory, practice of higher education.

Credits: 3.

EDHI 361 - The (Un)Changing Academy

This course examines the historical trends that have shaped

Credits: 3.

EDHI 362 - The American College Student

Examination of the diversity of college students today, and the developmental issues arising during the college experience.

Credits: 3.

EDHI 375 - Cultural Pluralism Higher Ed

practices related to racism and diversity for implementation in higher education.

Prerequisite: Graduate standing.

Credits: 3.

EDHI 380 - Professional Problems in Educ

Designed to cover selected educational problems in depth. The major emphasis will be on intensive and critical analysis of the literature and practice in a given area.

Credits: 3.

EDHI 383 - Higher Ed Admin & Organization

Introduction to concepts of administration and organization as applied to contemporary higher education setting. Characteristics of organizations, dynamic elements of administration, and theories and processes of change.

Credits: 3.

EDHI 385 - Student Affairs Profession

Overview of the work of the student affairs profession, including philosophical base, historical development, current practices, and future trends. Prerequisite: Enrollment open only to Higher Education and Student Affairs students.

Credits: 3.

EDHI 387 - Seminar in Higher Education

Designed for graduate students concentrating in programs in Higher Education. Analysis and discussion of current issues and problems in higher education.

Credits: 1-3.

EDHI 391 - Master's Thesis Research

Thesis topic must be approved by a faculty committee.

Credits: 1-6.

EDHI 395 - Lab Experience in Education

Practica internships, offered in various University departments and offices, enable students to integrate conceptual knowledge with professional practices.

Prerequisite: Graduate standing in HESA.

Credits: 2.

EDHI 396 - Capstone:Eth,Val&Mean/High Ed

An applied student affairs seminar featuring ethical problem-solving, appreciation of religious pluralism, and approaches to facilitating the search for moral and

Credits: 3.

EDHI 397 - Problems in Education

Individual work on a research problem selected by the student in consultation with a staff member. Prerequisite: Twelve hours in education and related areas; endorsement by a sponsoring faculty member.

Credits: 1-6.

EDHI 491 - Doctoral Dissertation Research

Credits: 1-12.

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Courses in Human Development & Fam Studies

HDFS 001 - Int Hum Dev&Fam Std&Acad Serv

Seminar designed to introduce concepts and practices of Human Development and Family Studies through integrating academic service-learning in developmental settings with critical thinking about development. Prerequisite: Majors only.

Credits: 3.

HDFS 005 - Human Development

A comprehensive survey of life span individual and family development within social and historical context.

Credits: 3.

HDFS 020 - Aging:Change & Adaptation

Individual and social meanings of aging and old age; physical, physiological, psychological, and sociological changes accompanying aging; individual, family, community, and societal adaptations to aging. Cross-listed with NURS 020 and SOC 020.

Credits: 3.

HDFS 055 - Special Topics I

Credits: 1-6.

HDFS 060 - Family Context of Development

Developmental ecological approach to analysis of the family as a system in which individuals develop.

Credits: 3.

HDFS 065 - Human Relationships&Sexuality

Sexual responsibility and the biological, social, psychological growth, and development of human beings in terms of sex role identity.

Credits: 3.

HDFS 152 - Biology of Aging

Cross-listed with: NURS 100.

Credits: 3.

HDFS 161 - Social Context of Development

Developmental ecological approach to analysis of social on education, community, health care, and social services. Pre/co-requisite: HDFS 060.

Credits: 3.

HDFS 167 - Sexual Identities

Exploration of diverse lesbian, gay, bisexual, and/or transgender identities, families, and communities, and their current personal, social, and cultural meanings and contexts. Prerequisites: Three hours in Human Development or related field; sophomore standing.

Credits: 3.

HDFS 195 - Special Topics

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once, accumulation up to 12 hours.

Prerequisite: Varies with course.

Credits: 1-6.

HDFS 197 - Readings & Research

Credits: 1-4.

HDFS 200 - Contemporary Issues

Undergraduates only.

Credits: 1-6.

HDFS 260 - Family Ecosystem

Family viewed in and as an environment for human development. The family ecological approach applied to practical family concerns. Prerequisites: Senior standing or instructor's permission.

Credits: 3.

HDFS 263 - Advanced Child Development

Survey of professional literature in child development with special emphasis on influence of early life experiences throughout the life cycle.

Credits: 3.

HDFS 264 - Contemporary Issues Parenting

Contemporary cultural factors that influence adult lifestyles and their relationship to successful parenting. Prerequisites: Nine hours in Human Development or instructor's permission. May be taken more than once.

Credits: 3.

HDFS 265 - Teaching Human Development

Credits: 3.

HDFS 266 - Seminar in Human Development

Intensive study of issues in human development and their application in a wide variety of professional areas. May be taken more than once up to a maximum of 12 hours. Prerequisite: Junior standing; nine hours in Human Development & Family Studies or Instructor permission.

Credits: 3.

HDFS 267 - Adv Seminar Sexual Identities

Intensive study of lesbian, gay, bisexual, and/or transgender identities, families, and communities in diverse individual, social, political, and cultural contexts.

Prerequisite: Junior standing; nine hours in Human Development & Family Studies or Instructor permission.

Credits: 3.

HDFS 268 - Sem In Close Relationships

Causal conditions influencing formation, maintenance, and dissolution of intimate adult relationships. Draws on theory and students' personal experiences to explicate the nature of close relationships in contemporary American society. Prerequisite: Junior standing; nine hours in Human Development & Family Studies or Instructor permission. Offered in alternate years.

Credits: 3.

HDFS 291 - Special Problems

Reading, discussion, and special field and/or laboratory investigations.

Prerequisite: Department permission. Students may enroll more than once up to twelve hours.

Credits: 1-6.

HDFS 295 - Special Topics

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once, accumulation up to 12 hours.

Prerequisite: Departmental permission.

Credits: 1-6.

HDFS 296 - Field Experience

Professionally-oriented field experience under joint supervision by faculty and community representative, credit arranged up to 15 hours. Prerequisite:

Department permission.

Credits: 1-15.

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Education: Teacher Education/Early Childhood Education (Grades PreK-3) (B. S.)

College: [Education and Social Services](#)

Department(s): [Integrated Professional Studies](#)

Overview

The Early Childhood Education Program is designed to provide students with the perspectives and skills necessary to work with young children from birth through grade three in inclusionary, developmentally appropriate settings. These include the abilities to:

- Facilitate children's development of literacy, quantification, and inquiry skills.
- Offer instruction in an integrated day format.
- Assess educational progress from a portfolio perspective.
- Use educational materials in an open-ended fashion.
- And recognize and respect the diversity of family structures within our society.

The program involves a large field-based component and makes significant use of the UVM Campus Children's Center and elementary schools as practicum sites. Graduates of the program who successfully complete all requirements are eligible for licensure from the State of Vermont.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#)
- [Teacher Education](#)

Specific Requirements

The PreK-3 Professional Preparation Sequence involves three components. The first is a course in Child Development and a course in Family Relations. The child development course introduces students to the concepts that form the practical and theoretical foundation of the program's educational approach. The family relations course provides

students a foundation in family dynamics and parent-child relationships and serves to emphasize the important links between children's home and school experiences. These two courses are taken prior to formal admission into the PreK-3 program.

The second component is a three-part professional practices sequence. This sequence provides students a first exposure to the rationale, practices, and procedures used in the provision of developmentally appropriate educational experiences for young children. The sequence includes opportunities for observation and hands-on work with children, opportunities to assist teachers in the provision of developmentally appropriate educational experiences and to discuss with teachers and other professionals the issues surrounding the provision of developmentally appropriate educational experiences.

The professional practices sequence is structured as three course blocks, taken sequentially. The first block course deals with techniques for observing and documenting children's development; the second deals with developmentally appropriate educational practices for children through age six (preschool/kindergarten); and the third for children between the ages of six and eight years (grades one through three). A significant portion of this professional practices sequence takes place in one or more preschools and elementary schools.

The third component is a two-semester student teaching sequence across the birth to eight-year age (preschool through grade three) range. This student teaching experience provides the opportunity to develop, implement, and assess (both in a cooperative and an independent fashion) developmentally appropriate educational practices. One experience would be in the Campus Children's Center and the other would be in a child centered, inclusionary grade K-3 setting.

The course of study consists of 128 credits which are divided into eight categories:

- Major concentration in a liberal arts and sciences discipline
- General Education courses
- Professional Preparation Sequence
- Health and Physical Education modules
- Race and Culture course
- CESS multicultural requirement
- Physical Education activities
- Electives*

* The number of electives depends on the degree of course overlap in the General Education, major concentration, and the multicultural requirements.

Possible Curriculum

First Year

	Fall	Spring
EDEC 63, Child Development	3	
Physical Education Elective		1

Major Concentration	3	3
General Education Electives	9	6
EDEC 1, Infant/Toddler Curr Block		4
HDFS 60, Family Context of Development		3
Race & Culture		1
Total	16	17

Sophomore Year

	Fall	Spring
EDEC 100, Preschool Curriculum Block	10	
Gen Education Electives	3	
EDPE 197, Issues in Health Education (or PEAC 21, Walking for Fitness)	1	
Major Concentration	3	3
EDEC 189, Early Childhood Practices		12
Physical Education Elective		1
Total	17	16

Junior Year

	Fall	Spring
EDSP 5, Issues Affecting Persons with Disabilities	3	
Major Concentration	6	3
General Education Electives	6	3
EDEL 156, Teaching Math for Meaning		3
EDEL 176, Language Arts & Literacy Skills		3
EDEL 177, Children's Lit & Literacy		2
EDEC 296, Field Experience (Literacy)		3
Total	15	17

Senior Year

	Fall	Spring
Major Concentration	9	
Gen Education Electives	6	
EDEC 187, Field Practicum		12
EDEL 187, Planning Adapting and Delivering Reading Instructions		3
Total	15	15

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Education: Teacher Education/Family and Consumer Sciences Education (Grades 7-12) (B. S.)

College: [Education and Social Services](#)

Department(s): [Integrated Professional Studies](#)

Overview

The Family and Consumer Sciences Education Program is an interdisciplinary program that includes a sequence of courses in family, personal, and consumer issues: food and nutrition, consumer management, human development, and housing. The variety of courses taken for the major expands career possibilities.

Because of the interdisciplinary and comprehensive scope of Family and Consumer Sciences Education, graduates with this major have a variety of career alternatives in business, social agencies, and different types of educational programs for youth and adults. Graduates are licensed to teach in public schools in Family and Consumer Sciences fields such as family studies, child development, consumer education, food and nutrition, housing and interiors, and resource management found in middle, junior, and high school programs.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#)
- [Teacher Education](#)

Possible Curriculum

First Year

	Fall	Spring
PEAC		1
HDFS 5, Human Development		3
NFS 43, Fundamentals of Nutrition		3

General Education Electives	9	6
HDFS 60, Family Context of Development		3
Race and Culture		1
NFS 53/54, Basic Concepts of Food		4
Major Concentration		3
Total	16	17

Sophomore Year

		Fall	Spring
CDAE Elective		3	
EDFC 123, Methods in Nutrition Education		3	
NFS 143, Nutrition in the Life Cycle		3	
EDSP 5, Issues Affecting Persons with Disabilities		3	
PEAC		1	
General Education Electives	3	6	
CDAE 15, Design Strategies		3	
HDFS Elective		3	
Major Concentration		3	
Total	16	15	

Junior Year

		Fall	Spring
EDSC 215, Reading in Secondary Schools	3		
EDFC 220, Observ & Part in Public Schools	3		
Housing Requirement	3		
Major Concentration	6	9	
EDFC 221, Management of School Youth Org.	2		
General Education Electives		6	
Total	15	17	

Senior Year

		Fall	Spring
EDFC 222, Curr. Dev. in Human Sciences	3		
EDFC 224, Eval Tech in Human Sciences	3		
Major Concentration		9	
EDFC 225, Teaching Practicum	12		
Total	12	15	

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Education: Human Development and Family Studies (B. S.)

College: [Education and Social Services](#)

Department(s): [Integrated Professional Studies](#)

Overview

The Human Development and Family Studies program examines the ways people grow and develop, form relationships and families, and learn to cope with the common and uncommon events of life.

Students learn basic and applied concepts of human development and acquire skills in working with individuals and families of different ages and backgrounds in a variety of settings. Field experience is required of all students.

Human Development and Family Studies is available as a major concentration for students in the Early Childhood, Elementary, Family and Consumer Sciences, and Physical Education licensure programs, and as a minor primarily for students outside of the College of Education and Social Services.

General Requirements

- [University](#)
- [Education and Social Services](#)

Specific Requirements

Students in Human Development and Family Studies complete General Education requirements in Behavioral and Social Sciences, Communication Skills, Humanities, Physical and Biological Sciences and Multicultural Electives. They also enroll in a sequence of courses and field experiences designed to provide a comprehensive understanding of individual and family development across the life span. These courses are arranged in two blocks: the introductory core and the advanced core.

The introductory core in Human Development and Family Studies involves three components. The first, Introduction to Human Development and Family Studies and Academic Service – Learning, provides students an introduction to the topics pursued in

the major, how they relate to everyday life settings, how knowledge in the discipline is gained, and the types of skills necessary to both acquire and use this knowledge. The second component in the introductory core is a course covering individual development across the entire life span. Students learn what is typical of individuals at different points in their lives and the various factors, such as gender and social class, that influence development. The third component in the introductory core is a two-semester course dealing with the impact of families and other social institutions such as the school system on individual development. A course on Human Relations and Sexuality completes the introductory core.

The advanced core in Human Development and Family Studies consists of a series of advanced seminars and a field experience. All majors take seminars in Developmental Theory and Family Ecosystems. Four additional advanced seminars must be selected in consultation with an advisor. The field experience requires 15 to 20 hours per week. Students choose a placement from a variety of public and private local agencies. Field placement sites have included museums, the court system, battered women's shelters, centers for abused and neglected children, city and state government agencies, group homes, rehabilitation centers, local business and industry, childcare settings, hospitals, senior-citizen centers, and other human service agencies.

Possible Curriculum

First Year

	Fall Spring	
HDFS 1, Intro to HDFS and Academic Service – Learning	3	
HDFS 5, Human Development	3	
General Education Electives	9	12
HDFS 60, Family Context of Development	3	
Race & Culture	1	
Total	15	16

Sophomore Year

	Fall Spring	
HDFS 65, Human Relationships & Sexuality	3	
HDFS 161, Social Context of Development	3	
Physical Education Electives	1	1
General Education Electives	9	15
Total	16	16

Junior Year

	Fall Spring	
HDFS 266, Seminar: Theory	3	
HDFS Adv Seminar	3	3
General Education Electives	9	12

Total 15 15

Senior Year

Fall Spring

HDFS 296, Field Experience 6

HDFS Adv Seminar 3

General Education Electives 3 12

HDFS 260, Family Ecosystem 3

Total 12 15

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Minor in Human Development and Family Studies

College: [Education and Social Services](#)

Department(s): [Integrated Professional Studies](#)

Overview

The minor in Human Development and Family Studies affords students a foundation in the processes of development across the life span, focusing on individual development, family relationships, and major influences on both.

This minor cannot be the sole minor for sociology or psychology majors but is acceptable as a second minor, especially for persons interested in careers involving work with families and youth. For other majors, it can be the sole minor.

Requirements

Eighteen hours including HDFS 5, 60, 65; three 100 or 200 level HDFS courses except [291, 296]. This minor cannot be the sole minor for sociology or psychology majors but is acceptable as a second minor, especially for persons interested in careers involving work with families and youth.

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Departments and Programs

Social Work Department

Colleges: [Education and Social Services](#), [Graduate College](#)

Faculty: Social Work

Courses: [SocialWork \(SWSS\)](#)

Contact Information:

*University of Vermont
Social Work Department
85 So. Prospect Street
443 Waterman
University of Vermont
Burlington, VT 05405*

Phone: (802) 656-8800

Fax: (802) 656-8565

Email:

Web Site: <http://www.uvm.edu/~socwork/>

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science(B. S.)
 - [Social Work](#)

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Courses in Social Work

SWSS 002 - Foundations of Social Work

An introduction to the profession of social work, its functions, values, knowledge, and the problems it addresses.

Credits: 3.

SWSS 003 - Human Needs & Social Services

Students provide volunteer service in a human service agency, relate observations to theory about clients, agency structure, programs, and operations, and assess their commitment to the profession of social work. Prerequisite: SWSS 002 or Instructor permission.

Credits: 3.

SWSS 005 - Biosociopolitical Issues SW

Outlines human body organ systems and extrapolates to the socio-political. Bioethical dilemmas, environmental racism, and multiple chemical sensitivity studied from a social work perspective.

Credits: 3.

SWSS 007 - Quantitative Meth SW Research

Introduction to statistics and social work research methods. This course introduces students to quantitative methodology in research and practice.

Credits: 3.

SWSS 047 - Human Beh in the Soc Envr I

Introduction to life-span development from birth to death. There is a primary focus on the individual. Prerequisites: 2, 3, or instructor's permission.

Credits: 3.

SWSS 048 - Human Beh in the Soc Envr II

A systems approach to understanding various levels of social organization; for example, families, groups, organizations, and communities. Prerequisite: 47.

Credits: 3.

SWSS 055 - Special Topics

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Open to first-year students.

Credits: 1-6.

SWSS 164 - Intro Social Work Research

Introduction to models and methods of social research from a social work perspective. Prerequisite: SWSS 002, SWSS 003, SWSS 047, SWSS 048, or Instructor permission.

Credits: 3.

SWSS 165 - Iss & Pol in Social Welfare I

An introduction to economic, political, historical, and social forces that influence the development and implementation of social welfare policy. Prerequisite: SWSS 002, SWSS 003, SWSS 047, SWSS 048, or Instructor permission.

Credits: 3.

SWSS 166 - Iss & Pol in Social Welfare II

In-depth examination of social welfare policy and accompanying social services in the U.S.; major policy analysis models presented and used. Prerequisite: SWSS 165 or Instructor permission.

Credits: 3.

SWSS 167 - Racism & Contemporary Issues

Study of perception, conceptualization, and comprehension of racism. Strategies, techniques, and procedures to identify and decrease many facets of racism.

Credits: 3.

SWSS 168 - Social Work Intervention I

Social work theory and practice methods employed by social workers in providing services to individuals and small groups. Prerequisite: Social Work major, senior standing or permission.

Credits: 3.

SWSS 169 - Social Work Intervention II

Social work theory and practice methods employed by social workers in providing services to families, organizations, and communities. Prerequisites: Social Work major, 168, senior standing or permission.

Credits: 3.

SWSS 171 - Field Experience Seminar I

Weekly integrative seminar; discussion of practice within field agency.

Prerequisite: Concurrent enrollment in 173/174.

Credits: 3.

SWSS 172 - Field Experience Seminar II

Weekly integrative seminar; discussion of practice within field agency.

Prerequisite: Concurrent enrollment in 173/174.

Credits: 3.

SWSS 173 - Field Experience I

Field experience under BSW or MSW supervision in social service agencies four days each week. Taken concurrently with 171/172. Prerequisites: Social Work majors, senior standing.

Credits: 6.

SWSS 174 - Field Experience II

Field experience under BSW or MSW supervision in social service agencies four days each week. Taken concurrently with 171/172. Prerequisites: Social Work majors, senior standing.

Credits: 6.

SWSS 197 - Readings & Research

Prerequisite: Social Work major. Pre-arrangement only. Variable credit.

Credits: 1-4.

SWSS 198 - Readings & Research

Credits: 1-4.

SWSS 200 - Contemporary Issues

Content and structure may accommodate special issues not especially appropriate within the boundaries of an existing

Credits: 1-6.

SWSS 212 - Social Work Practice I

permission.

Credits: 3.

SWSS 213 - Social Work Practice II

permission.

Credits: 3.

SWSS 216 - Th Found of Hum Beh&Soc Envr I

This course introduces students to the biological, psychological, cultural/social, and economic forces that influence human behavior and their implication for social work practice. Prerequisite: MSW standing; or Instructor permission.

Credits: 3.

SWSS 217 - Th Found Hum Beh&Soc Envr II

Focus is on theories regarding the nature and functioning of human service organizations and communities in relation to meeting human needs. Prerequisite: SWSS 216 or Instructor permission.

Credits: 3.

SWSS 220 - Soc Welfare Pol & Services I

An introduction to history and philosophy of social work and social welfare and the structure of service programs is provided. Prerequisite: MSW standing or Instructor permission.

Credits: 3.

SWSS 221 - Soc Welfare Pol & Services II

Focus is on the analysis of the economic, political, and social forces that influence the development and implementation of social welfare policy. Prerequisite: SWSS 220; or Instructor permission.

Credits: 3.

SWSS 224 - Child Abuse & Neglect

An MSW foundation elective that considers child abuse and neglect from historical, cultural, sociopolitical and psychological perspectives and examines professional social work responses to them. Prerequisite: Matriculation in the foundation year of Graduate study in Social Work; or Instructor permission.

Credits: 3.

SWSS 225 - Transf Ourselves&Comm:SW Persp

An MSW foundation elective that examines systems of oppression and social work strategies to decrease biased practices and create more equitable communities and institutions. Prerequisite: Matriculation in the foundation year of graduate

study in Social Work; or Instructor permission.

Credits: 3.

SWSS 226 - Assessment Theory Social Work

permission.

Credits: 3.

SWSS 227 - Found of Social Work Research

An introduction to qualitative and quantitative methods of applied social research including program evaluation and the evaluation of practice and application to social work is taught. Prerequisite: MSW standing or Instructor permission.

Credits: 3.

SWSS 228 - Aging:A Strength&Hum Right Per

practice from the perspectives of strengths, social justice,

Credits: 3.

SWSS 290 - Foundation Yr Field Practicum

Supervised field-based learning of 15-20 hours per week at non-profit agencies. Students learn the purposeful application of theory, ethics and skills of generalist social work. Prerequisite: Permission of Coordinator of Field Education.

Credits: 3-4.

SWSS 291 - Senior Seminar

Undergraduate only.

Credits: 3.

SWSS 295 - Lab Experience

Supervised field work designed to give students experience Pre-arrangement only. Credit as arranged. Undergraduate only.

Credits: 1-12.

SWSS 296 - Social Work in Global Context

major; or MSW standing; permission of the Instructor.

Credits: 3.

SWSS 301 - Social Work in Health

Based on examinations of current trends with clients of multiple ages, needs, and cultural perspectives, this course examines social work roles in delivering health services. Prerequisites: Completion of foundation coursework; MSW advanced standing; or Instructor permission.

Credits: 3.

SWSS 302 - Social Work in Mental Health

Advanced knowledge and skills in working with children with severe emotional disturbances and adults with persistent mental illness. Community-based services are emphasized. Prerequisites: Completion of foundation coursework; MSW advanced standing; or Instructor permission.

Credits: 3.

SWSS 310 - Soc Work W/ Children & Fam I

Focus is on families whose major task is child rearing and child caring. Covers advanced knowledge, concepts, and methods of contemporary child/family services within a family-centered approach. Prerequisites: Completion of foundation course work; MSW advanced standing; or Instructor permission.

Credits: 3.

SWSS 311 - Soc Work W/Children & Fam II

Focus is on families with adolescents, families with no children and families with dependent adults. Advanced analysis of families from an adult member perspective and from a critical view of family ideology and myth. Prerequisites: Completion of foundation coursework; MSW advanced standing; or Instructor permission.

Credits: 3.

SWSS 316 - Crit Appl of Hum Beh&Soc Envr

This course emphasizes advanced analyses of behavioral and social theories as related to social work practice in health and mental health and/or with children and families. Prerequisite: Completion of 216 and 217, MSW advanced standing or permission.

Credits: 3.

SWSS 320 - Adv Soc Welf Policy Anyl&Prac

In depth analysis of social welfare policy with application to children and families or health and mental health is required. There is an emphasis on the skills of the policy practitioner. Prerequisite: Completion of SWSS 220 and SWSS 221; MSW advanced standing; or Instructor permission.

Credits: 3.

SWSS 327 - Adv Social Work Research

An analysis of social work research from methodological and theoretical perspectives is emphasized. The application of research to the student's concentration area is required. Prerequisites: Completion of SWSS 227; a basic statistics course; MSW advanced standing; or Instructor permission.

Credits: 3.

SWSS 330 - Assessment in Social Work

An advanced MSW concentration elective that analyzes competing and complementary assessment strategies and their implications in social work in health/mental health and with children and families. Prerequisite: Completion of MSW foundation course work; or Instructor permission.

Credits: 3.

SWSS 331 - Feminist Social Work Practice

in a global context and emphasizes professional activism and leadership. Prerequisite: Completion of MSW foundation course work; or Instructor permission.

Credits: 3.

SWSS 332 - SW w/Battered Women&Children

An advanced MSW concentration elective that investigates theoretical and practical issues of social work practice with battered women and their children and develops related recommendations. Prerequisite: Completion of MSW foundation course work; or Instructor permission.

Credits: 3.

SWSS 333 - Social Work with Groups

An advanced MSW concentration elective that integrates professional history, conceptual overviews and direct experience with methods for group work distinctive to social work practice. Prerequisite: Completion of MSW foundation

course work or Instructor permission.

Credits: 3.

SWSS 380 - Prof Issues in Social Work

Designed to cover selected social work issues in depth. Major emphasis on intensive and critical analysis of the literature and practice in a given area.

Prerequisite: Instructor Permission.

Credits: 2-4.

SWSS 390 - Concentration Year Field Pract

Supervised field-based learning of 15-20 hours per week. Students are placed in agencies to apply advanced social work practice related to their concentration.

Prerequisite: Permission of Coordinator of Field Education.

Credits: 3-4.

SWSS 395 - Field Practicum

Prerequisite: Permission of Instructor. Variable credits.

Credits: 3-4.

SWSS 397 - Independent Study

Individual work on Social Work issue(s) selected by the student in consultation with a faculty member. Prerequisite: Instructor permission required.

Credits: 1-6.

SWSS 398 - Final Project

A written identification and analysis of a social work issue related to the student's concentration is prepared and presented. Prerequisite: Successful completion of foundation coursework and Instructor permission. Variable three credits. Total of three credits required. Fulfills Graduate College comprehensive examination requirement.

Credits: 1-3.

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Social Work (B. S.)

College: [Education and Social Services](#)

Department(s): [SocialWork](#)

Overview

The principal educational objective of the Social Work Program is to prepare students for beginning social work practice with individuals, families, small groups, organizations, and communities.

The program provides education for social work practice based on a liberal arts education in the social sciences and humanities. The program is fully accredited by the Council on Social Work Education. Throughout the program of study, students gain the values, knowledge, and skills necessary to provide social services and to effect social change in institutions and communities.

General Requirements

- [University](#)
- [Education and Social Services](#)

Specific Requirements

The Bachelor of Science degree in Social Work requires a minimum of 122 approved credit hours, 27 credits of which are general education components from the six approved academic areas (Arts and Letters, Mathematics, Science, Social Sciences, Humanities, Health and Physical Education), including two credits for physical education activities and one credit for Race and Culture Studies. Additionally, students are required to take at least one course that focuses substantially on issues concerned with Africa, Asia, the Middle East, or countries known as the Third World.

The student in consultation with his/her advisor, selects elective courses which will provide the opportunity to develop individual interests. Additional courses in computer science, economics, education, history, philosophy, political science, psychology, sociology, statistics, special education, and women's studies are recommended. Students who intend to pursue a Master of Social Work (MSW) degree are strongly advised to take a course in

statistics.

A committee of Social Work faculty may review students' progress periodically throughout the four years. Students may be asked to participate in that process if the faculty deems necessary.

Students must complete the required liberal arts courses with a minimum grade of C-; completion of the initial Social Work courses (SWSS 2, 3, 5, 47, 48, 167) with a minimum grade of C; completion of the upper level Social Work courses (SWSS 164, 165, 166, 168, 169, 171, 172, 173, 174) with a minimum grade of B and an overall GPA in all courses of 2.0.

Possible Curriculum

First Year

	Fall Spring	
SWSS 2, Foundations of Social Work	3	
Race & Culture	1	
Third World Elective	3	
SOC 1	3	
Humanities	3	
Electives	3	3
BIOL 3 or SWSS 5, Biosociopolitical Issues	3	
POLS 21	3	
PSYC 1	3	
SWSS 3, Human Needs & Social Services	3	
Total	16	15

Sophomore Year

	Fall Spring	
SWSS 47, Human Behavior in the Soc. Env. I	3	
EC 11	3	
PSYC 152	3	
ENG 50	3	
Physical Education Elective	1	
Electives	3	12
SWSS 48, Human Behavior in the Soc. Env II	3	
SWSS 167, Racism & Contemporary Issues	3	
Total	16	18

Junior Year

	Fall Spring	
SWSS 164, Intro Social Work Research	3	
SWSS 165, Issues & Policy in Soc. Welfare I	3	

Physical Education Elective	1	
Electives	9	15
SWSS 166, Issues & Policy in Soc Welfare II	3	
Total	16	18

Typically students apply for SWSS 173 Field Experience in the spring of Junior year. Application for the Field requires consultation with the student's advisor to determine that all introductory and intermediate professional and required courses have been successfully completed. The process includes a written statement that describes the student's interests and qualifications. The advisor and student also review professional readiness issues, including strengths, conduct, maturity, and areas to strengthen. When there are concerns about a student's field readiness, these concerns will be reviewed by the Undergraduate Program Committee, and recommendations will be made.

In the senior year, students spend approx. 15 hours/wk. over two semesters (450 total hours) as interns in a public or private social service agency. Within the same year, students must take SWSS 168, 169, 171, 172, 173, and 174.

Senior Year

	Fall	Spring
SWSS 168, Social Work Intervention I	3	
SWSS 171, Field Experience Seminar I	3	
SWSS 173, Field Experience	6	
SWSS 169, Social Work Intervention II	3	
SWSS 172, Field Experience Seminar II	3	
SWSS 174, Field Experience II	6	
Total	12	12

Students must complete one elective (advisor approved) related to issues of Third World countries.

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Undergraduate Degrees

- Bachelor of Science (B. S.)
 - [Early Childhood Education \(PreK-3\)](#)
 - [Family and Consumer Sciences Education \(7-12\)](#)
 - [Human Development and Family Studies](#)
 - [Social Work](#)
- Bachelor of Science in Art Education (B. S.)
 - [Art Education \(K-12\)](#)
- Bachelor of Science in Education (B. S.)
 - [Elementary Education \(K-6\)](#)
 - [Individually Designed](#)
 - [Middle-Level Education \(5-8\)](#)
 - [Physical Education \(K-12\)](#)
 - [Secondary Education \(7-12\)](#)
- Bachelor of Science in Music Education (B. S.)
 - [Music Education \(K-12\)](#)

Undergraduate Concentrations

- [Athletic Training](#)

Undergraduate Minors

- [Human Development and Family Studies](#)
- [Special Education](#)

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Education and Social Services Undergraduate Degree Requirements

College: [Education and Social Services](#)

Students must meet standards and requirements for each program approved by the College Academic Affairs Committee, the College faculty, the Dean, and the University Academic Affairs Committee. All programs nationally accredited meet the standards of their professional group: Social Work by the Council on Social Work Education (CSWE); Athletic Training concentration, available through Physical Education, by the Commission on Accreditation of Allied Health Education Programs (CAAHEP); Teacher Education programs (Art, Early Childhood, Elementary, Family and Consumer Sciences, Middle Level, Music, Physical Education and Secondary Education) by the Vermont State Department of Education and by the National Council for the Accreditation of Teacher Education (NCATE).

Copies of the degree requirements for each program are available in our Student Services Office (528 Waterman), on the [Web](#), and are also provided to students during Orientation sessions.

Students receive an Orientation Advising Packet which explains how the requirements can be fulfilled during a four-year period. Discussions with advisors provide students with information needed to plan the time span for program completion that meets their needs. Students who enroll in the College of Education and Social Services are expected to become very familiar with the degree requirements for their programs.

Criminal Record Check (CRC) Requirement

Students who matriculate in the College of Education and Social Services should expect to complete a Criminal Record Check (CRC) as a prerequisite for working in schools and agencies. Evidence of a Criminal Record may prevent students from being eligible to fulfill the field placement/teaching internship requirement.

Human Development and Social Work majors may be required by individual agencies to complete the CRC to be eligible for an internship in a specific agency. It is also important to note that membership in professional associations upon graduation, at least in the case

of most social work associations, typically requires a criminal background check as does employment in an ever-increasing number of human service agencies.

Students enrolled in the Teacher Education programs are required to complete the CRC to be eligible for the public school teaching internship and may also be required to complete the CRC during the sophomore and junior years. Each individual school makes the determination concerning the sophomore and junior experiences, but it is a State requirement that all students complete the CRC for eligibility to student teach.

The cost is covered by each individual student and is subject to change.

Disciplinary Action Related to Academic Performance

Disciplinary actions, such as placement on trial, disenrollment, or dismissal are designed to encourage high level academic work from students. The CESS guidelines are more stringent than those for the University and students, including first-year and new transfer students, can be dismissed without first being placed on trial.

A student is subject to academic disciplinary action, including dismissal from the University, if (a) his or her semester or cumulative average falls below 2.0; or (b) if he or she has failed six or more credit hours of course work in a given semester.

A student who has a cumulative grade-point average of 2.0 or higher, but too low to meet specific program requirements, will be warned of pending disenrollment. Also, students who do not follow course requirements or who have not earned an appropriate grade point average for their program will be warned of pending disenrollment. If at the end of two subsequent semesters the student has failed to meet the requirements (courses and/or GPA) of his/her program, he/she will be disenrolled from the College.

Students who are placed on trial rather than being dismissed and who do not meet the conditions of trial will then be dismissed.

Students with "on-trial" status will not be allowed to participate in their senior internship, and they will not be eligible to graduate.

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UVM Undergraduate Students Transferring into the College of Education and Social Services

College: [Education and Social Services](#)

Enrolled UVM students wanting to transfer may secure an application at the Office of Student Services (528 Waterman Building) in the College of Education and Social Services or access the form [on-line](#) ↗.

Students enrolled in appropriate programs in other colleges may apply to complete teacher licensure requirements for Secondary Education while they remain in their home college. Information and applications for admission to the Teacher Education program are available in the Secondary Education Office, 405A Waterman.

APPLY

SEARCH ▾

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College of Education and Social Services-Community College of Vermont Articulation Agreements

College: [Education and Social Services](#)

The College of Education and Social Services and the Community College of Vermont have Articulation Agreements for the following programs: Human Development, Social Work and Teacher Education programs in Art, Early Childhood and Secondary Education. Refer to the [Articulation Agreement](#) information in the Admissions section of this catalogue.

APPLY

SEARCH ▾

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- College of Agriculture & Life Sciences
- College of Arts & Sciences
- College of Education & Social Services
- **College of Engineering & Mathematics**
- College of Nursing & Health Sciences
- Rubenstein School of Environment and Natural Resources
- School of Business Administration
- Graduate College

 Faculty

Colleges and Schools

College of Engineering and Mathematics

Contact Information:

University of Vermont
College of Engineering and Mathematics
109 Votey Building
33 Colchester Avenue
Burlington, VT 05405-0156

Phone: (802) 656-3392
Fax: (802) 656-8324
E-mail: jjordan@emba.uvm.edu
Web Site: <http://www.emba.uvm.edu/>

- [Departments and Programs](#)
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- [Undergraduate Honors Thesis Program](#)
- [Undergraduate Cooperative Education Program](#)
- [Undergraduate Academic Standards](#)

Overview

The College offers stimulating, professionally-oriented programs for students interested in careers in computer science, engineering, and mathematics. Computer science develops creative problem-solving ability, along with essential skills in current programming and computing environments. It offers the flexibility to gear studies toward business, science, engineering, mathematics, and the arts. Engineering education combines the study of mathematics and the physical, life, and engineering sciences with application to the analysis and design of equipment, processes, and complete systems. The breadth and flexibility of the engineering programs provide a sound background for engineering practice in public or private domains, for graduate study in engineering and science, and for further professional study in such fields as business, law, or medicine. Engineering management, offered in cooperation with the School of Business

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Administration, combines a basic education in an engineering discipline with the study of management concepts and techniques. Mathematics and statistics are designed to train students in critical thinking, problem solving, and sound reasoning, while developing a strong level of technical competence and a substantial breadth of exposure to other fields. Bachelor of Science degrees in each of these disciplines provide distinctive recognition based on challenging course work, valuable field experience, and intensive student-faculty interaction.

Please view our College missions statements at:

<http://www.emba.uvm.edu/util/mission.php>

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Departments and Programs

College: [Engineering and Mathematics](#)

The following Bachelor of Science degrees are offered in the College. Concentrations in each degree are described under the individual degree program.

- [Civil and Environmental Engineering](#)
- [Computer Science](#)
- [Computer Science and Information Systems](#)
- [Electrical Engineering](#)
- [Environmental Engineering](#)
- [Engineering Management](#)
- [Mathematics](#)
- [Mechanical Engineering](#)
- [Mathematics majoring in Statistics](#)

Departments

- [Civil and Environmental Engineering](#)
- [Computer Science](#)
- [Electrical Engineering](#)
- [Engineering Management](#)
- [Mathematics and Statistics](#)
- [Mechanical Engineering](#)

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Departments and Programs

Civil and Environmental Engineering Department

Colleges: [Engineering and Mathematics](#), [Graduate College](#)

Faculty: Civil and Environmental Engineering

Courses: [Civil Engineering \(CE\)](#)

Contact Information:

University of Vermont

Civil and Environmental Engineering Department

213 Votey Building

33 Colchester Avenue

Burlington, VT 05405-0156

Phone: (802) 656-3800

Fax: (802) 656-8446

Email:

Web Site: <http://www.uvm.edu/civeneng/>

- [Civil and Environmental Engineering Basic Curriculum \(B. S.\)](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - [Civil Engineering](#)
 - [Civil Engineering Concentration](#)
 - [Environmental Engineering Concentration](#)
 - [Environmental Engineering](#)

Overview

Civil and environmental engineers plan, design, construct, and manage the built environment or infrastructure that serves people. They design and build dams, buildings, bridges, airports, ski resorts, space stations, irrigation systems, water treatment plants, harbors, and much more. They find ways to clean the atmosphere, treat contaminated environments, and design energy efficient structures, improving the quality of our daily lives now and for the future.

Please view the Departmental Mission Statement and Objectives at:

<http://www.uvm.edu/~civeneng/?Page=missionstatement.html>

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Courses in Civil & Environmental Engr

CE 001 - Statics

Fundamentals of statics; composition and resolution of forces; the analysis of force systems in two and three dimensions; and centroids and moments of inertia.

Prerequisite: Math. 22.

Credits: 3.

CE 002 - CE Graphic Design

Computer-aided and hand generation of: geometric shapes, dimensioning, pipe drafting, foundations and structures, survey plots, graphs and charts, topography, and highway geometry.

Credits: 3.

CE 010 - Surveying

Plane surveying methods including distance and angle measurements, leveling, traverse surveys and adjustments, propagation of errors in surveying measurements, and topographical mapping. Prerequisites: Math. 21, Computer Science 16 or 21.

Credits: 3.

CE 011 - Computer-Based Tools for CE

An introduction to the basics and applications of advanced computer-based tools, including MATLAB, remote sensing, geographic information systems (GIS), and global positioning system (GPS). Prerequisites: Math 22, CS 21.

Credits: 4.

CE 012 - Surveying Laboratory

Laboratory exercises in surveying applications: distance, angle, elevation, traverse, and topography. Prerequisites: Taken concurrently with, or following, 10.

Credits: 1.

CE 015 - Pollution & Solutions

Introduction to environmental issues and potential solutions. Emphasis on problem solving: description, decomposition, research, analysis, and performance evaluation.

Credits: 3.

CE 100 - Mechanics of Materials

Stress, strain, temperature relationships, torsion, bending stresses, and

deflections. Columns, joints, thin-walled cylinders. Combined stresses and Mohr's circle. Prerequisites: CE 001, MATH 121, ME 012 or concurrent enrollment. Cross-listed with: ME 014.

Credits: 3.

CE 101 - Materials Testing

Experimental stress analysis methods; fundamental properties of metals, plastics, and wood; effects of size, shape, method, speed of loading, and strain history on these properties. Prerequisite: 100.

Credits: 2.

CE 125 - Eng Econ & Decision Analyses

Comparing engineering alternatives; economic evaluations including costs, returns, taxes, and depreciation; project optimization with linear/non-linear models; scheduling; risk and reliability analyses by simulation. Prerequisites: Math. 20 or 22, junior standing.

Credits: 3.

CE 140 - Transportation

Analysis of transportation systems; technological characteristics; the transportation planning process and techniques of travel modeling and forecasting for both urban and rural areas. Prerequisite: CE 010; Junior standing in CE, or Instructor permission.

Credits: 3.

CE 142 - Structural Roadway Design

Properties of construction materials; design of mixes; analyses of pavement performance; structural design of pavements; highway earthwork, drainage, and construction techniques. Prerequisites: 141, 180.

Credits: 3.

CE 150 - Environmental Engineering

Basic phenomena and theoretical principles underlying water supply, air and water pollution control, and industrial hygiene. Prerequisite: CHEM 031 or CHEM 025, MATH 022.

Credits: 3.

CE 151 - Water & Wastewater Engineering

Functional design of water supply systems and wastewater management facilities; population projections, estimation of water and waste quantities, sewers, distribution systems, treatment facilities; governmental regulations. Prerequisites: 150, 160.

Credits: 3.

CE 154 - Environmental Anal Practice

Analytical procedures used in measuring environmental parameters (includes BOD, COD, Alkalinity, Coliform). Fundamental methods applied to actual waste samples and subsequent data analysis. Prerequisites: 150; Chemistry 31, 32.

Credits: 2.

CE 160 - Hydraulics

Mechanics of incompressible fluids; flow meters; flow in closed conduits and open channels; elements of hydraulic machinery; laboratory studies of flow and hydraulic machinery. Prerequisite: Mechanical Engineering 12.

Credits: 4.

CE 161 - Water Resource Engineer Design

Formulation of water resource projects; development of design methods for: surface water, risk, storage, and control structures, open channels, and drainage systems; design project. Prerequisite: CE 160.

Credits: 3.

CE 170 - Structural Analysis I

Analysis of statically determinate beams, frames, and trusses; expected loads, reactions; influence lines; moving loads; geometric methods for displacement calculations; introduction to matrix analysis for trusses. Prerequisites: 100, Computer Science 16.

Credits: 4.

CE 171 - Structural Analysis II

Prerequisite: CE 170.

Credits: 3.

CE 172 - Structural Steel Design

Theory and design of steel structures including flexural members, axially loaded members and combined stress members; design of composite members; and plastic analysis and design. Recommended Corequisite: 171.

Credits: 3.

CE 173 - Reinforced Concrete

Analysis of stresses in plain and reinforced concrete members; design of reinforced concrete structures; and theory of prestressed concrete. Prerequisite: 171.

Credits: 3.

CE 175 - Senior Design Project

Comprehensive design projects will integrate the multiple areas of specialization in civil engineering. Student teams will prepare and present designs to professional review panels. Prerequisite: Senior standing in CE.

Credits: 3.

CE 176 - Senior Design Seminar

Guest lecturers from private practice discussing professional issues; integration of multidiscipline teams from student design projects; and oral and written presentations. Co-requisite: One design elective; Senior standing.

Credits: 1.

CE 180 - Geotechnical Principles

Identification, description, and physical properties of soils; characteristics of natural deposits; stress distribution, permeability, consolidation, shear strength, and stability of soils; laboratory testing of particulate systems. Prerequisite: 100.

Credits: 4.

CE 181 - Geotechnical Design

Evaluation of subsoil conditions and earth pressures; design of retaining walls, substructures for buildings and bridges, and cofferdams. Prerequisite: CE 180.

Credits: 4.

CE 191 - Special Projects

Investigation of special topic under guidance of faculty member. Library

investigations, unique design problems, laboratory and field studies. Prerequisite: Senior standing; Department permission.

Credits: 3.

CE 192 - Special Projects

Investigation of special topic under guidance of faculty member. Library investigations, unique design problems, laboratory and field studies. Prerequisite: Senior standing; Department permission.

Credits: 3.

CE 193 - College Honors

Credits: 1-6.

CE 194 - College Honors

Credits: 1-6.

CE 195 - Special Topics

Prerequisite: Senior standing in Civil or Mechanical Engineering.

Credits: 1-6.

CE 210 - Airphoto Interpretation

Aerial photographic interpretation: principles of stereoscopic viewing, identification or airphoto features related to landform, vegetation, drainage, soils, topography use of airphoto interpretation in soil identification.

Credits: 3.

CE 220 - Intro to Finite Element Anyl

Introduction to finite element analysis: applications in or permission of instructor. solid mechanics, hydrodynamics, and transport: analysis of model behavior: Fourier analysis. Computer project required. Prerequisites: computer programming, linear algebra, and PD,

Credits: 3.

CE 226 - Civil Engineering Systems Anyl

Linear programming, dynamic programming, network analysis, simulation; applications to scheduling, resource allocation, routing, and a variety of civil engineering problems. Prerequisite: Senior or graduate standing in CEE or instructor permission.

Credits: 3.

CE 241 - Traffic Operations & Design

Advanced concepts of traffic engineering and capacity analysis; highway and intersection capacity; traffic analysis and simulation software; design and application of controls. Prerequisite: CE 140.

Credits: 3.

CE 248 - Hazardous Waste Mgmt Engr

Management of hazardous and industrial waste from generation to disposal; emphasis on pollution prevention within industry; waste minimization, recovery, reuse, treatment technologies; environmental regulations, risk assessment, costs and public policy; group projects. Prerequisite: Senior standing in Engineering or sciences.

Credits: 3.

CE 249 - Solid Wastes

Significance of solid wastes from municipal, industrial, agricultural, mining;

optimization and design of collection, disposal, recycle systems; sanitary landfills, incineration, composting, material recovery. Prerequisites:

Credits: 3.

CE 251 - Envr Facility Dsgn/Wastewater

Design of wastewater conveyance and treatment facilities; sewage treatment plant design; equipment selection. Prerequisite: CE 151.

Credits: 3.

CE 252 - Industrial Hygiene

Industrial hygiene problems; effects of pollutants on health; threshold limit values; emphasis on the engineering evaluation of hazard and control techniques.

Prerequisites: Chemistry 25, Physics 25.

Credits: 3.

CE 253 - Air Pollution

Sources of air pollution, methods of measurement, standards, transport theory and control techniques used. Emphasis on source measurement and contaminant control design. Prerequisites: Chemistry 25, Math. 21.

Credits: 3.

CE 254 - Environmental Quantitative Anyl

indicator organisms; laboratories demonstrate standard Chemistry and microbiology of water quality management; diffusion, equilibria, reaction kinetics, acids and bases, colloids, enzymes, bacterial physiology, pollution techniques.

Prerequisites: Chemistry 31 or 25, Math. 22.

Credits: 4.

CE 255 - Phys/Chem Proc Water/Wstwater

Theory of physical/chemical processes for treating waters and wastewaters; reactor dynamics, mass transfer, adsorption, ion exchange, precipitation/

Credits: 3.

CE 256 - Biol Proc Water/Wastewater Tr

Theory and application of biological processes for treating industrial and domestic wastewaters and contaminated ground water; microbiological considerations; aerobic and anaerobic processes; reactor design, in-situ bioremediation; bench-scale and pilot-scale experimentation. Prerequisites: 151 and 154 or equivalent or permission of instructor.

Credits: 3.

CE 259 - Msmt of Airborne Contaminants

Quantifying airborne contaminants from processes and ambient levels.

Laboratories demonstrate calibration and measurement, stack sampling and ambient air monitoring, and specific contaminant generation and measurement.

Prerequisite: CE 252 or CE 253.

Credits: 3.

CE 260 - Hydrology

Theory of precipitation, run-off, infiltration, and ground water; precipitation and run-off data; and application of data for use in development of water resources.

Prerequisites: 160, Statistics 141.

Credits: 3.

CE 261 - Open Channel Flow

Application of the laws of fluid mechanics to flow in open channels; design of channels and transition structures including riprap and culverts; gradually-varied flow problems. Prerequisite: 160.

Credits: 3.

CE 265 - Ground Water Hydrology

Principles of ground water hydraulics, well characteristics, aquifers, and use of numerical methods to solve ground water flow problems. Prerequisites: Calculus III and programming experience or instructor's permission; graduate standing or senior Civil Engineering standing.

Credits: 0-3.

CE 272 - Structural Dynamics

Vibrations, matrices, earthquake engineering, stability and wave propagation.

Prerequisites: Senior or graduate standing in Engineering or physical sciences, or instructor permission. (Same as ME 272).

Credits: 3.

CE 280 - Applied Soil Mechanics

Use of soil mechanics in evaluation of building foundations, braced excavations, earth structures; lateral earth pressures, pile foundations, caisson foundations, slope stability, and construction problems. Prerequisite: CE 180.

Credits: 3.

CE 282 - Engr Properties of Soils

Study of soil properties influencing engineering behavior of soils: soil mineralogy, physiochemical concepts, plasticity properties, permeability, and compaction: laboratory study of soil index properties, permeability, compaction tests.

Prerequisite: CE 180 or equivalent.

Credits: 3.

CE 283 - Designing with Geosynthetics

Geotextiles, geogrids, geonets, geomembranes, geocomposites, geopipes.

Design for separation, reinforcement, filtration, drainage, erosion, control, liners.

Applications in transportation, drainage, solid waste containment. Material testing, behavior. Prerequisite: CE 180.

Credits: 3.

CE 290 - Engineering Investigation

Independent investigation of a special topic under the guidance of a staff member.

Preparation of an engineering report is required.

Credits: 3.

CE 295 - Special Topics

Content is dictated by expanding professional interest in newly developing, or recently developed, technical areas in which there is particular need or opportunity. Prerequisite: Minimum Senior standing.

Credits: 0-6.

CE 304 - Adv Engineering Analysis I

See Mechanical Engineering 304, 305. Prerequisites: Math 271 or Math 230; CE 304 for CE 305. Cross-listings: ME 304, 305; Math 275, 276.

Credits: 3.

CE 305 - Adv Engineering Analysis II

See Mechanical Engineering 304, 305. Prerequisites: Math 271 or Math 230; CE 304 for CE 305. Cross-listings: ME 304, 305; Math 275, 276.

Credits: 3.

CE 321 - Engr Computations on Adv Arch

Engineering computations using multiprocessing computers, concurrent processing, algorithms for numerical approximation of differential equations, linear systems.

Credits: 3.

CE 360 - Advanced Hydrology

occasional warrants.

Credits: 3.

CE 365 - Contaminant Hydrogeol&Remediat

Practical, theoretical aspects of contaminant hydrogeology, advances in technologies, mass transport and transformation in saturated and vadose zones; movement, distribution, and remediation of nonaqueous-phase liquids.

Prerequisite: CE 265 or with Instructor permission.

Credits: 3.

CE 366 - Numerical Method/Surface Water

Development of the governing equations for geophysical hydrodynamics/transport, shallow water equations, analysis and implementation of finite element/finite difference computational algorithms. Prerequisite: CE 220.

Credits: 3.

CE 390 - Adv Topics in Civil & Envr Eng

Special topics to intensify the programs of graduate students in civil and environmental engineering. Hours and credits to be arranged.

Credits: 1-6.

CE 391 - Master Thesis Rsch

Credits: 1-12.

CE 395 - Advanced Special Topics

Advanced topics in recently developed technical areas. Hours and credits as arranged.

Credits: 1-6.

CE 491 - Doctoral Dissertation Research

Credits: 1-18.

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Civil and Environmental Engineering Undergraduate Requirements

Colleges: [Engineering and Mathematics](#)

Department(s): [Civil and Environmental Engineering](#)

Majors: [Civil Engineering](#), [Civil Engineering \(Environmental Engineering Concentration\)](#), [Environmental Engineering](#)

The Department offers two undergraduate degrees; a B. S. in Civil Engineering (both general and environmental concentrations available), and a B. S. in Environmental Engineering. The curricula provide a strong foundation in mathematics, and physical, natural and engineering sciences. Instruction in civil engineering disciplines includes structural engineering, soil mechanics, hydraulics, environmental engineering, and transportation engineering. Instruction in environmental engineering includes surface and groundwater hydrology, water and wastewater engineering, ecological engineering, and air pollution.

The degree requires a minimum of 130 semester hours, plus two credits of physical education activities.

A civil or environmental engineering degree from the University of Vermont is excellent preparation for immediate employment in the engineering arena. Additionally, many of our graduates continue their education in graduate engineering programs, or graduate programs in business, law, and medicine.

Engineering design is developed and integrated in each student's program and culminates in a required major design experience which draws upon prior course work and which focuses on the issues and expectations of professional practice. The department also undertakes numerous activities aimed at enhancing the undergraduate educational experience at UVM. Special emphasis has been made to provide laboratory and research experiences for undergraduates, to increase the Information Technology (IT) content of the curricula, and to update the course contents to reflect the changing face of our profession.

No more than three grades of D, D+, or D- will be acceptable in all required courses in engineering and engineering science including design and professional electives as

stated in the curricula for the junior and senior years.

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Civil Engineering: General Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Civil and Environmental Engineering](#)

General Requirements

- [University](#)
- [College of Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Civil and Environmental Engineering](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
Math 121, Calculus III	4	
Physics 42 with 22, Electromag Modern Physics	5	
CE 1, Statics	3	
CE 10, Surveying	3	
CE 12, Surveying Lab		1
Statistics 143, Statistics for Engineering	3	
Math 271, Applied Math/Engineers		3
ME 12, Dynamics		3
Science Elective ¹		4
CE 11, Computer Tools		4
HSS Elective ²		3
Total	18	18

Junior Year

	Fall	Spring
CE 100, Mech of Materials	3	
CE 140, Transportation		3

CE 150, Environmental Engineering	3	
CE 160, Hydraulics	4	
CE 101, Materials Testing	2	
CE 151, Water/Wastewater	3	
CE 170, Struct Analysis I	4	
ME 40/44, Thermo/Heat Transfer	4	
HSS Elective	3	3
Total	16	16

Senior Year

	Fall	Spring
EE 100, Elect Principles	4	
CE 171, Struct Analysis II	3	
CE 172, Steel Design	3	
CE 180, Geotechnical Principles	4	
CE 125, Eng'g Econ/Decisions	3	
CE 173, Reinf Concrete Design	3	
Design Elective ³	3-4	
CE 176, Senior Design Seminar	1	
Professional Elective ⁴	3	
HSS Elective	3	
Total	14	16-17

Total Credits: 133

Notes:

¹ Science Electives are: BIOL 1A, BIOL 2A, CHEM 32, 42, 141; GEOL 1; NR 276; PSS 264.

² Required Humanities course: students must elect one from the list of approved cultural diversity courses.

³ Design Electives are CE 141, 142, 161, 175, 181, 230, 250, 251, 253, 255, 256, 258, 260, 261, 264, 265, 280, 283.

⁴ Professional Electives are all Design Electives plus CE 171, 191, 192, any CE 200 level course, Natural Resource 278.

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Civil Engineering: Environmental Engineering Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Civil and Environmental Engineering](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Civil and Environmental Engineering](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
Math 121, Calculus III	4	
Physics 42 with 22, Electromag Modern Physics	5	
CE 1, Statics	3	
CE 10, Surveying	3	
CE 12, Surveying Lab		1
Statistics 143, Statistics for Engineering	3	
Math 271, Applied Math/Engineers	3	
ME 12, Dynamics	3	
Chemistry 32 or Biology 2	4	
CE 11, Computer Tools	4	
HSS Elective ¹	3	
Total	18	18

Junior Year

	Fall	Spring
CE 100, Mech of Materials	3	

CE 150, Environmental Engineering	3	
CE 160, Hydraulics	4	
ME 40/44, Thermodynamics	4	
CE 101, Materials Testing	2	
CE 151, Water/Wastewater	3	
CE 154, Environ Analysis	2	
CE 170, Struct Analysis I	4	
HSS Elective ¹	3	3
Total	17	14

Senior Year

	Fall	Spring
EE 100, EE Principles	4	
CE 140, Transportation	3	
CE 180, Soil Mechanics	4	
Professional Elective ²	3	
CE 172, Steel Design		
or	(3)	(3)
CE 173, Reinforced Concrete		
CE 125, Enggr Econ/Planning		3
Design Electives ³		6
HSS Elective		3
CE 176, Senior Design Seminar		1
Total	14-17	13-16

¹ Required Humanities course: students must elect one from the list of approved cultural diversity courses.

² Professional Electives are all Design Electives plus CE 171, 191, 192, any CE 200 level course, Natural Resource 278.

³ Design Electives are CE 141, 142, 161, 175, 181, 230, 250, 251, 253, 255, 256, 258, 260, 261, 264, 265, 280, 283.

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Environmental Engineering (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Civil and Environmental Engineering](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Civil and Environmental Engineering](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
Math 121, Calculus III	4	
Physics 42, with 22, Electromag Modern Physics	5	
CE 1, Statics	3	
CE 10, Surveying	3	
CE 12, Surveying Lab	1	
Math 271, Applied Math, or Statistics 143	3	
ME 12, Dynamics	3	
Chemistry 32	4	
Biology 1 or 2	4	
CE 11 or CS 16, Computer Tools	4	
Total	16	18

Junior Year

	Fall	Spring
CE 100, Mech of Materials	3	
CE 150, Environmental Engineering	3	
CE 160, Hydraulics	4	

ME 40/44 or EE 100	4	
HSS Elective ¹	3	3
CE 151, Water/Wastewater	3	
CE 154, Environ Analysis	2	
Earth Science Elective ²	4	
STAT 143 or MATH 271	3	
Total	17	15

Senior Year

	Fall	Spring
CE 180, Soil Mechanics	4	
Eng Science or Science Elective	3	
Env Eng Design Elective ³	6	3
HSS Elective ¹	3	3
CE 125, Eng Econ / Decision Anal	3	
CE 175, Senior Design Project	3	
CE 176, Senior Design Seminar	1	
Env Professional Elective ⁴	3	
Total	16	16

Notes:

¹ Required Humanities or Social Science Course: students must elect one from the list of approved courses including one course from the list of approved cultural diversity courses.

² Earth Science Electives include Geology 55, 101, 151, 155, 172, 255, PSS 161.

³ Environmental Engineering Design Electives include CE 181, 191, 192, 195, 251, 253, 255, 256, 260, 261, 265, 283, 290, 295.

⁴ Environmental Engineering Professional Electives are all Environmental Engineering Design Electives plus CE 210, 220, 226, 248, 252, 254, 282, NR 278, ENSC 202.

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Computer Science Department

Colleges: [Engineering and Mathematics](#), [Arts and Sciences](#), [Graduate College](#), [Continuing Education](#)

Faculty: Computer Science

Courses: [Computer Science \(CS\)](#)

Contact Information:

University of Vermont

Computer Science Department

351 Votey Building

33 Colchester Avenue

Burlington, VT 05405-0156

Phone: (802) 656-3330

Fax: (802) 656-0696

Email: Computer.Science@uvm.edu

Web Site: <http://www.cs.uvm.edu> ↗

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Overview

Computer Science is a multi-faceted discipline requiring the creativity of an artist, the problem-solving ability of a mathematician, the experimental method of a scientist, and the technical skills of an engineer. There are exciting opportunities in many industries, including: communications, health care, manufacturing, finance, entertainment, human services, education, and transportation.

Please view our mission statement and objectives at:

<http://www.cs.uvm.edu/mission.shtml>

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Courses in Computer Science

CS 002 - Microcomputer Appl Software

Popular applications software packages: word processors, spreadsheets, databases. Emphasis on hands-on experience. Prerequisite: Two years high school algebra. May not be taken for credit after receipt of credit for any CS course numbered 11 or higher.

Credits: 3.

CS 003 - Concepts of Computer Systems

Introduction to computer systems, components, system software, editors, utilities and language processors, programming, problem solving, applications. May not be taken for credit concurrently with, or following receipt of credit for, any CS course numbered higher than CS 003. Prerequisite: Two years high school algebra.

Credits: 3.

CS 005 - Introductory Special Topics

Prerequisite: Instructor permission. Hours variable. May not be taken for credit after any Computer Science course numbered CS 016 or higher.

Credits: 0-3.

CS 008 - Introduction: WWW Design (2-2)

site.

Credits: 3.

CS 014 - Visual Basic Programming

Programming in the MS Windows environment using forms,

Credits: 3.

CS 016 - Prog MATLAB Engineers&Science

Problem solving, computer programming, and the use of standard numerical methods in the context of engineering and scientific applications using MATLAB. Prerequisite: Math. 21; or Math. 10 (or equivalent, with instructor permission) and concurrent enrollment in Math. 21.

Credits: 4.

CS 021 - Computer Programming I

Introduction to algorithmic problem solving. Designed to provide a foundation for further studies in computer science. Credit not given for more than one in the pair

CS 11, 21. Prerequisite: Math. 10 or a strong background in secondary school algebra and trigonometry.

Credits: 4.

CS 026 - Computer Programming II

Introduction to more advanced programming concepts that provide a foundation for further study in computer science. Topics include data structures and algorithms, concepts of style, design, documentation, testing and debugging techniques. Prerequisites: 21.

Credits: 3.

CS 031 - Computer Programming II: C

Credits: 3.

CS 095 - Special Topics

Prerequisite: Instructor's permission.

Credits: 1-4.

CS 100 - Object-Oriented Programming

Object-oriented software analysis, design, and programming using a modern object-oriented programming environment. Topics include encapsulation, information hiding, inheritance, and polymorphism. Prerequisite: 26.

Credits: 3.

CS 101 - Computer Organization

Introduction to computer system organization including performance, assembly language, machine-level data representation, arithmetic for computers, processor datapath control, memory, and input/output. Prerequisite: CS 026.

Credits: 3.

CS 103 - Programming Languages

Systematic treatment of principles underlying the features and implementation of programming languages. Contrast of traditional procedural languages and at least one nontraditional language. Prerequisite: CS 026.

Credits: 3.

CS 104 - Data Structures

MATH 052 or MATH 054.

Credits: 3.

CS 148 - Database-Driven Web Design

pages using XML, SQL, ASP, and PHP. Typical project involves creation of e-commerce shopping site. and CS 008(or equivalent knowledge of JavaScript and HTML).

Credits: 3.

CS 195 - Special Topics

Prerequisite: Instructor's permission.

Credits: 1-6.

CS 201 - Operating Systems

Supervisory and control software for multiprogrammed computer systems. Processes synchronization, interprocess communication, scheduling, memory management, resource allocation, performance evaluation, object-oriented systems, case studies. Prerequisites: 103, 104.

Credits: 3.

CS 202 - Compiler Construction

Practice in design and implementation of translators for ALGOL-like languages. Regular and context-free grammars, parsing, code generation for stack and register machines. Interpreters. Run-time storage administration for block-structured languages. Prerequisites: 103, 243.

Credits: 3.

CS 204 - Database Systems

Techniques for processing very large collections of data. Secondary storage. Database design and management. Query languages and optimization. Database recovery. Prerequisites: 101, 104; 201 recommended.

Credits: 3.

CS 205 - Software Engineering

Treatment of software engineering problems and principles, including documentation, information hiding, and module interface specification syntax and semantics. Requires participation in a team project. Students who receive credit for 205 may not receive credit for 208 or 209.

Credits: 3.

CS 208 - Software Requirements&Design

Project management, requirements for software products, design methodologies and formal and informal notations describing designs. Includes developing requirements and design for a substantial software product. Credit not awarded for more than one of 205 and 208. Prerequisites: CS 100, CS 104.

Credits: 3.

CS 209 - Software Implement&Verificat'n

Covers advanced program development methodologies, software performance measuring and tuning and the verification and validation of software. Includes a significant implementation and evaluation project. Credit not awarded for more than one of 205 and 209. Prerequisites: CS 100, CS 104.

Credits: 3.

CS 222 - Computer Architecture

Architecture of computing systems. Control unit logic, input/output processors and devices, asynchronous processing, concurrency, parallelism, and memory hierarchies. Prerequisite: 101.

Credits: 3.

CS 224 - Analysis of Algorithms

Introduction to both analytical and experimental techniques in algorithm analysis. Basic algorithm design strategies. Introduction to complexity theory. Prerequisites: 103, 104. Math. 173 recommended.

Credits: 3.

CS 231 - Bioinformatics

MMG 102 desirable. Crosslisting MMG 231. Introduction to current topics in bioinformatics. Applications may include sequence alignment, dynamic programming, hidden Markov models, phylogenetics trees, microarray data analysis, genomics, and proteomics. Prerequisites: STAT 151, CS 26, and

Credits: 3.

CS 243 - Theory of Computation

Introduction to theoretical foundations of computer science. Models of computation. Church's thesis and noncomputable problems. Formal languages and automata. Syntax and semantics. Prerequisite: 104. (Same as Math 243). Credits: 3.

CS 251 - Artificial Intelligence

Introduction to methods for realizing intelligent behavior in computers. Knowledge representation, planning, and learning. Selected applications such as natural language understanding and vision. Prerequisites: 103, 104, STAT 151. Credits: 3.

CS 256 - Neural Computation

Introduction to artificial neural networks, their computational capabilities and limitations, and the algorithms used to train them. Statistical capacity, convergence theorems, backpropagation, reinforcement learning, generalization. Prerequisites: Math. 124 (or 271), Statistics 151, programming skills, graduate standing or instructor's permission. Credits: 3.

CS 260 - Parallel Algorithms&Prog Tech

Taxonomy of parallel computers, basic concepts for parallel computing, effectiveness and scalability, parallel algorithms for variety of problems, message-passing programming paradigm and data-parallel languages. Prerequisite: 103, 104. MATH 173 and MATH 124 recommended. Credits: 3.

CS 265 - Computer Networks

Introduction to the theoretical and pragmatic principles of computer networking and client-server computing. Topics include: Local Area Networks; the Internet; ATM technology; TCP programming. Prerequisite: 101, 104. MATH 173 and STAT 151 recommended. Credits: 3.

CS 266 - Network Security&Cryptography

Security and secrecy in a networked environment. Cryptography: public and private key. Authentication: trusted agents, tickets. Electronic mail and digital signatures. Privacy and national security. Prerequisites: 104, Math. 124 or 271. Credits: 3.

CS 274 - Computer Graphics

removal, rendering techniques. Prerequisite: 104, Math. Graphical representation of two- and three-dimensional objects on color raster displays. Line generation, region filling, geometric transformations, hidden line and surface 121, Math. 124 or 271. Credits: 3.

CS 283 - Undergraduate Honors Thesis

See description of Honors Thesis Program in the College of EM section of this catalog. Credits: 3.

CS 284 - Undergraduate Honors Thesis

See description of Honors Thesis Program in the College of EM section of this catalog.

Credits: 3.

CS 292 - Senior Seminar

Oral presentations that pertain to the ethical practice of computer science in government, industry, and academia. Topics may include computer security, copyright, and patent law. Prerequisite: Senior standing in Computer Science.

Credits: 1.

CS 294 - Independent Readings&Research

Independent readings and investigation under the direction of faculty member.

Prerequisite: Department permission.

Credits: 1-6.

CS 295 - Special Topic:Computer Science

Subject will vary from year to year. May be repeated for credit.

Credits: 1-6.

CS 296 - Special Topics:Computer Sci

Credits: 1-6.

CS 303 - Adv Top:Prog Environ&Language

Object-oriented, functional, or procedural programming languages, language design, parsing, translation, compilation, interpretation, programming and runtime environments. May be repeated for credit with instructor permission. Prerequisites: 103, 202.

Credits: 3.

CS 316 - Adv Topi:Computational Science

Topics chosen from engineering and scientific applications, visualization, large-scale data analysis. May be repeated for credit with instructor permission.

Prerequisite: Varies by semester. Instructor permission required.

Credits: 3.

CS 321 - Adv Top:Computer Architecture

Prerequisite: CS 222.

Credits: 3.

CS 331 - Adv Tpcs Database&Knwldg Sys

Prerequisite: CS 204, CS 224.

Credits: 3.

CS 346 - Adv Top:Theory of Computation

Topics from complexity theory, analysis of algorithms, formal languages, combinatorial and geometric algorithms, and theory of databases, networks, distributed algorithms. May be repeated with Instructor permission. Prerequisite: CS 224, CS 243.

Credits: 3.

CS 351 - Pattern Anyl&Artificial Intell

Topics chosen from pattern analysis, clustering, neural networks, planning, natural language understanding. May be repeated for credit with instructor permission.

Prerequisites: CS 224, CS 351.

Credits: 3.

CS 361 - Adv Topics:Systems Software

Topics chosen from operating systems, distributed or parallel software systems, real-time systems, experimental systems, software engineering. May be repeated

for credit with Instructor permission. Prerequisite: CS 201, CS 222.

Credits: 3.

CS 363 - Computer System Performance

Topics chosen from models of computer and operating system performance and queuing systems. May be repeated for credit with Instructor permission.

Prerequisite: CS 201, STAT 151.

Credits: 3.

CS 365 - Adv Top:Network Design&Anyl

Topics chosen from network design, network protocols, network algorithms, and network performance. May be repeated for credit with Instructor permission.

Prerequisite: CS 224, CS 265.

Credits: 3.

CS 374 - Computer Graphic&Visualization

Topics chosen from computer graphics and visualization, such as rendering, hidden surface removal, animation, data visualization. May be repeated for credit with Instructor permission. Prerequisite: CS 224, CS 274.

Credits: 3.

CS 381 - Seminar

Presentations by students, faculty, and guest speakers on advanced topics in Computer Science. May be repeated up to three times for credit.

Credits: 1.

CS 391 - Master's Thesis Research

Credits: 1-18.

CS 394 - Independent Study

Independent readings and investigation under the direction of a faculty member.

Prerequisite: Instructor permission.

Credits: 1-6.

CS 395 - Special Topics

Subject will vary from year to year. May be repeated for credit. Prerequisite: Instructor permission.

Credits: 1-6.

CS 491 - Doctoral Dissertation Research

Credits: 1-18.

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Computer Science (B. A.)

College: [Arts and Sciences](#)

Department(s): [Computer Science](#)

Overview

Students may select among three degree programs in Computer Science: the Bachelor of Arts degree, described below, is offered through the College of Arts and Sciences. Additionally, a Bachelor of Science is offered through the College of Engineering and Mathematics, with majors in either Computer Science or in Computer Science and Information Systems (students interested in the Bachelor of Science degree are referred to the descriptions under the College of Engineering and Mathematics).

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Computer Science 21, 26, 100, 101, 103, 104, 224 or 243, 292, and three additional computer science courses at the 200-level or above, for at least nine additional credits, not more than three credits of which may be independent study; Mathematics 19+20 or 21+22 (Math. 21+22 are recommended), 54; Statistics 151; the distribution requirement in natural science must be satisfied, and it is recommended that this requirement be fulfilled with a two-semester laboratory science sequence.

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Computer Science (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Computer Science](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)

Specific Requirements

Bachelor of Science, Computer Science Major: A minimum of 124 credits (122, if the student is exempt from PEAC) are required as follows:

- Computer Science: 21, 26, 100, 101, 103, 104, 201, 224 or 243, 292, plus fifteen additional credits (five courses) of 200-level courses (not more than three credits of which may be independent study)
- Mathematics: 21, 22, 54, two of (121, 124, 173, 271)
- Statistics: 141 or 211 (recommended), 151
- Four courses of laboratory science electives, selected from the following six:
 - Biology: 1, 2
 - Chemistry: 31, 32
 - Physics: 31 (with 21), 42 (with 22)


Note: Specific science courses are required for certain minors.
- English: 1
- Six credits (two courses) of Social Science Electives selected from ALANA, Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology, Women's Studies, or other advisor-approved electives
- Six credits (two courses) of Humanities and Fine Arts Electives selected from: Art, Classics, Drama, Film, Language, Literature, Music, Philosophy, Religion, Speech, or other advisor-approved electives
- 15 additional credits in advisor-approved electives in Humanities, Social Sciences, and Arts, to include either AH 95, AGRI 95, or one course approved by the College of Arts and Sciences as a course in non-European Cultures or Race Relations and Ethnicity, as specified under General Requirements in the College of Arts and

Sciences section of this catalogue

- 12 additional credits in advisor-approved free electives (excluding PEAC)
- Two credits of PEAC (see Academic and General Information for exceptions)
- Completion of a University-approved minor (excluding Computer Science); courses used to fulfill other requirements may be used to satisfy minor requirements

No grade below a C- in any computer science course will be accepted, except as free elective credit.

Possible Curriculum

A sample course sequence can be found on the Computer Science department [web site](#).


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Computer Science and Information Systems (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Computer Science](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)

Specific Requirements

A minimum of 128 credits (126, if the student is exempt from PEAC) are required as follows:


- Computer Science: 14, 21, 26, 100, 101, 103, 104, 292, plus nine additional credits (three courses) of 200-level courses (not more than three credits of which may be independent study)
- Business Administration: 60, 61, 120, 132, 141, 143, 144, 150, 173, 180
- Economics: 11, 12
- Mathematics: 19 and 20, or 21 and 22 (recommended sequence), 54
- Statistics: 141
- One laboratory science sequence, selected from the following three:
 - Biology: 1, 2
 - Chemistry: 31, 32
 - Physics: 31 (with 21), 42 (with 22)
- English: 1
- Nine credits (three courses) of Social Science Electives selected from ALANA, Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology, Women's Studies, or other advisor-approved electives
- Nine credits (three courses) of Humanities and Fine Arts Electives selected from: Art, Classics, Drama, Film, Language, Literature, Music, Philosophy, Religion, Speech, or other advisor-approved electives
- 15 additional credits in advisor-approved free electives (excluding PEAC)
- Two credits of PEAC (see Academic and General Information for exceptions)
- All students must complete either AH 95, AGRI 95, or one course approved by the

College of Arts and Sciences as a course in non-European Cultures or Race Relations and Ethnicity, as specified under General Requirements in the College of Arts and Sciences section of this catalogue; a course used to fulfill other elective or distribution requirements may be used to fulfill this requirement.

No grade below a C- in any computer science or business administration course will be accepted, except as free elective credit.

Note: This program is intended to fulfill the course requirements for eligibility for advanced standing in the MBA program at UVM.

Possible Curriculum

A sample course sequence can be found on the Computer Science department [web site](#) .

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Undergraduate Minor in Computer Science

College: [Arts and Sciences](#), [Engineering and Mathematics](#)

Department(s): [Computer Science](#)

Requirements

A Computer Science Minor consists of 18 credits in computer science to include 100 or 103, 104, and three additional credits at the 100 level or above. Some Computer Science courses require additional prerequisites.

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Departments and Programs

Electrical and Computer Engineering Department

Colleges: [Engineering and Mathematics](#), [Graduate College](#)

Faculty: Electrical and Computer Engineering

Courses: [Electrical Engineering \(EE\)](#)

Contact Information:

University of Vermont

Electrical and Computer Engineering Department

301 Votey Building

33 Colchester Avenue

Burlington, VT 05405-0156

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Email: eeinfo@emba.uvm.edu

Web Site: <http://www.emba.uvm.edu/ece/>

- [Electrical Engineering Basic Curriculum \(B. S.\)](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
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 - [Computer Engineering Concentration](#)
 - [General Electrical Engineering Concentration](#)
 - [Premedical Engineering Concentration](#)
- Undergraduate Minor
 - [Electrical Engineering](#)

Overview

Electrical and computer engineers create all the technological wonders that use electricity for their operation. They design the latest silicon chips used in computers, stereos, and cellular telephones. They create electronic circuits that control fuel flow in an electronic ignition or that keep wheels from skidding in an antilock braking system. Some electrical engineers are involved with the generation and distribution of electrical power, others concentrate on testing new electronic designs and products, such as communication networks. Some focus on programming computers to perform complex tasks, such as developing solutions to problems facing other engineers.

Please view our mission statement and objectives at:

<http://www.emba.uvm.edu/ece/mission.htm>

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Courses in Electrical Engineering

EE 003 - Linear Circuit Analysis I

Circuit elements, laws, and analysis. Network principles and theorems. Energy-storage elements. Magnetically coupled circuits. Transient analysis and time constants. Prerequisite: MATH 022.

Credits: 3.

EE 004 - Linear Circuit Analysis II

Sinusoids and phasors. Sinusoidal steady-state response and power. Complex frequency and network functions. Resonance. Laplace transform techniques. Fourier series and Fourier transforms. Prerequisite: EE 003. Co-requisite: MATH 271.

Credits: 3.

EE 081 - Linear Circuits Laboratory I

Electrical instruments; oscilloscope measurements; resistive, capacitive, and inductive components; applications of operational amplifiers; digital-to-analog converters; transient response of RL and RC circuits. Co-requisite: EE 003.

Credits: 2.

EE 082 - Linear Circuits Laboratory II

Transients in RLC circuits; steady state sinusoidal response in RLC circuits; real and reactive power in RLC circuits; operational amplifier active filters. Prerequisite: EE 081. Co-requisite: EE 004.

Credits: 2.

EE 094 - Bioengr Appl Phys Prin II

Application of principles of electromagnetism and electrical engineering to understanding the structure and function of the human body and to diagnostic and therapeutic instrumentation. Not offered 2001-2002.

Credits: 4.

EE 095 - Special Topics

Prerequisite: Departmental permission.

Credits: 0-3.

EE 100 - Electrical Engr Concepts

Introduction to analog and digital electrical measurements and circuits; introduction to microprocessors. No credit for EE majors. Prerequisite: Physics 42

with 22 or 125.

Credits: 4.

EE 101 - Digital Control w/Embedded Sys

Applications of single-chip microcomputers as embedded systems for data acquisition/real time control. Assembly language; parallel and serial ports; timers; counters; A/D and D/A. Laboratory. Prerequisite: EE 100.

Credits: 4.

EE 113 - Electromech Energy Gen & Dist

Principles basic to electromechanical energy conversion devices and systems. Energy interchange among magnetic and mechanical circuit elements. Continuous energy conversion in ideal and practical rotating machines. Prerequisite: 141.

Alternate years.

Credits: 3.

EE 120 - Electronics I

Theory of operation of diodes and MOS transistors. DC and transient analysis using diodes and transistors. NMOS and CMOS logic circuits and memory cells. Circuit simulation software. Prerequisite: EE 004.

Credits: 3.

EE 121 - Electronics II

Bipolar transistor circuits. DC and high frequency amplifier design using MOS and bipolar transistors. Feedback, oscillators, and stability criteria. Operational amplifiers and switched capacitor filters. Prerequisite: EE 120.

Credits: 3.

EE 131 - Fundamentals of Digital Design

Combinational logic simplification and design, MSI and PLD components, synchronous and asynchronous sequential design, algorithmic state machines, registers, counters, memory units, introduction to hardware design languages.

Prerequisite: Sophomore standing.

Credits: 3.

EE 134 - Fund of Microcomp Based Syst

In-depth study and applications of a modern microprocessor in embedded digital systems for real-time control and data acquisition. Assembly language and the design of interfaces. Prerequisites: 3 or 100, and Computer Science 16 or 21; EE 131 and Computer Science 101 desirable.

Credits: 4.

EE 141 - Electromagnetic Field Theory I

Basic laws and elementary applications of electromagnetic fields; vector analysis, steady-state electric and magnetic fields, boundary value problems, transmission lines. No credit may be received for both EE 140 (offered in prior years) and the current EE 141. Prerequisites: EE 4, Math. 271, Physics 42.

Credits: 3.

EE 142 - Electromagnetic Field Thry II

fields, waves and radiation; Maxwell's equations, Poynting's theorem, plane wave propagation, wave guides, antennas. Prerequisite: EE 141.

Credits: 3.

EE 146 - Wave and Diffusion Analogies

Electromagnetic waves on lines and in space. Vibration of strings and membranes. Mechanical waves in fluids and solids. Electromechanical transducers. Thermal waves. Diffusion process. Prerequisite: EE 141. Not offered 2001-02.

Credits: 3.

EE 163 - Solid State Phys Electronics I

Physical principles required to understand the operation of common semiconductor devices. Physical models of p-n junctions, Schottky barriers, and MOS field-effect transistors. Prerequisite: PHYS 042 with PHYS 022; MATH 271.

Credits: 4.

EE 164 - Solid St Phys Electronics II

Theory of operation of bipolar junction transistors. Heterojunction transistors. Compound and alloy semiconductor materials and devices. Dielectric and magnetic materials and devices. Prerequisite: EE 163.

Credits: 3.

EE 171 - Signals & Systems

Discrete and continuous-time signals and systems. Input/output descriptions and analysis. Convolution, Fourier analysis and Laplace transforms, Sampling and z-transforms. Application to electrical engineering design problems. Prerequisite: EE 004.

Credits: 4.

EE 174 - Intro to Communication Systems

Signal analysis. Wireless communication including modulation and link budget analysis. Fundamentals of digital communications including PCM, channel coding, pulse shaping and multiplexing. Modern systems survey. Prerequisite: EE 171.

Credits: 3.

EE 183 - Electronics Laboratory I

Characteristics and applications of diodes and MOSFETs; CMOS inverters and logic characterization; applications of operational amplifiers. Co-requisite: EE 120.

Credits: 2.

EE 184 - Electronics Laboratory II

Characteristics and applications of bipolar junction transistors; medium frequency and differential amplifiers; operational amplifier output stages; analog and digital filters. Prerequisite: EE 183. Co-requisite: EE 121.

Credits: 2.

EE 185 - Systems and Applications Lab

AC and DC machines; power transformers; electromagnetic waves on transmission lines; digital logic design; design project. Pre/co-requisites: Senior standing in Electrical Engineering.

Credits: 1.

EE 186 - Telecommunications Lab

Telecommunication system measurement techniques. Spectral analysis, distortion, analog and digital modulation, eye patterns, signal constellations and bit error rate. Team project. Prerequisite: Senior standing in Electrical Engineering. Co-requisite: EE 174.

Credits: 1.

EE 187 - Senior Project

Experimental or theoretical design project conducted under faculty supervision.
Credits: 1-4.

EE 189 - Digital Signal Processing Lab

PC-based evaluation model and associated development tools. High-level graphical and interactive design tools. Application in real-time implementation of signal processing algorithms. Same lab as in EE 275. May not be taken after EE 275. Prerequisite: EE 171.

Credits: 1.

EE 193 - College Honors

Credits: 3-6.

EE 194 - College Honors

Credits: 3-6.

EE 195 - Special Topics

Prerequisite: Departmental permission.

Credits: 1-18.

EE 201 - Linear System Theory

Basic concepts in system theory; linear algebra; state space representation; stability; controllability and observability. Applications of these concepts.

Prerequisites: EE 171 or Graduate standing.

Credits: 3.

EE 209 - Transient Phenomena

criterion and two-dimensional field problems. Prerequisite: Study of complex variable basis of Laplace and Fourier Transforms; applications to transient behavior of lumped and distributed parameter systems, root locus. Nyquist 4. Not offered 2001-02.

Credits: 3.

EE 210 - Introduction Control Systems

Analysis and design of continuous and discrete-time control systems; stability, signal flow, performance criteria, classical and state variable methods, simulation design tools, computer-based realizations. Prerequisite: 171.

Credits: 3.

EE 221 - Prin VLSI Digital Circuit Des

Design of VLSI circuits using a modular approach with industrial grade software: schematic capture; circuit design languages (HDL); full-custom layouts; mixed signals; synthesis. Laboratory. Pre/corequisites:

Credits: 3.

EE 222 - Prin VLSI Analog Cir Design

The design, layout, and simulation of VLSI analog circuits. Emphasis on small signal models and circuits used in operational amplifiers. Prerequisites: EE 163, EE 121, Instructor permission.

Credits: 3.

EE 224 - Principles VLSI System Design

Survey of VLSI design. Architecture and partitioning of functions. Design for testability. Simulation including timing. Synthesis. Design verification; manufacturing interface. Required team project and report. Prerequisites: EE 221 or Instructor permission.

Credits: 3.

EE 227 - Biomed Measurements Instrum & Sys

Biomedical and clinical engineering in research, industry, and health care institutions. Measurement techniques and instrumentation. Integrated biomedical monitoring, diagnostic, and therapeutic systems. Co-requisites: EE 121, ANPS 020; Instructor permission. Alternate years.

Credits: 3.

EE 228 - Sensors

Sensor design, interrogation, and implementation. A wide variety of electrical, electronic, optical, mechanic, and cross-disciplinary devices. System designs, measurement techniques, and methodologies. Prerequisites: Senior standing in Engineering or Physics.

Credits: 3.

EE 231 - Digital Computer Design

Hardware organization and realization, hard-wired and microprogrammed control units, interrupt and I/O systems. Hardware design language introduced and used for computer design. Prerequisites: EE 131, either EE 134 or CS 101.

Credits: 3.

EE 232 - Digital Computer Design II

Memory designs, error control, high-speed addition, multiplication, and division, floating-point arithmetic, cpu enhancements, testing and design for testability.

Prerequisites: EE 231.

Credits: 3.

EE 233 - Microprocessor Systems & Appl

Basic principles of mini/microcomputers; A/D; D/A; channels, magnetic devices, display devices, mechanical devices; interface designs of analog systems to mini/microcomputers; principles of microprogramming; bit-slice-based microcomputers. Prerequisites: Department permission; CS 101 desirable.

Credits: 4.

EE 241 - Electromagnetic Theory I

Maxwell-Lorentz theory emphasizing uniqueness and conservation laws. Potential theory with applications to boundary value problems, Green's function techniques, multipole expansions, and numerical methods. Prerequisites: 141; Math. 272 recommended.

Credits: 3.

EE 242 - Electromagnetic Theory II

Macroscopic Maxwell theory, boundary conditions and dispersion relations for spatio-temporal fields. Electromagnetic wave propagation, reflection and transmission, guided waves, radiation, scattering and diffraction phenomena.

Prerequisites: EE 241 or Instructor permission.

Credits: 3.

EE 245 - Lasers&Electro-Optical Devices

A theoretical description of light-matter interactions in photon emitting resonant cavities. A practical understanding of laser design and operation. Prerequisite: 142.

Credits: 3.

EE 246 - Engineering Optics

Applications of optics to the solution of engineering problems. Optical signal processing, fiber optic sensors, integrated optics. Prerequisites: EE 245 or Instructor permission.

Credits: 3.

EE 247 - Physical Optics I

Fundamental properties of the optical field. Molecular optics and the Ewald-Oseen extinction theorem. Foundations of geometrical optics. Diffraction and aberration theory. Prerequisites: 142, or Physics 214.

Credits: 3.

EE 248 - Physical Optics II

Partially coherent light and the Van-Cittert Zernike theorem. Rigorous diffraction theory, the optics of metals and crystal optics. Prerequisite: EE 247.

Credits: 3.

EE 250 - Test Engineering

Parametric, structural, functional, characterization and stress testing of components and subsystems. Test methods, strategies, planning, and economics. Test equipment hardware and software. Prerequisites: 121, 131. Alternate years.

Credits: 3.

EE 251 - Digital Syst Testing & Design

Circuit failures, fault models, testing and test pattern generation, logic and fault simulation, design for testability, scan design, test interfaces, design for built-in self-test. Prerequisite: 131. Alternate years.

Credits: 3.

EE 261 - Solid State Mat & Devices I

Energy band theory, effective mass, band structure and electronic properties of semiconductors. Transport of electrons and holes in bulk materials and across interfaces. Homojunctions, heterojunctions, and Schottky barriers. Prerequisite: EE 163.

Credits: 3.

EE 262 - Solid State Mats & Devices II

Multijunction and interface devices. Heterostructure and optical devices. Dielectric and optical properties solids. High-frequency and high-speed devices.

Prerequisite: EE 261.

Credits: 3.

EE 266 - Science & Tech Integrated Cir

Science and technology of integrated circuit fabrication. Interaction of processing with material properties, electrical performance, economy, and manufacturability. Prerequisites: EE 163 or EE 261; concurrent registration in EE 164 or EE 262.

Credits: 3.

EE 270 - Prob Thry & Stochastic Process

(Same as Statistics 270.) Probability theory, random variables, and stochastic processes. Response of linear systems to random inputs. Applications in electrical engineering. Prerequisite: 171 or equivalent.

Credits: 3.

EE 271 - Sig Proc:Det & Est

(Same as Statistics 271.) Foundations of linear and nonlinear least squares estimation, smoothing and prediction, computational aspects, Kalman filtering, nonlinear filtering, parameter identification, and adaptive filtering. Prerequisites: 201, 270.

Credits: 3.

EE 272 - Information Theory

Introduction to probability concepts of information theory; entropy of probability models; theoretical derivations of channel capacity; coding methods and theorems, sampling theorems. Prerequisite: Statistics 151. Not offered 2001-02.

Credits: 3.

EE 273 - Digital Communications

Digital modulation/demodulation methods and BER performance; source entropy and channel capacity; optimal detection; convolutional codes and decoding algorithms. Pre/corequisites: EE 174 and EE 270 or STAT 151.

Credits: 3.

EE 274 - Intro Wavelets & Filter Banks

and biorthogonal filter banks. Wavelets from filters. Continuous and discrete-time signal processing. Continuous wavelet transform. Series expansion of continuous and discrete-time signals. Perfect reconstruction, orthogonal Prerequisites: 171, or instructor's permission.

Credits: 3.

EE 275 - Digital Signal Processing&Filt

Sampling, aliasing, and windowing. Decimation and Interpolation. FIR and IIR filters. DFT and FFT. Digital simulation and implementation using real-time processors. Prerequisites: 171. Lab same as 189. *Students who have previously taken 189 may enroll in the lecture portion for three credits.

Credits: 4.

EE 276 - Image Processing & Coding

Image enhancement techniques by point and spatial operations. Data compression techniques to include scalar quantization, entropy coding, transform and sub-band coding. Labs on PC hardware; PC and Unix-based software.

Prerequisites: 275; 270 recommended.

Credits: 4.

EE 277 - Image Anyl&Pattern Recognition

Image, shape, and texture analysis. Statistical pattern recognition methods. Pattern recognition and computer vision techniques for machine parts recognition and automatic visual inspection. Prerequisite: EE 276.

Credits: 3.

EE 281 - Materials Science Seminar

Presentation and discussion of advanced electrical engineering problems and current developments. Prerequisite: Senior or Graduate Engineering enrollment.

Credits: 1.

EE 282 - Seminar

Credits: 1.

EE 283 - Seminar

Credits: 1.

EE 284 - Seminar

Credits: 1.

EE 285 - Engr Design Anyl & Synthesis

and simulations involving control systems, digital electronics, computer hardware and software; technical writing and documentation emphasized. Prerequisites: Graduate standing in EE or department permission.

Credits: 3.

EE 295 - Special Topics

Formulation and solution of theoretical and practical problems dealing with electrical circuits, apparatus, machines, or systems. Prerequisite: 4.

Credits: 3.

EE 310 - Digital Control Systems

Digital control system analysis and design using transform, algebraic, and state space methods. Sampled data systems, stability, quantization effects, sample rate selection, computer-based realization. Prerequisite: EE 210 or Instructor permission.

Credits: 3.

EE 312 - Intro Optimum Control Systems

Optimal control problem formulation and solution; including the calculus of variations, Pontryagin's maximum principle, Hamilton-Jacob theory, dynamic programming, and computational methods. Prerequisite: EE 210.

Credits: 3.

EE 314 - Nonlinear System Theory

Basic nonlinear methods including computational and geometrical techniques for analysis of nonlinear systems. Describing function methods and bifurcation and catastrophe theory. Sensitivity and stability considerations. Prerequisite: EE 201 or MATH 230.

Credits: 3.

EE 315 - Nonlinear System Theory

Basic nonlinear methods including computational and geometrical techniques for analysis of nonlinear systems. Describing function methods and bifurcation and catastrophe theory. Sensitivity and stability considerations. Prerequisite: EE 201 or MATH 230.

Credits: 3.

EE 338 - Semiconductor Dev Model&Simul

Analysis and application of computer models for semiconductor process and device simulation. Strategies for development of device models for circuit simulation. Prerequisite: EE 262; Instructor permission.

Credits: 3.

EE 340 - ST:Electromagnetic Field Thry

For advanced students in the field of electromagnetism. Topics selected from special interests of staff with lectures and readings from current literature.

Credits: 3.

EE 341 - ST:Electromagnetic Field Thry

For advanced students in the field of electromagnetism. Topics selected from special interests of staff with lectures and readings from current literature.

Credits: 3.

EE 352 - Adv Semicond Device Phys & Des

MOSFET, bipolar, and CMOS device parameters, their characterization, and their relation to process technology. Description and use of computer-aided process and device models. Prerequisite: EE 262. Alternate years. Spring semester.

Credits: 3.

EE 354 - MOS Analog Intergrtd Circ Dsgn

Analysis and design of MOS analog integrated circuits. Each student will design, layout, test, and document an analog integrated circuit using computer-aided-design techniques. Prerequisite: EE 338, EE 339.

Credits: 3.

EE 365 - Optical Properties of Solids

Optical and optoelectronic properties of semiconductors. Applications to photodetectors, solar cells, light emitting diodes and lasers. Prerequisites: 242, 262, Physics 273.

Credits: 3.

EE 366 - Solid State & Semicond Thry I

Energy band theory for electrons and phonons in crystalline solids. Brillouin zones. Conservation laws. Elements of statistical mechanics. Transport properties. Applications to semiconductor electronics. Prerequisite: EE 261, PHYS 273 or CHEM 263.

Credits: 3.

EE 373 - Digital Communication

Source entropy and channel capacity; signal representation; optimal detector for Gaussian channels; digital block/convolutional codes; Viterbi algorithm; real channels. Prerequisites: 174, 270, 373 for 374.

Credits: 3.

EE 378 - St:Stat Comm & Related Fields

Coding for communication or computer systems, pattern recognition and learning machines, artificial intelligence, etc., selected from special interests of staff with lectures and readings from current literature. Prerequisite: Instructor permission.

Credits: 3.

EE 391 - Master's Thesis Research

Credits: 1-18.

EE 395 - Advanced Special Topics

Advanced topics of current interest in electrical engineering. Prerequisite: Instructor permission.

Credits: 1-6.

EE 491 - Doctoral Dissertation Research

Credits: 1-18.

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Possible Curriculum

First Year

	Fall	Spring
CS 21, Comp Programming I	4	
English 1, Written Expression	3	
Chemistry 31, Intro Chemistry	4	
Math 21, Calculus I	4	
Engr 1, Intro to Engr	1	
Physical Education	1	1
Math 22, Calculus II	4	
Chem 42, Intro Organic Chem	4	
HSS Elective	6	
Engr 2, Graph Comm	2	
Total	17	17

Sophomore Year

	Fall	Spring
Math 121, Calculus III	4	
Physics 31 and 21, Intro Phys	5	

EE 3, Linear Circuit Analysis I	3	
EE 81, Sophomore Lab I	2	
HSS Elective	3	3
Physics 42 and 22, E&M & Mod Phys	5	
Math 271, Applied Math/Engineers	3	
EE 4, Linear Circuit Analysis II	3	
EE 82, Sophomore Lab II	2	
Total	17	16

Junior Year

	Fall	Spring
EE 120, Electronics I	3	
ANPS 19, Anatomy & Physiology	4	
EE 183, Junior Lab I	2	
EE 163, Solid St Phys Electronics I	4	
Stat 143/151	3	
EE 184, Junior Lab II		2
EE 134, Microprocessors or EE 227	4 (or 3)	
EE 121, Electronics II	3	
ME 114, Intro to Engr Mechanics	3	
ANPS 20, Anatomy & Physiology	4	
Total	16	16 (or 15)

Senior Year

	Fall	Spring
ME 207, Biomechanics I	3	
EE 171, Signals & Systems	4	
EE 141, EM Field Theory I ¹	3	
EE 185, Senior Lab I	1	
EE Design Elective ²	3	
HSS Elective	3	3
EE 142, EM Field Theory II		3
EE 174, Intro to Comm Systems		3
EE 134 or 227, Bio Meas Inst & Sys		4 (or 3)
EE 186, Senior Lab II		1
EE 187, Senior Project		3
Total	17	17 (or 16)

Total Credits: 131-133

Notes:

¹ No credit may be received for both EE 140 (offered in prior years) and the current EE 141.

² EE Design Elective: EE 131, 187, 221, 222, 224, 228, 231, 250, 275, 276.

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Department(s): [Electrical and Computer Engineering](#)

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Possible Curriculum

First Year

	Fall Spring	
CS 21, Comp Programming I	4	
Math 21, Calculus I	4	
Chemistry 31, Intro Chemistry	4	
English 1, Written Expression	3	
Engr 1, Intro to Engr	1	
Physical Education	1	1
HSS Elective		3
Math 22, Calculus II		4
Physics 31 and 21, Intro Physics		5
Engr 2, Graph Comm		2
Total	17	15

Sophomore Year

	Fall Spring	
Math 121, Calculus III		4
Physics 42 and 22, Electromag Modern Physics		5

EE 3, Linear Circuit Analysis I	3	
EE 81, Sophomore Lab I	2	
HSS Elective	3	3
Math 271, Applied Math/Engineers	3	
CS 26, Computer Programming II	3	
EE 4, Linear Circuit Analysis II	3	
EE 82, Sophomore Lab II	2	
Statistics 143/151	3	
Total	17	17

Junior Year

	Fall	Spring
EE 120, Electronics I	3	
Math 54, Fund of Comp	3	
EE 163, Solid State I or EE 171	4	
EE 131, Digital Design	3	
HSS Elective	3	3
EE 121, Electronics II	3	
CS 104, Data Structures	3	
EE 134, Microprocessors	4	
Approved CS Elective ¹	3	
Total	16	16

Senior Year

	Fall	Spring
EE 171, Sig & Syst or EE 163	4	
EE 183, Junior Lab I	2	
EE 141, EM Field Theory ²	3	
EE/CS Elective ³	3	3
Approved EE Design Seq I and II ⁴	3	3
Approved CS Elective ¹	3	
EE 184, Junior Lab II	2	
Non-EE Engineering Sci Elective ⁵	3	
HSS Elective	3	
Total	15	17

Total Credits: 130

Notes:

¹ Any 100- or 200-level CS course approved by a Computer Engineering advisor.

² No credit may be received for both EE 140 (offered in prior years) and the current EE 141.

³ Any 100- or 200-level CS or EE course approved by a Computer Engineering advisor.

⁴ A 100- or 200-level EE course sequence approved by a Computer Engineering advisor.

⁵ Non-EE Engr. Science Electives: CE 1, 10, 150; ME 12, 40, 114.

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College: [Engineering and Mathematics](#)

Department(s): [Electrical and Computer Engineering](#)

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- [Electrical and Computer Engineering](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
Math 121, Calculus III	4	
EE 3, Linear Circuit Analysis I	3	
EE 81, Sophomore Lab I	2	
EE 131, Fund of Digital Design	3	
Physics 42 and 22, Electromag Modern Physics	5	
Math 271, Applied Math/Engineers		3
HSS Elective		6
EE 82, Sophomore II		2
EE 4, Linear Circuit Analysis II		3
Statistics 143/151		3
Total	17	17

Junior Year

	Fall	Spring
EE 120, Electronics I	3	
EE 141, EM Field Theory I ¹	3	
EE 163, Solid State Electronics I ¹	4	

EE 171, Signals & systems ¹	4	
EE 183, Junior Lab I	2	
HSS Elective	3	3
EE 121, Electronics II		3
EE 142, EM Field Theory II ¹		3
EE 164, Solid State Electronics II ¹		3
EE 174, Intro to Comm Sys ¹		3
EE 184, Junior Lab II		2
Phys Ed		1
EE 134, Microprocessors ¹		4
Total	15-16	15-16

Senior Year

	Fall	Spring
Non-EE Eng Sci Elective ^{2, 3}	3	
EE 185, Senior Lab	1	
Tech Elective ⁵	3	
Remaining EE Sequence	3-4	6-7
EE Engr Science Elective ⁴	3	3
Approved EE Design Sequence I and II ⁶	3	3
EE Tech Elective		3
EE 186, Senior Lab II		1
Total	16-17	16-17

Total Credits: 133

Notes:

¹ Pick two of the first 3 or 4 EE sequence; take remainder in fourth year.

² Non-EE Eng. Sci. Elect. and an elective from spring semester can be exchanged.

³ Non-EE Engr. Science Electives: CE 1, 10, 150; ME 12, 40, 114.

⁴ EE Engr. Science. Elective: 113, 210, 241, 242, 245, 246, 261, 266, 274.

⁵ Tech. Electives: EE 113, 164, 210, 221, 222, 224, 227, 228, 231, 241, 245, 246, 250, 251, 261, 266, 274, 275, 276, 295; CS 26, 100, 101, 103, 104, 201, 222; PHYS 128; ME 14, 40, 114, 150; CE 125; CHEM 161; MATH 54, 124, 173; STAT 143, 151. All 200-level Math. and Statistics courses except for practicum, seminar, and special topics.

⁶ A 100- or 200-level EE design course sequence approved by an Electrical Engineering faculty advisor.

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Department(s): [Electrical and Computer Engineering](#)

General Requirements

- [University](#)
- [College of Engineering and Mathematics](#)
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Possible Curriculum

First Year

		Fall	Spring
CS 21, Comp Programming I	4		
English 1, Written Expression	3		
Chemistry 31, Intro Chemistry	4		
Math 21, Calculus I	4		
Engr 1, Intro to Engr	1		
Physical Education	1	1	
Math 22, Calculus II	4		
Chem 32, Intro Chem	4		
HSS Elective	6		
Engr 2, Graph Comm	2		
Total	17	17	

Sophomore Year

		Fall	Spring
Math 121, Calculus III	4		
Physics 31 and 21, Intro Phys	5		

EE 3, Linear Circuit Analysis I	3	
EE 81, Sophomore Lab I	2	
HSS Elective	3	3
Physics 42 and 22, E&M & Mod Phys	5	
Math 271, Applied Math/Engineers	3	
EE 4, Linear Circuit Analysis II	3	
EE 82, Sophomore Lab II	2	
Total	17	16

Junior Year

Fall Spring

Biology 1, Prin of Biology	4	
Non-EE Engr Sci Elective ¹	3	
Chem 141, Organic Chem	4	
Stat 143/151	3	
HSS Elective	3	3
Biology 2, Prin of Biology	4	
EE 134, Microprocessors	4	
Chem 142, Organic Chem	4	
Total	17	15

Senior Year

Fall Spring

EE 141, EM Field Theory I ²	3	
EE 120, Electronics I	3	
EE 183, Junior Lab I	2	
EE 171, Signals & Sys	4	
EE 163, Solid St Phys Electronics I	4	
EE 174, Intro Comm Sys	3	
EE 121, Electronics II	3	
EE 142, EM Field Theory II	3	
EE 184, Junior Lab II	2	
EE 187, Senior Project	3	
EE Engr Science Elective ³	3	
Total	16	17

Total Credits: 132

Notes:

¹ Non-EE Engr. Science Electives: CE 1, 10, 150; ME 12, 40, 114.

² No credit may be received for both EE 140 (offered in prior years) and the current EE 141.

³ EE Engr. Science. Elective: 113, 210, 241, 242, 245, 246, 261, 266, 274.

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Undergraduate Minor in Electrical Engineering

College: [Engineering and Mathematics](#)

Department(s): [Electrical and Computer Engineering](#)

Requirements

A minor in Electrical Engineering consists of at least 19 credit hours in Electrical Engineering courses distributed as follows: 3, 81, 4, 82, plus at least nine credit hours numbered above 101. Prerequisite courses for the minor are Math. 21, 22, 121, 271 (or 230) as well as Physics 31, 21, 42, and 22. Each student in the minor program will be assigned an Electrical and Computer Engineering faculty advisor who will assist the student in developing an individualized plan of study. The plan of study of the minor must be approved by the Electrical and Computer Engineering faculty advisor.

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Departments and Programs

Engineering Management Program

Colleges: Engineering and Mathematics, School of Business Administration

Courses: Engineering Management (EMGT)

Contact Information:

University of Vermont

Engineering Management Program

School of Business Administration

Kalkin Building

Burlington, VT 05405

Phone: (802) 656-8367

Fax: (802) 656-8279

Email: Larry.Shirland@uvm.edu

Web Site: <http://www.emba.uvm.edu/EM/Engineering/EM/>

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - Engineering Management
 - Civil Engineering Concentration
 - Electrical Engineering Concentration
 - Mechanical Engineering Concentration

Overview

A curriculum in Engineering Management leading to the degree of Bachelor of Science in Engineering Management is offered in cooperation with the School of Business Administration. Engineering management is a broad discipline concerned with the art and science of planning, organizing, directing, and controlling activities that have a technical component. Designing, producing, selling, and servicing products in the

marketplace require managers who possess both an ability to apply engineering principles and a skill in managing technical projects and people in technical jobs. The curriculum is designed to provide a basic education in an engineering discipline with the study of management concepts and techniques. The curriculum incorporates the equivalent of one-half year of study in the area of the humanities and social sciences. Candidates for this degree must earn a minimum of 128 semester hours, depending upon the engineering concentration selected, plus two credits of physical education activities. Engineering Management students are reminded that they must choose one HSS elective from the list of approved cultural diversity courses.

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Courses in Engineering Management

EMGT 175 - The Management of Technology

Role of technology in industry, the nature of technological change, strategies, management, research and development, forecasting, product service/project selection, development, management, transition to market, and evaluation.

Prerequisites: Senior standing in Engineering or Business Administration. Cross-listed with: BSAD 175.

Credits: 3.

EMGT 176 - Plant Planning and Design

Analysis of facilities and services requirements, material handling, office and clean room layout, mathematical and computer techniques, safety and plant conservation. Prerequisites: Junior standing in Engineering or Business Administration or Instructor permission.

Credits: 4.

EMGT 185 - Senior Project

Individual management engineering study designed to the particular interest of the student, utilizing and synthesizing the student's engineering management education experience. Prerequisite: Senior standing in EMBA.

Credits: 3.

EMGT 195 - Special Topics

Specialized or experimental course offered as resources permit.

Credits: 3.

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Engineering Management: Civil Engineering Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Engineering Management](#)

General Requirements

- [University](#)
- [College of Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Engineering Management](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
CE 1, Statics		3
CE 10/12, Surveying		4
EC 12, Principles of Microeconomics	3	
Math 121, Calculus III		4
BSAD 60, Financial Acctng		4
Math 271, Applied Math		3
BSAD 61, Managerial Acctng		4
CE 11, Computer-Based Tools for CE		4
ME 12, Dynamics		3
ME 14, Mechanics of Solids		3
Total	18	17

Junior Year

	Fall	Spring
BSAD 120, Mgmt & Organ Behav		3
PHYS 42/22, Electromagnetism & Modern Phys. (and lab)		5

CE 160, Hydraulics	4	
CE 140, Trans Engineering	3	
Stat 143, Stat for Engineers; or Stat 211, Stat Methods I	3	
CE 125, Engr Economics	3	
BSAD 141, Mgmt Info Systems	3	
CE 170, Structural Analysis	4	
BSAD 173, Prod & Oper Analy	3	
Total	15	16

Senior Year

	Fall	Spring
EE 100, Engr Concepts I	4	
CE 150, Environmental Engr	3	
EMGT 185, Senior Project	3	
HSS Elective	3	
BSAD 178, Quality Control; or Stat 224, Statistics for Qual & Prod	3	
BSAD 270, Quant Analysis; or BSAD 272, Discrete Simulation		3
HSS Elective		3
CE Conc Elective ¹		3-4
EMGT 175, Mgmt of Technology		3
Engr Mgmt Elective ²		3
Total	16	15-16

Total Credits: 131-132

Notes:

¹ CE Concentration electives: CE 141, 151, 161, 171, 172, 175, 180, 260, 261, and ME 40 with 44.

² Engineering Management electives: BSAD 143, 144, 145, 168, 170, 174, 177, 192; and Statistics 221, 224, 225, 229, 231, 233, 237, 253.

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Engineering Management: Electrical Engineering Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Engineering Management](#)

General Requirements

- [University](#)
- [College of Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Engineering Management](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
Economics 11, Prin of Economics	3	
Math 121, Calculus III	4	
BSAD 60, Financial Acctng	4	
Physical Education	1	
EE 3 & 4, Linear Circuit Analysis I & II	3	3
EE 81 & 82, Sophomore Lab I & II	2	2
Math 271, Applied Math		3
BSAD 61, Managerial Acctng		4
Physics 42 with 22, EM & Mod Phys		5
Total	17	17

Junior Year

	Fall	Spring
Stat 143, Stat for Engineers; or Stat 211, Stat Methods I		3
Economics 12, Prin of Economics		3

EE 131, Digital Design	3	
BSAD 141, Mgmt Info Systems	3	
Physical Education	1	
EE 120 & 121, Electronics I & II	3	3
CE 125, Engr Economics	3	
EE 134, Microcomputer Based Systems	4	
BSAD 173, Prod & Oper Analy	3	
HSS Elective	3	
Total	16	16

Senior Year

	Fall	Spring
BSAD 120, Mgmt & Organ Behav	3	
EMGT 185, Senior Project	3	
BSAD 178, Quality Control; or Stat 224, Statistics for Qual & Prod	3	
HSS Elective	3	
EE 163, Solid State Phys Elect; or EE 171, Signals & Systems	4	
EE 231, Dgtl Comp Design	3	
BSAD 270, Quant Analysis; or BSAD 272, Discrete Simulation	3	
EE Conc Elective ¹	3-4	
EMGT 175, Mgmt of Technology	3	
Engr Mgmt Elective ²	3	
Total	16	15-16

Total Credits: 130-131

Notes:

¹ EE Conc. Electives: EE 113, 141. 163 (if not used to fulfill another requirement), 164 (163 is prerequisite), 171 (if not used to fulfill another requirement), 174 (171 is prerequisite), EE 183-184 (both courses are needed to meet this requirement), 210, 228, 250, 251, and 295.

² Engineering Management electives: BSAD 143, 144, 145, 168, 170, 174, 177, 192; and Statistics 221, 224, 225, 229, 231, 233, 237, 253.

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Engineering Management: Mechanical Engineering Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Engineering Management](#)

General Requirements

- [University](#)
- [College of Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Engineering Management](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
Physical Education	1	
ME 40, Thermodyn and Heat Transfer	3	
Economics 11, Prin of Economics	3	
Math 121, Calculus III	4	
BSAD 60, Financial Acctng	4	
Math 271, Applied Math		3
BSAD 61, Managerial Acctng		4
PHYS 42/22, EM & Mod Phys		5
ME 114, Intro Engineering Mechanics		3
ME 2, Mech Engineering Lab I		3
Total	15	18

Junior Year

	Fall	Spring
ME 161, Manufacturing Engineering I	3	
EE 100, Elect Engr Concepts I	4	

Economics 12, Prin of Economics	3	
MATH 124, Linear Algebra	3	
BSAD 141, Mgmt Info Systems	3	
Stat 143, Stat for Engineers; or Stat 211, Stat Methods I		3
CE 125, Engr Economics	3	
ME 171, Design of Elements	3	
ME 162, Manufacturing Engineering II	3	
BSAD 173, Prod & Oper Analy	3	
Total	16	15

Senior Year

	Fall	Spring
BSAD 120, Mgmt & Organ Behav	3	
ME 101, Engineering Materials I	3	
EMGT 185, Senior Project	3	
BSAD 178, Quality Control; or Stat 224, Statistics for Qual & Prod		3
HSS Elective	3	3
BSAD 270, Quant Analysis; or BSAD 272, Discrete Simulation		3
ME Elective ¹		3
EMGT 175, Mgmt of Technology		3
Engr Mgmt Elective ²		3
Total	15	15

Total Credits: 130-132

Notes:

¹ ME electives: ME 200-level or higher.

² Engineering Management electives: BSAD 143, 144, 145, 168, 170, 174, 177, 192; and Statistics 221, 224, 225, 229, 231, 233, 237, 253.

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Departments and Programs

Mathematics and Statistics Department

Colleges: [Engineering and Mathematics](#), [Arts and Sciences](#), [Graduate College](#), [Continuing Education](#)

Faculty: Mathematics and Statistics

Courses: [Mathematics \(MATH\)](#), [Statistics \(STAT\)](#)

Contact Information:

University of Vermont

Mathematics and Statistics Department

16 Colchester Ave

Burlington, VT 05405

Phone: (802) 656-2940

Fax: (802) 656-2552

Email: dinitz@math.uvm.edu

Web Site: <http://www.emba.uvm.edu/EM/Math/>

- [Mathematics and Statistics Basic Curriculum \(B.S.\)](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Arts (B. A.)
 - [Applied and Interdisciplinary Mathematics](#)
 - [Mathematics](#)
 - [Statistics](#)
 - Bachelor of Science (B. S.)
 - [Mathematics](#)
 - [Statistics](#)
- Undergraduate Minors

Mathematics

- [Applied Mathematics Concentration](#)
- [Pure Mathematics Concentration](#)
- [Statistics Concentration](#)

Overview

Students can concentrate in mathematics or statistics while pursuing a broad foundation in the liberal arts in the Department of Mathematics and Statistics. It is also possible to earn a second degree in any college combining mathematics and statistics with another discipline to obtain a double major in Arts and Sciences. The Department also offers an accelerated five-year B.S./M.S. program.

Please view our mission statement at:

<http://www.emba.uvm.edu/math/info/mission.html>

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Courses in Mathematics

MATH 001 - Elementary College Algebra

Review of fundamental operations and a more extensive study of fractions, exponents, radicals, linear and quadratic equations, ratio, proportion, variation, progressions, and the binomial theorem. Topics normally included in intermediate algebra in high school. Students who have satisfactorily completed two years of high school algebra, or the equivalent, receive no credit for this course. Offered only in Evening Division and Summer Session. Prerequisite: One year of high school algebra.

Credits: 3.

MATH 002 - Plane Trigonometry

Trigonometric functions, their graphs and other properties, solution of triangles, trigonometric equations and identities, and inverse trigonometric functions. May not be taken for credit concurrently with, or following receipt of, credit for any mathematics course numbered MATH 020 or above. Prerequisite: MATH 001 or MATH 009. Offered only in Evening Division and Summer Session.

Credits: 3.

MATH 009 - College Algebra

Sets, relations, and functions with particular attention to properties of algebraic, exponential, and logarithmic functions, their graphs and applications. May not be taken for credit concurrently with, or following receipt of, credit for any mathematics course numbered 19 or above. Prerequisites: Two years of secondary school algebra, one year of secondary school geometry.

Credits: 3.

MATH 010 - Pre-Calculus Mathematics

geometry.

Credits: 3.

MATH 011 - Technical Calculus I

Introduction to calculus of functions of one variable, emphasizing techniques and applications of differentiation and integration. Prerequisite: MATH 010 or MATH 009 and MATH 002, or strong background in secondary school algebra and trigonometry; an associates degree in engineering. Dual credit not given for MATH 011 and MATH 021.

Credits: 3.

MATH 012 - Technical Calculus II

coordinates, sequences, series and vectors. Prerequisite: MATH 011 or MATH 021; associates degree in engineering.

Credits: 3.

MATH 013 - Calculus via Modeling I

Introduction to mathematical modeling and differential calculus with a graphical, problem-solving approach. Requires graphing calculator. Prerequisite: Three years high school math, or MATH 009. Credit not given for both MATH 013 and MATH 019.

Credits: 3.

MATH 014 - Calculus via Modeling II

Further modeling and an introduction to integral and multivariate calculus with a graphical, problem-solving approach. Requires graphing calculator. Credit not given for both MATH 014 and MATH 020. Prerequisite: MATH 013.

Credits: 3.

MATH 015 - Elementary School Math

Comprehension of operations with real numbers, measurements, and informal geometry provide background for algebra, number theory, statistics, probability, compass and ruler constructions, and problem solving. Prerequisite: 15 for 16. Open only to students in elementary education.

Credits: 3.

MATH 016 - Fund Concepts Elem School Math

Comprehension of operations with real numbers, measurements, and informal geometry provide background for algebra, number theory, statistics, probability, compass and ruler constructions, and problem solving. Prerequisite: 15 for 16. Open only to students in elementary education.

Credits: 3.

MATH 017 - Applications of Finite Math

Introduction to mathematics of finite systems with applications, such as probability, statistics, growth and symmetry, graph theory, fair division and apportionment problems, voting systems. Prerequisite: Two years of secondary school algebra or 9 or 10.

Credits: 3.

MATH 018 - Basic Mathematics

Data, statistics, modeling, algebra, word problems, calculus. Students who do well in the algebra section may continue with MATH 19 or MATH 21. Prerequisites: 3 years high school math. No credit for EM students.

Credits: 3.

MATH 019 - Fundamentals of Calculus I

Introduction to limits and differential calculus with a wide variety of applications. Students interested in intensive use of mathematics should take 21. Credit not given for more than one of the courses 19, 21 unless followed by 22. Credit not given for both Math. 13 and 19. Prerequisite: 9, 10, or sufficiently strong background in secondary school algebra and geometry.

Credits: 3.

MATH 020 - Fundamentals of Calculus II

019.* 022 is preferable to MATH 019, MATH 020, MATH 022. Credit Credits: 3.

MATH 021 - Calculus I

Introduction to calculus of functions of one variable including: limits, continuity, techniques and applications of differentiation and integration. Credit not given for more than one course in the pair 19, 21. Prerequisite: 10; or 9 and 2; or strong background in secondary school algebra and trigonometry Credits: 4.

MATH 022 - Calculus II

Techniques and applications of integration. Polar coordinates, Taylor polynomials, sequences and series, power series. Prerequisite: 21. Credits: 4.

MATH 052 - Fundamentals of Mathematics

Fundamental mathematical concepts and techniques, theory. Credit not given for both 52 and 54. emphasizing proofs and algorithms, are investigated within the context of topics such as number theory and graph Corequisite: Math 21. Credits: 3.

MATH 054 - Fund of Math of Computation

Introduction to mathematical theory and techniques underlying computer science. Co-requisite: MATH 019 or MATH 021. Credits: 3.

MATH 095 - Special Topics

Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: Instructor permission. Credits: 1-6.

MATH 111 - Technical Calculus III

Calculus of functions of several variables, partial derivatives, gradient, divergence, curl, multiple integrals. Prerequisite: MATH 012 or MATH 022; associates degree in engineering. Dual credit not given for MATH 111 and MATH 121. Credits: 3.

MATH 121 - Calculus III

Vectors, vector-valued functions. Calculus of functions of several variables: partial derivatives, gradient, divergence, curl, multiple integrals, line integrals, Stokes' and Green's theorems. Prerequisite: MATH 022. Credits: 4.

MATH 124 - Linear Algebra

Matrices, linear dependence, vector spaces, linear transformations, characteristic equations and applications. Prerequisite: MATH 022 or Instructor permission. Credits: 3.

MATH 141 - Real Analysis in One Variable

Principles of analysis in one variable. Heine-Borel and Bolzano-Weierstrass theorems; rigorous development of differential and integral calculus infinite sequences and series of functions. Prerequisite: 52. Credits: 3.

MATH 151 - Groups and Rings

An introduction to the basic concepts of abstract algebra emphasizing examples, including modular arithmetic, symmetric groups, cyclic groups, polynomial rings, homomorphisms, and isomorphisms. Prerequisite: 52.

Credits: 3.

MATH 161 - Development of Mathematics

Historical development of mathematical sciences emphasizing interrelations among them. Individual assignments correspond to background and interests of students. Prerequisite: Nine hours of college mathematics.

Credits: 3.

MATH 162 - Geometry EI&Mid School Teacher

An informal, investigative approach to geometry. Extensive use of discovery experiences through inductive procedures as opposed to the traditional emphasis on deductive process found in high school geometry. Credit not given for Math. majors in EM. Prerequisite: MATH 015 or a teaching certificate.

Credits: 3.

MATH 167 - Physical Chemistry Preparation

Review of relevant mathematical and physical concepts as applied to physical chemistry. Credit cannot be obtained for both MATH 167 and MATH 121. Not available for credit for E&M students. Prerequisite: MATH 022; CHEM 032 or CHEM 036. Cross-listed with: CHEM 167.

Credits: 1.

MATH 173 - Basic Combinatorial Theory

Introduction to basic combinatorial principles emphasizing problem-solving techniques. Enumeration, Generating Functions, Fibonacci Numbers, Pigeonhole Principle, Inclusion-Exclusion, and Graph Theory. Prerequisite: 52 or 54.

Credits: 3.

MATH 179 - Teaching Secondary School Math

Contemporary secondary school mathematics curricula, their content from an advanced standpoint, unifying mathematical concepts and their implications at various levels, and introduction of selected mathematical topics. Intended only for students with an interest in teaching secondary school mathematics. Not acceptable as part of any mathematics requirement for a degree. Prerequisite: EDEC 178; acceptance to teacher education, or Instructor permission.

Credits: 3.

MATH 191 - Special Topics

An approved project under guidance of a staff member and culminating in a written report. Involvement with off-campus groups permitted. Prerequisite: Junior/ Senior standing; approval of Department Chair.

Credits: 1-3.

MATH 192 - Special Topics

An approved project under guidance of a staff member and culminating in a written report. Involvement with off-campus groups permitted. Prerequisite: Junior/ Senior standing; approval of Department Chair.

Credits: 1-3.

MATH 193 - College Honors

Credits: 1-3.

MATH 194 - College Honors

Credits: 1-3.

MATH 195 - Special Topics

Credits: 1-4.

MATH 207 - Probability Theory

(Same as Statistics 251.)

Credits: 3.

MATH 221 - Deterministic Modls Oper Rsch

The linear programming problem. Simplex algorithm, dual problem, sensitivity analysis, goal programming. Dynamic programming and network problems.

Prerequisites: 124; 121 desirable.

Credits: 3.

MATH 222 - Stochastic Models in Oper Rsch

Development and solution of some typical stochastic models. Markov chains, queueing problems, inventory models, and dynamic programming under uncertainty. Prerequisite: MATH 207, STAT 151, or Instructor permission.

Credits: 3.

MATH 224 - Analysis of Algorithms

(Same as Computer Science 224.)

Credits: 3.

MATH 230 - Ordinary Differential Equation

Solutions of linear ordinary differential equations, the Laplace transformation, and series solutions of differential equations. Prerequisite: MATH 121. Corequisite: MATH 124 or Instructor permission. Credit not granted for more than one of the courses MATH 230 or MATH 271.

Credits: 3.

MATH 236 - Calculus of Variations

Necessary conditions of Euler, Legendre, Weierstrass, and Jacobi for minimizing integrals. Sufficiency proofs. Variation and eigenvalue problems. Hamilton-Jacobi equations. Prerequisite: 230. Alternate years, 1997-98.

Credits: 3.

MATH 237 - Intro to Numerical Analysis

Error analysis, root-finding, interpolation, least squares, quadrature, linear equations, numerical solution of ordinary differential equations. Prerequisite: MATH 121, MATH 124 or MATH 271; Knowledge of computer programming.

Credits: 3.

MATH 238 - Numerical Diff Equations

Numerical solution of differential equations: initial-value and boundary-value problems; finite difference and finite element methods. Prerequisite: 237, either 230 or 271 recommended.

Credits: 3.

MATH 240 - Fourier Series&Integral Trans

MATH 271.

Credits: 3.

MATH 241 - Anyl in Several Real Vars I

Properties of the real numbers, metric spaces, infinite sequences and series, continuity. Prerequisites: 52, 121, 124 or instructor's permission.

Credits: 3.

MATH 242 - Anyl Several Real Variables II

Differentiation in R^n , Riemann-Stieltjes integral, uniform convergence of functions, Inverse and Implicit Function Theorems. Prerequisite: 241.

Credits: 3.

MATH 243 - Theory of Computation

(Same as Computer Science 243.)

Credits: 3.

MATH 251 - Abstract Algebra I

Basic theory of groups, rings, fields, homomorphisms, and isomorphisms.

Prerequisite: MATH 052, MATH 124, or Instructor permission.

Credits: 3.

MATH 252 - Abstract Algebra II

of quintic equations. Prerequisite: MATH 251. Modules, vector spaces, linear transformations, rational and Jordan canonical forms. Finite fields, field extensions, and Galois theory leading to the insolvability

Credits: 3.

MATH 255 - Elementary Number Theory

Divisibility, prime numbers, Diophantine equations, congruence of numbers, and methods of solving congruences. Prerequisite: MATH 052 or MATH 054.

Credits: 3.

MATH 257 - Topics in Group Theory

Topics may include abstract group theory, representation theory, classical groups, Lie groups. Prerequisite: 251. Alternate years, 2000-01.

Credits: 3.

MATH 260 - Foundations of Geometry

Geometry as an axiomatic science; various non-Euclidean geometries; relationships existing between Euclidean plane geometry and other geometries; invariant properties. Prerequisite: MATH 052 or MATH 054.

Credits: 3.

MATH 264 - Vector Analysis

Gradient, curl and divergence, Green, Gauss, and Stokes Theorems, applications to physics, tensor analysis. Prerequisite: MATH 121, MATH 124, or MATH 271.

Credits: 3.

MATH 266 - Chaos,Fractals&Dynamical Syst

Discrete and continuous dynamical systems, Julia sets, the Mandelbrot set, period doubling, renormalization, Henon map, phase plane analysis and Lorenz equations. Corequisite: 271 or 230 or instructor's permission.

Credits: 3.

MATH 268 - Mathematical Biology&Ecology

Mathematical modeling in the life sciences. Topics include population modeling, dynamics of infectious diseases, reaction kinetics, wave phenomena in biology, and biological pattern formation. Prerequisites: 124, 230; or instructor's permission.

Credits: 3.

MATH 271 - Appl Math for Engr&Scientists

Matrix theory, linear ordinary differential equations. Emphasis on methods of solution, including numerical methods. Co-requisite: 121. No credit for mathematics majors. Credit not granted for more than one of the courses Math. 230 and Math. 271.

Credits: 3.

MATH 272 - Applied Analysis

Partial Differential Equations of Mathematical Physics, Calculus of Variations, Functions of a Complex Variable, Cauchy's Theorem, integral formula. Conformal mapping. Prerequisite: 230 or 271.

Credits: 3.

MATH 273 - Combinatorial Graph Theory

Paths and trees, connectivity, Eulerian and Hamiltonian cycles, matchings, edge and vertex colorings, planar graphs, Euler's formula and the Four Color Theorem, networks. Prerequisite: MATH 052 or MATH 054, or Instructor permission.

Credits: 3.

MATH 274 - Numerical Linear Algebra

Direct and iterative methods for solving linear equations, least square factorization methods, eigenvalue computations, ill-conditioning and stability. Prerequisite: MATH 237.

Credits: 3.

MATH 275 - Advanced Engineer Analysis I

(Same as Mechanical Engineering 304, 305; Civil Engineering 304, 305.)

Prerequisites: 271 or 230; 275 for 276.

Credits: 3.

MATH 276 - Adv Engineering Analysis II

(Same as Mechanical Engineering 304, 305; Civil Engineering 304, 305.)

Prerequisites: 271 or 230; 275 for 276.

Credits: 3.

MATH 283 - Junior-Senior Seminar

Students required to give presentations on selected topics. Prerequisite: Instructor permission.

Credits: 1.

MATH 293 - Undergraduate Honors Thesis

Program of reading and research culminating in written thesis and oral presentation. Honors notation appears on transcript and Commencement Program. Contact department chairperson for procedures. (Not offered for graduate credit.)

Credits: 3-4.

MATH 294 - Undergraduate Honors Thesis

Program of reading and research culminating in written thesis and oral presentation. Honors notation appears on transcript and Commencement Program. Contact department chairperson for procedures. (Not offered for graduate credit.)

Credits: 3-4.

MATH 295 - Special Topics

For advanced students in the indicated fields. Lectures, reports, and directed readings on advanced topics. Prerequisite: Instructor permission. Credit as arranged. Offered as occasion warrants.

Credits: 1-9.

MATH 330 - Adv Ordinary Diff Equations

Linear and nonlinear systems, approximate solutions, existence, uniqueness, dependence on initial conditions, stability, asymptotic behavior, singularities, self-adjoint problems. Prerequisite: MATH 230.

Credits: 3.

MATH 331 - Theory of Func of Complex Var

meromorphic functions, conformal mappings, Riemann Differentiation, integration, Cauchy-Riemann equations, infinite series, properties of analytic continuation, Laurent series, calculus of residues, contour integration, surfaces. Prerequisite: MATH 242.

Credits: 4.

MATH 332 - Approximation Theory

Interpolation and approximation by interpolation, uniform approximation in normed linear spaces, spline functions, orthogonal polynomials. Least square, and Chebychev approximations, rational functions. Prerequisite: MATH 124, MATH 237.

Credits: 3.

MATH 333 - Thry Functions Real Variables

The theory of Lebesgue integration, Lebesgue measure, sequences of functions, absolute continuity, properties of LP-spaces. Prerequisite: MATH 242.

Credits: 4.

MATH 335 - Advanced Real Analysis

L₂-spaces, LP-spaces; Hilbert, Banach spaces; linear functionals, linear operators; completely continuous operators (including symmetric); Fredholm alternative; Hilbert-Schmidt theory; unitary operators; Bochner's Theorem; Fourier-Plancherel, Watson transforms. Prerequisites: MATH 333.

Credits: 3.

MATH 336 - Advanced Real Analysis

L₂-spaces, LP-spaces; Hilbert, Banach spaces; linear functionals, linear operators; completely continuous operators (including symmetric); Fredholm alternative; Hilbert-Schmidt theory; unitary operators; Bochner's Theorem; Fourier-Plancherel, Watson transforms. Prerequisite: MATH 333 and MATH 335.

Credits: 3.

MATH 339 - Partial Differential Equations

Classification of equations, linear equations, first order equations, second order elliptic, parabolic, and hyperbolic equations, uniqueness and existence of solutions. Prerequisite: MATH 230; MATH 242.

Credits: 3.

MATH 351 - Topics in Algebra

credit with Instructor permission.

Credits: 3.

MATH 353 - Point-Set Topology

MATH 241. Topological spaces, closed and open sets, closure operators, separation axioms, continuity, connectedness, compactness, metrization, uniform spaces. Prerequisite:

Credits: 3.

MATH 354 - Algebraic Topology

Homotopy, Seifert-van Kampen Theorem; simplicial, singular, and Cech homology. Prerequisite: MATH 353.

Credits: 3.

MATH 373 - Topics in Combinatorics

Topics will vary each semester and may include combinatorial designs, coding theory, topological graph theory, cryptography. Prerequisite: MATH 251 or MATH 273; or Instructor permission.

Credits: 3.

MATH 382 - Seminar

Topical discussions with assigned reading. Required of M.S. degree candidates.

Credits: 1.

MATH 391 - Master's Thesis Research

Credits: 1-18.

MATH 395 - Special Topics

Subject will vary from year to year. May be repeated for credit.

Credits: 1-6.

MATH 491 - Doctoral Dissertation Research

Credits: 1-18.

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Courses in Statistics

STAT 011 - Intro to Stats via Microcomp

Various study designs considered. Graphical and analytic techniques for presenting results. Wide variety of applications surveyed. PC-based software used. Experience gained in sample survey work. Prerequisite: High school algebra.

Credits: 3.

STAT 051 - Probability With Statistics

Introduction to probabilistic and statistical reasoning, including probability distribution models and applications to current scientific/social issues. Roles of probability, study design, and exploratory/confirmatory data analysis. Prerequisite: Two years H.S. algebra. No credit for Sophomores, Juniors, or Seniors in the mathematical and engineering sciences.

Credits: 3.

STAT 095 - Special Topics

Lectures, reports, and directed readings at an introductory level. Prerequisite: As listed in course schedule.

Credits: 1-3.

STAT 111 - Elements of Statistics

Basic statistical concepts, methods, and applications, including correlation, regression, confidence intervals, and hypothesis tests. Prerequisite: Two years of high school algebra; Sophomore standing.

Credits: 3.

STAT 140 - Natural Resource Biostatistics

Cross-listed with: NR 140.

Credits: 4.

STAT 141 - Basic Statistical Methods

Foundational course for students taking further quantitative courses. Exploratory data analysis, probability distributions, estimation, hypothesis testing. Introductory regression, experimentation, contingency tables, and nonparametrics. Computer software used. Prerequisites: Math. 11, 13, 19 or 21, sophomore standing.

Credits: 3.

STAT 143 - Statistics for Engineering

Data analysis, probability models, parameter estimation, hypothesis testing. Multi-factor experimental design and regression analysis. Quality control, SPC, reliability. Engineering cases and project. Statistical analysis software.
Prerequisites: Math. 12, 14, 20 or 22, sophomore standing.

Credits: 3.

STAT 151 - Applied Probability

continuous models. Pseudo-random number generation. Foundations of probability, conditioning, and independence. Business, computing, biological, engineering reliability, and quality control applications. Classical discrete and
Prerequisites: Math. 12, 14, 20 or 22.

Credits: 3.

STAT 191 - Special Projects

Student-designed special project under supervision of a staff member culminating in a report. Prerequisite: Junior standing; permission of Program Director.

Credits: 1-4.

STAT 195 - Special Topics

Lectures, reports, and directed readings. Prerequisite: As listed in course schedule.

Credits: 1-3.

STAT 200 - Med Biostatistics&Epidemiology

(Same as Biostatistics 200.) Introductory design and analysis of medical studies. Epidemiological concepts, case-control and cohort studies. Clinical trials. Students evaluate statistical aspects of published health science studies. Prerequisite: 141 or 143; or 211.

Credits: 3.

STAT 201 - Stat Analysis Via Computers

(Same as Biostatistics 201.) Intensive coverage of computer-based data processing and analysis using statistical packages, subroutine libraries, and user-supplied programs. Students analyze real data and prepare a comprehensive report. Prerequisites: 111 with instructor's permission, or 141, or corequisite 211.

Credits: 3.

STAT 211 - Statistical Methods I

(Same as Biostatistics 211.) Fundamental concepts for data analysis and experimental design. Descriptive and inferential statistics, including classical and nonparametric methods, regression, correlation, and analysis of variance. Statistical software. Prerequisite: Junior standing.

Credits: 3.

STAT 221 - Statistical Methods II

(Same as Biostatistics 221.) Multiple regression and correlation. Basic experimental design. Analysis of variance (fixed, random, and mixed models). Analysis of covariance. Computer software usage. Prerequisites: 141 or 143; or 211.

Credits: 3.

STAT 223 - Applied Multivariate Analysis

(Same as Biostatistics 223.) Multivariate normal distribution. Inference for mean vectors and covariance matrices. Multivariate analysis of variance (MANOVA),

discrimination and classification, principal components, factor analysis.

Prerequisites: Any 200-level Statistics course, 221 or 225 recommended, matrix algebra recommended.

Credits: 3.

STAT 224 - Stats for Quality&Productivity

(Same as BioStatistics 224.) Statistical process control; Shewhart, cusum and other control charts; process capability studies. Total Quality Management.

Acceptance, continuous, sequential sampling. Process design and improvement. Case studies. Prerequisites: 141 or 143; or 211.

Credits: 3.

STAT 225 - Applied Regression Analysis

(Same as BioStatistics 225.) Simple linear and multiple regression models; least squares estimates, correlation, prediction, forecasting. Problems of multicollinearity and influential data (outliers).

Credits: 3.

STAT 227 - Adv Statistical Methods II

(Same as Psychology 341.) Prerequisite: 211 with computer experience or Psychology 340.

Credits: 3.

STAT 229 - Survival Analysis

(Same as BioStatistics 229.) Probabilistic models and inference for time-to-event data. Censored data, life tables, Kaplan-Meier estimation, logrank tests, proportional hazards regression. Specialized applications (e.g. clinical trials, reliability). Prerequisites: Any 200-level Statistics course, one year of calculus.

Credits: 3.

STAT 231 - Experimental Design

(Same as BioStatistics 231.) Randomization, complete and incomplete blocks, cross-overs, Latin squares, covariance analysis, factorial experiments, confounding, fractional factorials, nesting, split plots, repeated measures, mixed models, response surface optimization. Prerequisites: 211; 221 recommended.

Credits: 3.

STAT 233 - Survey Sampling

(Same as BioStatistics 233.) Design and data analysis for sample surveys. Simple random, stratified, systematic, cluster, multistage sampling. Practical issues in planning and conducting surveys. Prerequisites: 211; or 141 or 143 with instructor's permission.

Credits: 3.

STAT 235 - Categorical Data Analysis

(Same as BioStatistics 235.) Measures of association and inference for categorical and ordinal data in multiway contingency tables. Log linear and logistic regression models. Prerequisite: 211.

Credits: 3.

STAT 237 - Nonparametric Statistical Mthd

(Same as BioStatistics 237.) Nonparametric and distribution free methods; categorical, ordinal, and quantitative data; confidence intervals; rank and chi-square hypothesis tests; computer-intensive procedures (bootstrap, exact tests).

Prerequisites: 211; or 141 or 143 with instructor's permission.

Credits: 3.

STAT 241 - Statistical Inference

(Same as Biostatistics 241.) Introduction to statistical theory: related probability fundamentals, derivation of statistical principles, and methodology for parameter estimation and hypothesis testing. Prerequisites: 151 or 251; 141 or equivalent; Math. 121.

Credits: 3.

STAT 251 - Probability Theory

(Same as Math. 207.) Distributions of random variables and functions of random variables. Expectations, stochastic independence, sampling and limiting distributions (central limit theorems). Concepts of random number generation.

Prerequisite: Math. 121, Statistics 151 recommended.

Credits: 3.

STAT 252 - Appl Models

Markov chain models for biological, social, and behavioral systems models.

Random walks, transition and steady-state probabilities, passage and recurrence times. Prerequisite: 151 or 251.

Credits: 1-2.

STAT 253 - Appl Time Series & Forecasting

(Same as Biostatistics 253.) Autoregressive moving average (Box-Jenkins) models, autocorrelation, partial correlation, differencing for nonstationarity, computer modeling. Forecasting, seasonal or cyclic variation, transfer function and intervention analysis, spectral analysis. Prerequisite: 211 or 225; or 141 or 143 with instructor's permission.

Credits: 3.

STAT 256 - Neural Computation

(See Computer Science 256.)

Credits: 3.

STAT 261 - Statistical Theory I

(Same as Biostatistics 261, 262.) Point and interval estimation, hypothesis testing, and decision theory. Application of general statistical principles to areas such as nonparametric tests, sequential analysis, and linear models. Prerequisites: For 261: 151 with instructor permission or 251; for 262: 241 with instructor permission or 261.

Credits: 3.

STAT 262 - Statistical Theory II

(Same as Biostatistics 261, 262.) Point and interval estimation, hypothesis testing, and decision theory. Application of general statistical principles to areas such as nonparametric tests, sequential analysis, and linear models. Prerequisites: For 261: 151 with instructor permission or 251; for 262: 241 with instructor permission or 261.

Credits: 3.

STAT 265 - Integrated Product Development

(Same as Business Administration 293.)

Credits: 3.

- STAT 270 - Stochastic Thry in Elec Eng
(See Electrical Engineering 270.)
Credits: 3.
- STAT 271 - Least Squares Est & Filtering
(See Electrical Engineering 271.)
Credits: 3.
- STAT 281 - Statistics Practicum
Intensive experience in carrying out a complete statistical analysis for a research project in substantive area with close consultation with a project investigator.
Prerequisites: Any one of 200, 201, 221 through 237; or 253; some statistical software experience. No credit for graduate students in Statistics or Biostatistics.
Credits: 1-4.
- STAT 293 - Undergrad Honors Thesis
Contact Statistics Program Director for procedures. A program of reading, research, design, and analysis culminating in a written thesis and oral defense. Honors notation appears on transcript and Commencement Program.
Credits: 1-8.
- STAT 294 - Undergrad Honors Thesis
A program of reading, research, design, and analysis culminating in a written thesis and oral defense. Honors notation appears on transcript and Commencement Program. Contact Statistics Program Director for procedures.
Credits: 1-8.
- STAT 295 - Special Topics
For advanced students. Lectures, reports, and directed readings on advanced topics. Prerequisite: As listed in course schedule.
Credits: 1-4.
- STAT 308 - Applied Biostatistics
Intensive introduction to the rationale for and application of biostatistical methods in planning experiments and interpreting data in the biological, health and life sciences. Cross-listings: Molecular Physiology and Biophysics 308, Biostatistics 308.
Credits: 5.
- STAT 313 - Stat Analysis for Management
See BSAD 313.
Credits: 3.
- STAT 321 - Seminar in Advanced Statistics
Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Corequisites: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.
Credits: 1.
- STAT 323 - Seminar in Advanced Statistics
Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Co-requisites: STAT 221 for STAT 321; STAT

223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.

STAT 324 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Co-requisites: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.

STAT 325 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Co-requisites: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.

STAT 329 - Seminar in Advanced Statistics

Seminar presentations and discussions of statistical literature pertaining to the theoretical aspects of methods studied in STAT 221, STAT 223, STAT 224, STAT 225, and STAT 229, respectively. Co-requisite: STAT 221 for STAT 321; STAT 223 for STAT 323; STAT 224 for STAT 324; STAT 225 or STAT 221 for STAT 325, STAT 229 for STAT 329. STAT 241 or STAT 261 recommended.

Credits: 1.

STAT 380 - Sem:Statistics & Biostatistics

and guest speakers. Prerequisite: Instructor Permission. Presentation and discussion of current topics, methodological research and applications in Statistics and Biostatistics by graduate students, faculty

Credits: .5-1.

STAT 381 - Statistical Research

Methodologic or data analytic research culminating in oral and written reports to the faculty. Prerequisite: Instructor Permission. Cross-listed with: BIOS 381.

Credits: 1-3.

STAT 385 - Consulting Practicum

Statistics Program Director.

Credits: 1-3.

STAT 391 - Master's Thesis Research

Credits: 1-6.

STAT 395 - Advanced Special Topics

with: BIOS 395. Lectures or directed readings on advanced and contemporary topics not presently included in other statistics courses. Prerequisites: As listed in course schedule. Cross-listed

Credits: 1-3.

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Mathematics and Statistics Basic Curriculum (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Mathematics and Statistics](#)

Concentrations: [Mathematics](#), [Statistics](#)

Mathematics: Math. 21, 22, 121, 52, 124, 241, 251, and CS 21.

Statistics: Math. 21, 22, 121, 124; CS 21; and one of Stat. 141, 143 or 211, 151 or 251, 201, 221 or 227, 241 or 261, and 281 or 293.

Applied and Interdisciplinary Mathematics: Math. 21, 22, 121; CS 21; Math. 124, 230, and 237.

In addition to the Basic Curriculum above, candidates for the degree of Bachelor of Science in Mathematics must complete the following requirements A, B, C, and D.

A. Major Courses

Mathematics: A minimum of 21 additional hours in Mathematics, Statistics, or Computer Science courses numbered 100 or above. At least 12 hours must be in courses numbered 200 or above and no more than 12 hours may be chosen from Computer Science.

Statistics: An additional six credit hours of Statistics, so that the total credits earned in Statistics is at least 24 hours. A minimum of two additional hours in Mathematics, Statistics, or Computer Science courses numbered 100 or above, so that a total of at least 45 credits in the basic and major courses is earned. A total of 18 credit hours in the combined basic curriculum and majors courses must be taken at the 200 level and no more than 12 hours can be taken in Computer Science.

Applied and Interdisciplinary Mathematics: A minimum of 18 additional hours in Mathematics, Statistics, or Computer Science courses numbered 100 or above. Of these 18 hours, 6 must be in Mathematics or Statistics, and must be numbered 200 or above.

B. Allied Field Courses

Twenty-four hours selected from the following Allied Fields:

1. Physical Sciences
2. Biological Sciences
3. Medical Sciences
4. Engineering
5. Computer Science (26 or higher)
6. Agricultural Sciences
7. Business Administration
8. Psychology
9. Economics

Each student in consultation with his or her advisor must plan a sequence of Allied Field courses consistent with his or her professional and personal goals. A student interested in pursuing intensive studies in an area not specifically listed is encouraged to plan a program with his or her advisor and submit it to the appropriate departmental committee for review and approval. The requirements are as follows:

Mathematics: Twenty-four hours selected from the above list of Allied Fields. Of these 24 hours, at least six must be in courses numbered 100 or above, and at least six must be taken in fields (1) to (5). Courses used to satisfy requirement A above may not be used to satisfy this requirement.

Statistics: Twenty-four hours selected from the above list of Allied Fields, including at least one laboratory experience in science or engineering. Of these 24 hours, at least six must be in courses numbered 100 or above and at least six must be taken in fields (1) to (5). Courses used to satisfy requirement A above may not be used to satisfy this requirement.

Applied and Interdisciplinary Mathematics: At least seven courses with a concentrated focus in an allied field. The major courses in requirement A and the Allied Field courses in requirement B must form a coherent program that has the written approval of the student's faculty advisor in the Mathematics and Statistics Department. When appropriate, and with the written approval of the advisor, at most three courses can overlap requirements A and B.

C. **Humanities and Social Science Courses**

(Courses used to satisfy requirement B above may not be used to satisfy this requirement.)

English 1, and 21 hours of courses selected from categories I, II, and III listed below. These 21 hours must be distributed over at least two categories, and at least six hours must be taken in each of the two categories chosen. Statistics majors must include Speech 11.

- I. Language and Literature
 - Chinese
 - Classics
 - English
 - French
 - General Literature
 - German

- Greek
- Hebrew
- Italian
- Linguistics
- Russian
- Spanish

II. Fine Arts, Philosophy, and Religion

- Art
- Film
- Music
- Philosophy
- Religion
- Speech
- Theatre

III. Social Sciences

- Anthropology
- Communication Sciences
- Economics
- Geography
- History
- Political Science
- Psychology
- Sociology

D. **Total Hours**

A minimum of 120 semester hours is required, plus two hours in physical education activities. First-year students must include the one-hour Race and Culture course, Allied Health 95, or a course approved by the College of Arts and Sciences as meeting the "Race Relations and Ethnic Diversity in the United States" requirement.

E. **Grades**

No more than three grades of D, D+, or D- in the 200/300 level Mathematics and Statistics courses used to satisfy the "Core Curriculum" and "Major Courses" requirements will be acceptable.

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Mathematics: Applied and Interdisciplinary Mathematics Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Mathematics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

This concentration combines a major in applied mathematics with an approved minor that emphasizes the application of mathematics. Such minors include various disciplines in the physical, life, and earth sciences, the social sciences, and business. A student may expand the approved minor to form a double major with mathematics. The requirements for this option are: (a) Math. 21, 22, 121, CS 21, Math. 124, 230, and 237; (b) at least nine additional hours in mathematics, statistics, or computer science courses number 100 or above, at least three of which must be in mathematics or statistics, at least six of which must be numbered 200 or above; (c) an approved minor. Parts (b) and (c) must form a coherent program that has the written approval of the student's faculty advisor in the Mathematics and Statistics Department.

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Mathematics (B. A.)

College: [Arts and Sciences](#)

Department(s): [Mathematics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Math. 21, 22, 121, 52, and 124, plus 18 additional credits in Math./Statistics courses at 100 level or above, with at least 12 hours numbered 200 or higher.

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Mathematics: Statistics Concentration (B. A.)

College: [Arts and Sciences](#)

Department(s): [Mathematics](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Computer Science 21. Thirty-three hours of Mathematics/Statistics courses numbered 21 or higher, including Math. 121 and 124, and Statistics 141 or 143 or 211, 151 or 251, 201, 221 or 227, 241 or 261, and 281 or 293. At least 12 hours must be at the 200 level or higher.

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Mathematics (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Mathematics and Statistics](#)

Overview

The mathematics curriculum is quite flexible. It is designed to provide a sound basic training in mathematics that allows a student to experience the broad sweep of mathematical ideas and techniques, to utilize the computer in mathematics, and to develop an area of special interest in the mathematical sciences.

In addition to the Bachelor of Science degree described here, the Department of Mathematics and Statistics also offers a Bachelor of Arts degree in the College of Arts and Sciences. A faculty advisor from Mathematics will assist students in determining which degree program best suits their individual needs and plans. Some of the career plans for which a well-designed major in mathematics can provide ideal preparation are highlighted below.

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Mathematics and Statistics](#)

Recommendations for Major Courses

In consultation with their advisor, students should choose an area of interest within the mathematics major and plan a coherent program that addresses their interests in mathematics and its applications. This area might be one of those listed below, or it might be another area suggested by the student. As a guide, students interested in one of the areas would typically take at least three courses in that area, including all of the courses marked with an asterisk (*). In addition, students should take courses from at least two other areas. Because of its centrality in mathematics, students should make sure that they take at least one course listed under Classical Mathematics. In following these recommendations, a course listed in more than one area is meant to be counted

only once.

1. **Classical Mathematics**

Classical mathematics encompasses those areas having their roots in the great traditions of mathematical thought, such as geometry and topology, mathematical analysis, algebra and number theory, and discrete mathematics. Courses in this area include the following: Math. 141, 151, 173, 236, 240, 241*, 242, 251*, 252, 255, 257, 260, 264, 273, 331, 353.

2. **Applied Mathematics**

Applied Mathematics involves the use of mathematical methods to investigate problems originating in the physical, biological, and social sciences, and engineering. Mathematical modeling, coupled with the development of mathematical and computational solution techniques, illuminates mechanisms which govern the problem and allows predictions to be made about the actual physical situation. Current research interests of the faculty include biomedical mathematics, fluid mechanics and hydrodynamic stability, asymptotics, and singular perturbation theory. Courses in this area include the following: Math. 230*, 236, 237*, 238, 240, 272, 273, 274.

3. **Computational Mathematics**

Computational mathematics involves both the development of new computational techniques and the innovative modification and application of existing computational strategies to new contexts where they have not been previously employed. Intensive computation is central to the solution of many problems in areas such as applied mathematics, number theory, engineering, and the physical, biological and natural sciences. Computational mathematics is often interdisciplinary in nature, with algorithm development and implementation forming a bridge between underlying mathematical results and solution of the physical problem of interest. Courses in this area include the following: Math. 173, 230, 237*, 238, 274, Statistics 201.

4. **Theory of Computing**

The mathematical theory of computing deals with the mathematical underpinnings allowing effective use of the computer as a tool in problem solving. Aspects of the theory of computing include: designing parallel computing strategies (graph theory), analyzing strengths and effectiveness of competing algorithms (analysis of algorithms), examining conditions which ensure that a problem can be solved by computational means (automata theory and computability), and rigorous analysis of run times (complexity theory). Courses in this area include the following: Math. 173, 223, 224*, 243, 273, 325, Computer Science 346, 353.

5. **Mathematics of Management**

Mathematics of Management involves the quantitative description and study of problems particularly concerned with the making of decisions in an organization.

Problems are usually encountered in business, government, service industries, etc., and typically involve the allocation of resources, inventory control, product transportation, traffic control, assignment of personnel, and investment diversification. Courses in this area include the following: Math. 173, 221*, 222, 230, 236, 273, Statistics 141 or 211, Statistics 151 or Math. 207, Statistics 224, 241, 253.

6. **Actuarial Mathematics**

Actuaries use quantitative skills to address a variety of problems within business environments, and especially within the life insurance industry. Two professional organizations sponsor qualifying examinations and grant recognition to actuaries in the U.S. and Canada. A unique feature of the actuarial profession is that formal training is typically completed after graduation "on-the-job." Students planning an actuarial career can prepare for and complete some actuarial examinations prior to graduation. Several departmental courses serve as preparation for the examinations: Math. 21, 22, 121, and 124 for the first examination; Statistics 141 or 211, {Statistics 151 or Math. 207}* , and {Statistics 241 or 261}* for the second examination; Statistics 221 or 231, 225, and 253 for the third examination; Math. 221, 222, and Statistics 252b for the fourth examination: and Math. 237 for the fifth examination.

7. **Probability and Statistical Theory**

Probabilistic reasoning is often a critical component of practical mathematical analysis or risk analysis and can usefully extend classical deterministic analysis to provide stochastic models. It also provides a basis for statistical theory, which is concerned with how inference can be drawn from real data in any of the social or physical sciences. Courses in this area include the following: Math. 222, 241, 242, (Statistics 151 or Math. 207)*, Statistics 241*, 252a, 252b, 261, 262, 270.

Recommendations for Allied Field Courses

Students who select the Applied and Interdisciplinary Mathematics option are required to consult with their advisor in setting up their concentration in an Allied Field, as described under requirements B. Students who select the General Mathematics option should also discuss Allied Field courses with their advisor and choose ones which complement their mathematical interests. Students with certain mathematical interests are advised to emphasize an appropriate Allied Field as indicated below and take at least six hours in courses numbered 100 or above in that field.

Applied Mathematics:

See Allied Fields under Mathematics and Statistics degree requirements.

Computational Mathematics:

Allied Field (4) or (5).

Mathematics of Management:

Allied Field (7). Students interested in Mathematics of Management are advised to include Economics 11 and 12 in their choice of Humanities and Social Sciences courses, and to include Business Administration 60 and 61 in their choice of Allied Field courses. Those wishing to minor in Business Administration should contact the School of Business Administration and also take Business Administration 173 and two other courses chosen from Business Administration 168, 170, 174, 177, 178, and 272.

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Mathematics: Statistics Major (B. S.)

 College: [Engineering and Mathematics](#)

 Department(s): [Mathematics and Statistics](#)

Overview

Students receiving the B. S. in Mathematics may elect Statistics as their major. In addition, students receiving a B. A. degree in Arts and Sciences may concentrate in Statistics as a part of their Mathematics major. Statistics is a mathematical science extensively used in a wide variety of fields. Indeed, every discipline which gathers and interprets data uses statistical concepts and procedures to understand the information implicit in their data base. Statisticians become involved in efforts to solve real world problems by designing surveys and experimental plans, constructing and interpreting descriptive statistics, developing and applying statistical inference procedures, and developing and investigating stochastic models or computer simulations. To investigate new statistical procedures requires a knowledge of mathematics and computing as well as statistical theory. To apply concepts and procedures effectively also calls for an understanding of the field of application.

The curriculum is designed for students who plan to enter business, industry, or government as statisticians; to become professional actuaries; or to continue on to graduate school in statistics/biostatistics or another field where a quantitative ability can prove valuable (business, operations research, medicine, public health, demography, psychology, etc.). The courses and curricula are administered through the Statistics Program Steering Committee which includes faculty from Statistics, College of Medicine Biometry Facility, Natural Resources, and the Agricultural Experiment Station. Students are encouraged to undertake special projects to gain experience in data analysis, design, and statistical computing. Also, experience can be gained with local industry and other organizations for those interested in quality control, industrial statistics, survey and market research or forecasting, for example.

Statistics majors may also minor in Mathematics by completing MATH 21, 22, 52 or 121, and 9 more credits in mathematics at the 100+ level. Since Statistics majors normally take MATH 21, 22, 121 and 124, they just need two more mathematics courses at the 100+ level.

Students earning the B. S. in Mathematics may earn a double major in Mathematics and Statistics by meeting the requirements of the Statistics major and earning an additional 18 credits in Mathematics, to include one of Math. 141, 241, 151 or 251.

Further details on the Statistics major and minor curricula may be obtained from the Director of the Statistics Program. The Handbook for Mathematics and Statistics majors, available from the Mathematics and Statistics department office, also provides a wealth of useful information.

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Mathematics and Statistics](#)

Specific Requirements

Premedical Concentration in Statistics

Each student electing the Premedical Concentration in Statistics will fulfill the general requirements for the Statistics major. Statistics 200 is recommended as an important elective for students interested in medicine or allied health. In addition, the premedical concentration should include as a minimum two years of chemistry with laboratory (Chemistry 31, 32, or 35, 36, 37, 38, and 141, 142), at least one year of physics with laboratory (Physics 21, 31, 22, 42 or 21, 31, 125), and at least one year of biology with laboratory (Biology 1, 2). Exposure to medical research problems will be provided through supervised experiences in the College of Medicine Biometry Facility.

Concentration in Quality

Students interested in methods of quality control and quality improvement are encouraged to develop a concentration in quality. Statistics 224: Statistics in Quality and Productivity is regularly offered. Related courses to consider include Business Administration 178 and others in the Production and Operations Management and Quantitative Methods area of Business Administration. Project experience in industrial quality control or in health care quality can be gained in Statistics 191 and 281, or 293-294.

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Minor in Applied Mathematics

College: [Arts and Sciences](#), [Engineering and Mathematics](#)

Department(s): [Mathematics and Statistics](#)

Requirements

Fifteen hours of mathematics courses numbered 52 or higher, including one of 230, 237, or 271.

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Minor in Pure Mathematics

College: [Arts and Sciences](#), [Engineering and Mathematics](#)

Department(s): [Mathematics and Statistics](#)

Requirements

Math 21 (or equivalent), 22, 52 or 121, and nine additional credits in Mathematics courses numbered 100 or above. Computer Science or Computer Engineering majors may substitute Math 54 for 52. The course plan for a mathematics minor must be approved by a mathematics faculty advisor.

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Minor in Statistics

College: [Engineering and Mathematics, Arts and Sciences](#)

Department(s): [Mathematics and Statistics](#)

Requirements

A Statistics Minor consists of 15 credits of statistics (STAT) courses, acquiring calculus knowledge equivalent to MATH 19 or 21, and gaining computer experience equivalent to STAT 201 or a computer programming course (CS 16 or higher or MATH 52). Not more than seven credits of introductory Statistics 11/51/111/140/141/143/211 may be counted. The course plan for the Statistics Minor must be approved by a Statistics faculty advisor. See more complete guidelines at <http://www.emba.uvm.edu/math/programs/statminor/> ↻.

Note that Mathematics majors can minor in Statistics as well. In Arts and Sciences you must earn 12 of your 15 credits in statistics beyond any statistics courses counted in your major courses. In Engineering and Mathematics you must earn 15 credits in statistics beyond any statistics courses counted in your major courses.

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Departments and Programs

Mechanical Engineering Department

Colleges: [Engineering and Mathematics](#), [Graduate College](#)

Faculty: Mechanical Engineering

Courses: [Mechanical Engineering \(ME\)](#)

Contact Information:

*University of Vermont
Mechanical Engineering Department
201 Votey Building
33 Colchester Ave.
Burlington, VT 05405*

Phone: (802) 656-3320

Fax: (802) 656-1929

Email: [unavailable]

Web Site: <http://www.emba.uvm.edu/me/>

- [Mechanical Engineering Basic Curriculum \(B. S.\)](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - [Mechanical Engineering](#)
 - [Biomedical Concentration](#)
 - [General Concentration](#)
 - [Premedical Concentration](#)

Overview

Mechanical engineering spans the broadest spectrum of engineering activities from concept and design, through manufacturing and maintenance of all kinds of products and systems. Nearly all objects created by humans have some mechanical engineering input, from a simple spoon to a streamlined skateboard to an elegant spacecraft.

Please view our mission statement and objectives at:

<http://www.emba.uvm.edu/me/mission.phtml>

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Courses in Mechanical Engineering

ME 012 - Dynamics

Kinematics and kinetics of particles and rigid bodies in two and three dimensions. Computer-aided analysis. Prerequisite: CE 001, MATH 121.
Credits: 3.

ME 014 - Mechanics of Solids

Cross-listed with: CE 100.
Credits: 3.

ME 040 - Thermodynamics

Principles of engineering thermodynamics; applications of these principles to thermodynamic cycles. Credit not allowed for both 40 and 41. Prerequisite: Math 22, Physics 31 with 21.
Credits: 3.

ME 042 - Engineering Thermodynamics

Properties and processes of fluids; perfect gases, and approximate relationships for real gases; applications of thermodynamics, principles of combustion, mixtures, power cycles, gas compression, and refrigeration. Prerequisite: 40.
Credits: 3.

ME 044 - Heat Transfer

Introductory treatment of heat transfer by conduction, convection, and radiation. Co-requisite: ME 040.
Credits: 1.

ME 082 - Mech Engineering Lab I

Computer methods in mechanical engineering. Introduction to scientific programming; solids modeling and stress
Credits: 3.

ME 095 - Special Topics

One to three hours with instructor's approval.
Credits: 0-3.

ME 101 - Engineering Materials I

Atomic structure, crystalline structure, mechanical properties of metals; testing of materials, multicomponent systems, phase equilibria, processing metals, polymers, composite materials, ceramics and glass corrosion. Prerequisite: 14.

Credits: 3.

ME 111 - System Dynamics

Modeling of systems with mechanical, electrical, fluid, and thermal elements. Linear systems analysis. Response of vibratory and feedback systems. Computer simulation. Prerequisite: 12.

Credits: 3.

ME 114 - Intro Engineering Mechanics

Introduction to statics, dynamics, fluid mechanics, strength of materials, thermodynamics. Prerequisite: Junior standing in engineering or physical sciences.

Credits: 3.

ME 123 - Mechanical Engineering Lab II

Engineering measurements, data analysis and theory of experimentation. Experiments with fluids and material testing machines and instrumentation for dynamic measurements. Corequisite: 143.

Credits: 2.

ME 124 - Mechanical Engineering Lab III

Engineering measurements, data analysis and theory of experimentation. Experiments with fluids and material testing machines and instrumentation for dynamic measurements. Corequisite: 143.

Credits: 2.

ME 143 - Fluid Mechanics

Fluid pressure distributions; integral control volume systems; differential relations for a fluid particle; dimensional similarity; viscous flow in ducts; boundary layer flows; inviscid incompressible flows. Prerequisites: 12, 42.

Credits: 3.

ME 144 - Heat Transfer

One- and two-dimensional steady and unsteady thermal conduction; natural and forced internal and external convection; thermal radiation; heat exchangers; boiling and condensation heat transfer. Prerequisite: ME 143.

Credits: 3.

ME 150 - The Engineering Profession

Professional practice of engineering. Laws, ethics, engineering economy, liability, insurance, and contracts. Prerequisite: Senior standing or Instructor permission.

Credits: 3.

ME 161 - Manufacturing Engineering I

Mechanical and thermal processing of metallic and nonmetallic materials; casting, forming, cutting, grinding, joining, high energy forming, EDM, ECM, Laser, and ultrasonic. Prerequisite: Senior ME standing.

Credits: 3.

ME 162 - Manufacturing Engineering II

Machine tools engineering, flexible manufacturing systems, robotics in manufacturing, automatic factory, computer-aided manufacturing.

Credits: 3.

ME 170 - Mechanical Design I

Advanced mechanics of materials, stress strain, bending and torsion of slender

members, energy methods, finite element modeling, and CAD topics including parametric and solid modeling. Prerequisite: ME 101.

Credits: 4.

ME 171 - Design of Elements

Mechanical fatigue criteria, fatigue analysis and design of springs, bolted/welded joints, gearing, shafts, bearings, power transmission. Computer-aided design and analysis. Prerequisite: Junior standing; ME 014.

Credits: 3.

ME 172 - Design of Systems

Design synthesis and optimization; probabilistic aspects in design; expert systems in design. Prerequisite: ME 171.

Credits: 3.

ME 174 - Industrial Design Project

Design projects from industry. Prerequisite: ME 171.

Credits: 1.

ME 183 - Mechanical Engineering Lab IV

of a specified product. Prerequisite: Senior standing Advanced engineering experimentation, data collection and reduction techniques applied to areas of mechanical engineering; projects involving "design for manufacturing" in Mechanical Engineering.

Credits: 3.

ME 185 - Senior Project

An individual engineering study designed to particular interest of the student, utilizing and synthesizing the student's total mechanical engineering educational experience. Prerequisite: Senior standing.

Credits: 1 or 2.

ME 186 - Senior Project

An individual engineering study designed to particular interest of the student, utilizing and synthesizing the student's total mechanical engineering educational experience. Prerequisite: Senior standing.

Credits: 1 or 2.

ME 191 - Senior Thesis

Investigation of a research or design project under supervision of assigned staff member culminating in acceptable thesis. Prerequisite: Senior standing; department permission.

Credits: 3.

ME 193 - College Honors

Credits: 1-3.

ME 194 - College Honors

Credits: 1-6.

ME 195 - Special Topics

Prerequisite: Senior standing in Civil or Mechanical Engineering.

Credits: 1-3.

ME 203 - Machinery Analysis & Synthesis

Kinematic and kinetic analysis of two- and three-dimensional machines; kinematic synthesis, electromechanical and servo mechanisms; application to robotic

mechanisms. Prerequisite: Senior standing in ME.

Credits: 3.

ME 207 - Biomechanics I

Introduction to the structure and mechanics of the musculoskeletal system. Application of mechanics to bone, tendon, ligaments, and other biological materials. Prerequisite: Senior or graduate standing in ME, or instructor permission.

Credits: 3.

ME 208 - Biomechanics II

Introduction to biomaterials and the mechanical behavior of bioviscoelastic fluids or solids. Prerequisite: 207 or instructor permission.

Credits: 3.

ME 209 - Biofluid Dynamics

Fluid dynamics of human physiology. Circulatory and respiratory mechanics, steady and unsteady laminar flow, pulse wave reflections, curved and collapsible tube flow, turbulence. Prerequisite: 143 or equivalent.

Credits: 3.

ME 234 - Mechanical Vibrations

Analysis, measurement, and control of mechanical vibrations; SDOF, MDOF, and rotating systems, forced, free, and random vibrations. Prerequisite: ME 111 or Senior/ Graduate standing in engineering or physical sciences.

Credits: 3.

ME 235 - Turbomach Vibration Anyl/Tstng

Vibration in rotating machines; vibration measurement techniques; machinery condition and degradation; condition monitoring and predictive maintenance; industrial vibration techniques including proximity probes, accelerometers, FFT analyzer. Prerequisite: ME 244.

Credits: 2.

ME 241 - Combustion Processes

Combustion thermodynamics; chemical kinetics; laminar flames, premixed and diffusion; turbulent flames; ignition, explosion, and detonation; droplet combustion; flame spread; large scale fires; rocket combustion. Prerequisite: Senior/Graduate standing.

Credits: 3.

ME 242 - Adv Engr Thermodynamics I

Foundations of statistical mechanics. Gases and crystals. Chemical equilibrium. Irreversible processes. Prerequisite: Senior/Graduate standing or permission.

Credits: 3.

ME 243 - Inviscid Flow

Eulerian and Lagrangian descriptions of motion. Potential flow. Thin-airfoil theory and numerical methods. Linear wave theory. Flow stability. Linearized subsonic and supersonic flow. Prerequisite: 143.

Credits: 3.

ME 244 - Intro to Turbomachinery Anyl

Fundamental turbomachinery principles of fluid mechanics, thermodynamics, and structural analysis; basic equations and computational techniques for analysis and

design to model and evaluate turbomachinery. Prerequisite: ME 243, MATH 271.
Credits: 2.

ME 245 - Advanced Heat Transfer I

Transient heat conduction; integral methods; convection; formulation and solution; boiling, condensation; radiant heat exchange in enclosures and with emitting-absorbing gases, advanced view factors. Prerequisite: Senior standing in ME or instructor's permission.

Credits: 3.

ME 246 - Centrifugal Compressors

Fluid dynamic and thermodynamic principles of centrifugal compressor design and design practice; limits of stable operation and instability prediction and control.

Prerequisite: ME 244.

Credits: 2.

ME 247 - Centrifugal Pumps

Centrifugal pump design principles and practice; performance limits; cavitation; design tools and pump design optimization. Prerequisite: ME 244.

Credits: 2.

ME 248 - Turbomachinery Special Topics

Content in axial fans/compressors; axial, radial, or steam turbines; CFD, dynamics/rotordynamics, or materials for turbo-machinery; power plant or refrigeration cycle developments; turbocharged and compound IC-engines.

Prerequisite: ME 244.

Credits: 1 or 2.

ME 249 - Computational Fluids Engr

Computational methods for solving the Navier-Stokes equations and combined thermo-fluid flows; finite-differences and finite-volume techniques; use of standard commercial CFD software. Prerequisites:

Credits: 3.

ME 252 - Mechanical Behavior Materials

Elastic and plastic behavior of single crystals; dislocations; approximate plastic analysis; anisotropic materials; hardness; fractures; fatigue; damping; creep and surface phenomena. Prerequisite: 101, permission. Credit given for 252 or 272, not both.

Credits: 3.

ME 253 - Corrosion of Materials

Corrosion principles: electrochemical, environmental, and metallurgical aspects. Corrosion testing. Corrosion prevention. Seawater corrosion. Biological corrosion. Material selection. Prerequisite: 101. Credit given for 253 or 273, not both.

Credits: 3.

ME 255 - Adv Engineering Materials

Phase diagrams. Thermodynamics of crystals, alloys. Defects. Phase transformations. Heat treatment of steels. Prerequisites: Senior or graduate standing, or instructor's permission.

Credits: 3.

ME 257 - Composite Materials

Fibers, matrices. Unidirectional and short fiber composites. Experimental

characterization. Prerequisite: 101. Credit given for 257 or 277, not both.

Credits: 3.

ME 265 - Integrated Product Developmnt

(See Business Administration 293.) Prerequisite: Senior standing.

Credits: 3.

ME 270 - Structural Dynamics

Vibrations, matrices, earthquake engineering, stability and wave propagation.

Prerequisites: Senior or graduate standing in engineering or physical sciences, or instructor permission. Cross-listed with CE 272.

Credits: 3.

ME 281 - Seminar

Presentation and discussion of advanced mechanical engineering problems and current developments. Prerequisite: Senior/Graduate engineering enrollment.

Credits: 1.

ME 282 - Seminar

Presentation and discussion of advanced mechanical engineering problems and current developments. Prerequisite: Senior/Graduate engineering enrollment.

Credits: 1.

ME 283 - Lab Techniques Turbomach Dev

Instruments and transducers for performance, flow, and structural measurements in turbo-machinery; the role of test data in design and development; experimental data acquisition and processing. Prerequisite: ME 244.

Credits: 2.

ME 285 - Biomedical Engineering Seminar

Presentation and discussion of advanced biomedical engineering problems and current research developments. Prerequisite: Senior/Graduate engineering enrollment.

Credits: 1.

ME 295 - Special Topics

Prerequisite: Senior/Graduate standing.

Credits: 1-3.

ME 301 - Intro Biomedical Engineering

Introduction to basic biomedical engineering science; biomedical computing and pattern recognition, biomedical instrumentation and signal analysis, biomechanics, biomaterials, rehabilitation engineering, physiological transport phenomena, intelligent systems.

Credits: 3.

ME 304 - Adv Engineering Analysis I

Problems in analysis in engineering, including ordinary and partial differential equations, special functions, matrices, tensor analysis, variational calculus, complex variables, perturbation methods. Prerequisites: Math. 271 or Math. 230; ME 304 for ME 305. Cross-listings: CE 304, 305; Math 275, 276.

Credits: 3.

ME 305 - Adv Engineering Analysis II

Problems in analysis in engineering, including ordinary and partial differential equations, special functions, matrices, tensor analysis, variational calculus,

complex variables, perturbation methods. Prerequisites: Math. 271 or Math. 230; ME 304 for ME 305. Cross-listings: CE 304, 305; Math 275, 276.

Credits: 3.

ME 320 - Special Problems in Elasticity

Advanced topics in the theory of elasticity in which there is a particular student and staff interest.

Credits: 3.

ME 321 - Special Problems in Fluid Mech

Advanced topics in fluid mechanics in which there is a particular student and staff interest.

Credits: 3.

ME 322 - Special Problems in Dynamics

Advanced topics in dynamics in which there is a particular student and staff interest.

Credits: 3.

ME 323 - Special Prob in Thermodynamics

Advanced topics in thermodynamics in which there is a particular student and staff interest.

Credits: 3.

ME 324 - Spec Problems in Heat Transfer

Advanced topics in heat transfer in which there is a particular student and staff interest.

Credits: 3.

ME 325 - Special Problems in Materials

Advanced topics in behavior of materials in which there is a particular student and staff interest.

Credits: 3.

ME 330 - Matrix Meth in Struct Dynamics

Matrices, eigenvalue problems, forced vibration, wave propagation.

Credits: 3.

ME 332 - Engineering Elasticity

Tensors, complex variables, variational methods.

Credits: 3.

ME 333 - Stress Analysis

Theory and experimental method of measuring static and dynamic stress and strain.

Credits: 3.

ME 336 - Continuum Mechanics

Tensors, conservation laws, field equations for solids and fluids.

Credits: 3.

ME 338 - Advanced Dynamics

Application of Lagrange's equation, Hamilton's principle to mechanical systems. Systems with constraints. Matrix formulation of problems in kinematics, dynamics. Stability of linear, nonlinear systems.

Credits: 3.

ME 342 - Advanced Combustion

or equivalent.

Credits: 3.

ME 343 - Advanced Fluid Dynamics

Stress in continuum; kinematics, dynamics; potential fields; Wing theory; Navier-Stokes equation; hydrodynamic stability; turbulence; laminar, turbulent boundary layer theory; transient flows; free laminar, turbulent flows; mixing.

Credits: 3.

ME 344 - Adv Eng Thermodynamics II

Microscopic thermodynamics; Maxwell-Boltzmann, Bose-Einstein, Fermi-Dirac statistics; kinetic theory of gases; transport properties, compressed gases, liquids, solid states; chemical systems; irreversible processes; fluctuations.

Credits: 3.

ME 345 - Advanced Heat Transfer II

Generalized equation of heat conduction; classical integral transforms, approximate solutions; thermal boundary layers; forced and free convection; condensation, boiling, ablative cooling; radiation, statistical theory; mass transfer.

Credits: 3.

ME 346 - Advanced Gas Dynamics

Compressible flow in ducts; friction, heat transfer; shock waves; small perturbation theory; high speed flows; transonic, supersonic, hypersonic flows; methods of characteristics. Aerodynamic heating; rarified gas flows.

Credits: 3.

ME 371 - Adv Engr Des Anyl&Synthesis I

Application of fundamental concepts, principles of advanced mathematics, physics, mechanics, electricity, thermodynamics, fluid dynamics, heat transfer, and decision-making processes to design, analysis, synthesis of complex engineering systems.

Credits: 4.

ME 372 - Systems Engineering

Instructor permission.

Credits: 3.

ME 373 - Integr Mechanism Design Anyl

ME 371 or Instructor permission. Application of system analysis, rigid body dynamics, finite elements, fatigue analysis and structural dynamics to an integrated approach to mechanisms design. Prerequisites:

Credits: 3.

ME 391 - Master's Thesis Research

Credits: 1-18.

ME 395 - Advanced Special Topics

Advanced topics in recently developed technical areas. Prerequisites: three hours with Instructor permission.

Credits: 1-3.

ME 491 - Doctoral Dissertation Research

Credits: 0-18.

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Mechanical Engineering Undergraduate Requirements

Colleges: [Engineering and Mathematics](#)

Department(s): [Mechanical Engineering](#)

Concentrations: [Biomedical Concentration](#), [General Concentration](#), [Premedical Concentration](#)

The curriculum in Mechanical Engineering leading to a degree of Bachelor of Science in Mechanical Engineering offers instruction in design, solid and fluid mechanics, materials, manufacturing processes and systems, as well as in engineering, life and physical sciences, humanities, and social sciences.

There are three options leading to the degree of Bachelor of Science in Mechanical Engineering: (1) General Mechanical Engineering (127 semester hours); (2) Biomedical Engineering (126 semester hours); (3) Premedical Engineering (137 semester hours). In addition, all options require two credits of physical education activities.

Engineering design is developed and integrated in each student's program and culminates in a required major design experience which draws upon prior course work and which focuses on the issues and expectations of professional practice.

No more than three grades of D, D+, or D- will be acceptable in all required courses in engineering, basic science, and computer science including all technical electives as stated in the Catalogue for the junior and senior years.

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Mechanical Engineering: Biomedical Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Mechanical Engineering](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Mechanical Engineering](#)

Possible Curriculum

	First Year	
	Fall	Spring
ENG 1, Written Expression	3	
ENGR 2, Graphical Communication	2	
CHEM 31, Introductory Chemistry	4	
HSS Electives ¹	3	3
MATH 21 & 22, Calculus I & II	4	4
PEAC	1	1
ME 1, Design Exp		2
PHYS 31/21, Introductory Physics		5
Total	17	15

	Sophomore Year	
	Fall	Spring
CE 1, Statics		3
Math 121, Calculus III		4
HSS Elective ¹		3
PHYS 42/22, Electromagnetism & Modern Physics		5
ME 40, Thermodynamics		3

ME 42, Engineering Thermodynamics	3	
Math 271, Applied Math/Engineers	3	
ME 12, Dynamics	3	
ME 14, Mechanics of Solids	3	
ME 82, Mechanical Engineering Lab I	3	
MATH 124, Linear Algebra	3	
Total	18	19

Junior Year

		Fall	Spring
ME 101, Engineering Materials I	3		
ME 143, Fluid Mechanics	3		
EE 100 & 101, Electrical Engineering Concepts I & II	4	4	
ME 123 & 124, Lab II & III	2	2	
ANPS 19 & 20, Human Anatomy & Physiology	4	4	
ME 144, Heat Transfer	3		
ME 171, Design of Elements	3		
Total	16	16	

Senior Year

		Fall	Spring
ME 111, System Dynamics	3		
ME 183, Mechanical Engineering Lab IV	3		
ME 185, Senior Project	1		
ME 161, Manufacturing Engineering I	3		
STAT 143, Basic Statistics	3		
ME 207 & 20X, Biomechanics ²	3	3	
ME 186, Senior Project	2		
HSS Electives ¹	6		
ME Design Elective ³	3		
Total	16	14	

Total Credits: 130

Notes:

1. Students must select one HSS course from approved race and culture courses.
2. ME 208 or 209.
3. ME 162, 172, or ME 265.

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Mechanical Engineering: General Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Mechanical Engineering](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Mechanical Engineering](#)

Possible Curriculum

First Year

	Fall	Spring
Chem 31, Intro	4	
Eng 1, Writ Exp	3	
Engr 1, Intro to Engr	1 ¹	
Math 21 & 22, Cal I & II	4	4
Phys Ed	1	1
HSS Electives ²	3	3
Engr 2, Graph Comm		2
Phys 31/31, Intro Phys		5
Total	16	15

Sophomore Year

	Fall	Spring
CE 1, Statics		3
Math 121, Calculus III		4
Physics 42 with 22, Electromag Modern Physics		5
ME 40, Thermo		3
ME 42, Eng Thermo		3

Math 271, Applied Math/Engineers	3
ME 12, Dynamics	3
ME 14, Mech Solids	3
ME 82, Mech Eng Lab I	3
HSS Elective ²	3
Total	15 18

Junior Year

	Fall	Spring
ME 101, Materials	3	
ME 111, System Dyn	3	
ME 143, Fluid Mech	3	
MATH 124, Linear Algebra	3	
EE 100 & 101, Elec Engr Con I & II	4	4
ME 123 & 124, Lab II & III	2	2
ME 144, Heat Trans		3
ME 171, Des of Elem		3
STAT 143, Basic Statistics		3
Total	18	15

Senior Year

	Fall	Spring
ME 161, Manufacturing Engr I	3	
ME 183, Mech Eng Lab IV	3	
ME 185, Senior Project	1	
ME Electives ³	3	3
Tech Elective ⁴	3	3
HSS Electives ²	3	3
ME Elective ⁵		3
ME 186, Senior Project		2
Total	16	14

Total Credits: 127

Notes:

¹ Recommended, not required.

² One HSS course from the Arts and Sciences non-European or Race, Relations, and Ethnicity list.

³ ME course 200-level or higher.

⁴ Any 100-level or higher courses in EM and BSAD (except STAT 111, and ME 114); or CS 14, CS 16, or CS 26; or Natural Sciences with approval of advisor.

⁵ ME 162 and 164 or ME 265 and 164.

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Mechanical Engineering: Premedical Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Mechanical Engineering](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Mechanical Engineering](#)

Possible Curriculum

	First Year	
	Fall	Spring
ENG 1, Written Expression	3	
ENGR 2, Graphical Communication	2	
PEAC	1	
CHEM 31 & 32, Introductory Chemistry	4	4
MATH 21 & 22, Calculus I & II	4	4
HSS Electives ¹	3	3
ME 1, Design Exp		2
PHYS 31/21, Introductory Physics		5
Total	17	18

	Sophomore Year	
	Fall	Spring
CE 1, Statics		3
HSS Elective ¹		3
MATH 121, Calculus III		4
PHYS 42/22, Electromagnetism & Modern Physics		5
ME 40, Thermodynamics		3

MATH 124, Linear Algebra	3
MATH 271, Applied Math/Engineers	3
ME 12, Dynamics	3
ME 14, Mechanics of Solids	3
ME 82, Mechanical Engineering Lab I	3
ME 42, Engineering Thermodynamics	3
Total	18 18

Junior Year

Fall Spring

ME 101, Engineering Materials I	3
ME 143, Fluid Mechanics	3
ME 123 & 124, Mechanical Engineering Lab II & III	2 2
CHEM 141 & 142, Organic Chemistry	4 4
BIOL 1 & 2, Principles of Biology	4 4
ME 144, Heat Transfer	3
ME 171, Design of Elements	3
PEAC	3
Total	16 17

Senior Year

Fall Spring

ME 111, System Dynamics	3
ME 161, Manufacturing Engineering I	3
ME 183, Mechanical Engineering Lab IV	2
STAT 143, Engineering Statistics	1
ME 185 & 186, Senior Project	2 1
EE 100 & 101, Electrical Engineering Concepts I & II	4 4
HSS Electives ¹	6
ME Design Elective ²	3
Total	16 15

Total Credits: 134

Notes:

1. Students must select one HSS course from approved race and culture courses.
2. ME 162, 172, or ME 265.

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 - [General Civil Engineering Concentration](#)
 - Computer Science
 - [Computer Science](#)
 - [Computer Science and Information Systems](#)
 - Electrical Engineering
 - [Biomedical Engineering Concentration](#)
 - [Computer Engineering Concentration](#)
 - [General Electrical Engineering Concentration](#)
 - [Premedical Engineering Concentration](#)
 - Engineering Management
 - [Civil Engineering Concentration](#)
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College of Engineering and Mathematics Undergraduate Honors Thesis Program

College: [Engineering and Mathematics](#)

The undergraduate thesis program, designed for the superior student with unusual initiative and intellectual curiosity, provides an opportunity to pursue a special program without the restrictions of classroom routine. The honors thesis program consists of reading, research, design, or creation in a curricular area of the student's choice, leading to a written thesis. At the time of graduation, the student's transcript and the graduation program will be appropriately denoted with "Honors Thesis" and the title of the thesis, provided that honor's level performance has been demonstrated.

The student must be matriculated in the College at the time of application for the thesis program and have a cumulative grade-point average of at least 3.0 for sophomore and junior work. The curriculum committee of the area offering the thesis course establishes the mechanics for thesis review and awarding of the grade. The thesis proposal must be approved by the College of Engineering and Mathematics Studies Committee prior to the Add/Drop deadline of the student's first semester or summer session of matriculation into the honor's thesis program. This should allow two semesters or a full summer and one semester of planned effort for the thesis research.

A thesis committee consists of at least three UVM faculty, at least two of whom are from the offering area. The chair of the committee, a permanent UVM faculty member, is also from the offering area. This committee serves to advise the student, approves of the thesis proposal before its submission to the Studies Committee, and approves of the oral defense of the thesis. The course grade is assigned by the committee chair based on consultation with the thesis committee. Six credits of effort are expected for the thesis, normally as three credits each in two semesters. Some programs within the College require senior projects as part of their prescribed curricula. Such projects can provide alternative opportunities to students interested in a design or research challenge.

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College of Engineering and Mathematics Undergraduate Cooperative Education Program

College: [Engineering and Mathematics](#)

A cooperative education (CO-OP) program is offered to students with cumulative grade-point averages placing them in the upper half of their class. Before acceptance, each candidate must be interviewed and approved by the program coordinator and the prospective employer. The program lets students apply their learning to a full-time, paid position in a business, industrial, or government setting.

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College of Engineering and Mathematics Undergraduate Academic Standards

College: [Engineering and Mathematics](#)

In order to continue as a major in the College of Engineering and Mathematics, a student must achieve a 2.0 cumulative grade-point average at the end of the semester in which 60 cumulative credit hours have been attempted. No more than three repeated course enrollments are allowed during this 60-credit period. In the case of transfer students, applicable transfer credits will be included in determining the 60 credit hours, but grades in these courses will not be included in the grade-point average.

Students who receive a cumulative or semester grade-point average of less than 2.0 will be placed on trial. Students who have failed half their course credits for any semester, or who have had two successive semester averages below 2.0, or three successive semesters in which their cumulative grade-point average falls below 2.0, are eligible for dismissal.

To receive a degree, students must have a minimum cumulative average of 2.0. Students must complete 30 of the last 45 hours of credit in residence at UVM as matriculated students in the College of Engineering and Mathematics. Additional degree requirements are specified for each major.

No more than three grades of D, D+, or D- in the courses normally taken as part of the junior and senior curriculum in the student's major program will be acceptable. Requirements in each department are specified by the respective program curriculum committees.

A course may not be taken for credit if it is a prerequisite to one for which credit has already been granted, except by permission of the student's advisor.

Only two credits of physical education will count toward the total credits needed for graduation.

Students must comply with the degree requirements as stated in a single catalogue edition in place during the time they are enrolled. The catalogue edition to be followed is the one in effect at the time the student enrolls at UVM, unless the student requests in

writing to follow an edition that is published subsequently during his/her enrollment at UVM. Students may not mix requirements from different catalogues.

First year students: Students who receive a cumulative GPA less than 1.67 after the first year are in danger of not being able to complete a degree in the College of Engineering and Mathematics. These students will be required to reassess their academic direction with the aid of their advisor and the Academic Dean.

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Colleges & Schools

- College of Agriculture & Life Sciences
- College of Arts & Sciences
- College of Education & Social Services
- College of Engineering & Mathematics
- **College of Nursing & Health Sciences**
- Rubenstein School of Environment and Natural Resources
- School of Business Administration
- Graduate College

Colleges and Schools

College of Nursing and Health Sciences

Contact Information:

University of Vermont

College of Nursing and Health Sciences

105 Rowell Building

106 Carrigan Drive

Burlington, VT 05405-0068

Phone: (802) 656-3858 or (800) 738-6779

Fax: (802) 656-2191

E-mail: cnhsoff@uvm.edu

Web Site: <http://www.uvm.edu/~cnhs/>

- [Departments and Programs](#)
- [Academic Offerings](#)
- [Undergraduate Degree Requirements](#)
- [Undergraduate Responsibilities](#)

Overview

The College of Nursing and Health Sciences (CNHS) offers undergraduate and graduate programs in a variety of health care disciplines. The entry-level degree programs prepare the student for initial entry into clinical or laboratory practice and the pursuit of further education. The curricula include rigorous academic preparation and extensive field experience at selected facilities. The graduate programs prepare students for advanced practice in the health care disciplines and to assume leadership roles in practice, education, and research. The faculty of the CNHS is committed to excellence in teaching, the conduct of research that extends knowledge and contributes to the science of each discipline, and public service to improve the health care of citizens of state, national and global communities.

The following entry-level degree programs are offered: Associate Degree program in

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Dental Hygiene; Bachelor of Science degree programs in Biomedical Technology; Medical Laboratory Science; Nuclear Medicine Technology; Nursing; and Radiation Therapy; and the Master of Physical Therapy degree program. Graduates of the entry-level professional programs are eligible to sit for the appropriate licensure examination and enter practice or otherwise seek employment in the commercial/industrial sector. All of the professional programs needing accreditation and/or state approval for licensure eligibility have achieved and maintain such status. The Radiation Therapy program does not require accreditation and is not accredited at this time.

Non entry-level graduate programs leading to a Master of Science degree include: Biomedical Technology; Movement Science and Rehabilitation; and Nursing (advanced population-focused nursing, adult health nursing, primary care nursing, and an accelerated RN-BS-MS track). The Biomedical Technology program emphasizes biomedical research and applications. Both the Movement Science and Rehabilitation and Nursing graduate programs are designed to enhance the clinical and/or academic background of licensed health care professionals and/or prepare them for advanced practice and research.

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Departments and Programs

College: [Nursing and Health Sciences](#)

The College consists of four departments.

- [Biomedical Technologies](#)
- [Dental Hygiene](#)
- [Nursing](#)

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Departments and Programs

Biomedical Technologies Department

Colleges: [Nursing and Health Sciences](#), [Graduate College](#)

Faculty: Biomedical Technologies

Courses: [Biomedical Technologies \(BMT\)](#), [Biomedical Technology \(BMED\)](#), [Medical Laboratory Science \(MLS\)](#), [Nuclear Medicine Technology \(NMT\)](#), [Radiation Therapy \(RADT\)](#)

Contact Information:

*University of Vermont
Biomedical Technologies Department
302 Rowell Building
106 Carrigan Drive
University of Vermont
Burlington, VT 05405*

Phone: (802) 656-3811

Fax: (802) 656-2191

Email: bmt@uvm.edu

Web Site: <http://www.uvm.edu/~cnhs/>

- [Undergraduate Honors Program](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - [Biomedical Technologies](#)
 - [Biomedical Technology Concentration](#)
 - [Medical Laboratory Science Concentration](#) (includes optional Cytotechnology Concentration)
 - [Nuclear Medicine Technology Concentration](#)

- Radiation Therapy Concentration

- Undergraduate Minor
 - Molecular Diagnostics

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Courses in Biomedical Technologies

BMT 001 - First Year Seminar

Discussion of relevant issues in the Biomedical Sciences. Topics include public health, cancer prevention, radiation science, and health and well-being. S/U grading.

Credits: 1.

BMT 003 - Medical Terminology

Terminology related to medical science and hospital services. Fall and Spring.

Credits: 1.

BMT 004 - Intro Radiologic Science

Introduction to ionizing radiation, emphasizing its interaction with matter, its effect on the human body, and methods of protecting patients and technologists.

Credits: 3.

BMT 034 - Human Blood Cells

Lecture and laboratory experiences in cells of the blood, their quantitation, physiology, and alterations in disease. Spring.

Credits: 3.

BMT 054 - Principles of Microbiology

Lectures and laboratory experiences dealing with the structure, physiology, and control of microorganisms, in particular those of medical importance. Spring.

Credits: 4.

BMT 110 - Phlebotomy

Basic techniques in blood collection, including choice of anticoagulants, equipment, sterility, and protection from blood-borne pathogens.

Credits: .5.

BMT 111 - Phlebotomy

Basic techniques in blood collection, including choice of anticoagulants, equipment, sterility, and protection from blood-borne pathogens.

Credits: .5.

BMT 120 - Health Care Ethics

modern health care. Prerequisite: Sophomore standing A study of ethical principles and applications used to help resolve dilemmas in health care delivery. Introduction to ethical decision-making models used in the practice of or Instructor

permission.

Credits: 3.

BMT 123 - Intro to Clinical Chemistry

Lectures and laboratory experiences introduce basic principles in the quantitative analysis of body fluids; test results are correlated with clinical case studies.

Prerequisite: Chemistry 23 or 31 and 32. Fall.

Credits: 0-4.

BMT 229 - Seminar: Clinical Chemistry

Discussion of recent advances in clinical chemistry.

Credits: 1.

BMT 239 - Seminar: Hematology

Discussion of recent advances in hematology.

Credits: 1.

BMT 242 - Immunology

techniques and applications. Pre/corequisites: One Lecture and laboratory experiences dealing with cellular and humoral immunity, B cells and T cells, autoimmunity, immunodeficiency. Laboratory covers immunological semester of Biochemistry.

Credits: 4.

BMT 249 - Seminar: Immunology

Discussion of recent advances in immunology.

Credits: 1.

BMT 259 - Seminar: Clinical Microbiology

Discussion of recent advances in clinical microbiology.

Credits: 1.

BMT 269 - Sem: Immunohematology

Discussion of recent advances and practices used in transfusion medicine. Spring.

Credits: 1.

BMT 291 - Honors:Biomedical Tech

Contact the Department for specific requirements.

Credits: 3.

BMT 292 - Honors:Biomedical Tech

Contact the Department for specific requirements.

Credits: 3.

BMT 295 - Prin of Education & Management

Introduction to theories of education and management. Undergraduate only.

Credits: 3.

BMT 296 - Senior Seminar

Review of case studies for clinical correlation. Fall. Undergraduate only.

Credits: 2.

BMT 299 - Special Topics

Courses or seminars beyond scope of existing departmental credit. Undergraduate only.

Credits: 1-6.

BMT 381 - Special Topics Seminar

Credits: 1.

BMT 391 - Masters Thesis Research

Credits: 1-6.

BMT 395 - Advanced Topics

Credits: 1-3.

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Courses in Biomedical Technology

BMED 281 - Molecular Applications

Lecture and laboratory course focused on application of molecular biology techniques to diagnostic testing and biotechnology. Techniques include Northern and Western blot analysis, In situ hybridization, tissue culture, immunoassay development and use. Prerequisite: CHEM 031, CHEM 032, or CHEM 023; CHEM 141, CHEM 142, or CHEM 042; BIOL 001, BIOL 002, or ANPS 019, ANPS 020. Fall.

Credits: 4.

BMED 284 - Undergraduate Research I

Laboratory course in research methodologies. Prerequisite: Instructor permission. Undergraduate only.

Credits: 1-3.

BMED 285 - Undergraduate Research II only.

Credits: 1-3.

BMED 286 - Undergraduate Research III

Research projects sponsored by faculty. Prerequisite: BMED 285; Instructor permission. Undergraduates only.

Credits: 1-3.

BMED 293 - Research Concepts

Discussion of research methodology including analysis of primary scientific literature. Spring.

Credits: 1.

BMED 297 - Undergraduate Research

Research projects sponsored by faculty. Prerequisite: Instructor permission. Spring, Fall.

Credits: 1-6.

BMED 298 - Undergraduate Research Seminar

Current literature related to student research project will be presented and discussed. Students will be required to present a seminar on their research project. Prerequisite: BMED 284, BMED 285, BMED 286 or BMED 297; advanced standing. Spring.

Credits: 3.

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Courses in Medical Laboratory Science

MLS 095 - Special Topics

Credits: 1-6.

MLS 096 - Special Topics

Credits: 1-6.

MLS 170 - Medical Cytology Practicum

Development of diagnostic expertise (speed and accuracy) through the daily evaluation of slides of gynecologic and nongynecologic materials. Spring.

Credits: 10.

MLS 171 - Medical Cytology I

Identification of cells and concepts of cell growth and differentiation. Biology and cytopathology of the female genital tract. Patient management and specimen collection techniques introduced.

Credits: 4.

MLS 172 - Medical Cytology II

Biology and cytopathology of the nongynecologic body systems. Prerequisite: MLS 171, MLS 173; Cytology Lab I.

Credits: 4.

MLS 173 - Medical Cytology Lab I

Microscopic study and recognition of normal and abnormal cellular manifestations in gynecologic materials.

Credits: 3.

MLS 174 - Medical Cytology Lab II

Microscopic study and recognition of normal and abnormal cellular manifestations in the nongynecologic body systems. Prerequisite: MLS 171, MLS 173.

Credits: 3.

MLS 175 - Cytology Seminar

Interesting case reports and journal review articles are developed and presented in written and oral form.

Credits: 3.

MLS 179 - Cytology Techniques

Handling and processing of cellular specimens. Includes collection, fixation, smear preparation, cytocentrifuge, staining, and safety techniques. Summer.

Credits: 3.

MLS 195 - Special Topics

Credits: 1-18.

MLS 196 - Special Topics

Credits: 1-18.

MLS 201 - Body Fluid Analysis

Lectures and laboratory experiences focusing on the complete analysis of urine, cerebral spinal fluids, serous fluids, synovial fluid, and other human body fluids.

Majors only. Spring, Fall.

Credits: 1.

MLS 220 - Clinical Practicum: Chemistry

Experiences with chromatography, immunoassays, random access analyses, and a variety of manual and automated test systems. MLS majors only. Fall, spring.

Credits: 3.5.

MLS 222 - Advanced Clinical Chemistry

electrochemistry, and automation; clinical case studies on the pathophysiology of diseases when abnormal chemistry

Credits: 3.5.

MLS 230 - Clinical Practicum: Hematology

Experiences in clinical analysis of blood cells in the FAHC laboratories. MLS majors only. Fall, spring.

Credits: 2.

MLS 231 - Pathophysiology of Blood Cells

Advanced theory and analysis of blood cell physiology and related pathology. Concepts of hemostasis and clinical assessment methods. Prerequisite: One semester of biochemistry. Fall.

Credits: 3.

MLS 250 - Clin Practicum: Microbiology

Practical experiences at Fletcher Allen Health Care. MLS majors only. Fall, spring.

Credits: 2.

MLS 255 - Adv Clinical Microbiology

microorganisms, infectious disease process, and laboratory methods used for the isolation and identification of microorganisms from clinical specimens. Fall.

Prerequisite:

Credits: 3.

MLS 256 - Parasitology

Lectures and laboratory experiences in the identification of parasitic organisms and their relationship to disease. MLS majors only. Fall, Spring.

Credits: 1.

MLS 260 - Clin Pract:Immunohematology

Clinical experiences in operation of a hospital transfusion service and regional reference laboratory. MLS majors only. Fall, spring.

Credits: 1.5.

MLS 262 - Advanced Immunohematology

Advanced theory and experience related to human blood groups and transfusion practice. Prerequisites: One semester of biochemistry. Spring.

Credits: 4.

MLS 295 - Special Topics

Credits: 1-18.

MLS 296 - Special Topics

Credits: 1-18.

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Courses in Nuclear Medicine Technology

NMT 051 - Principles Nuclear Med Tech

Lecture and laboratory experiences to introduce the theories and practice of nuclear medicine technology. Fall.

Credits: 3.

NMT 052 - Nuclear Medicine Radiopharmacy

The radiopharmacological aspects of nuclear medicine technology, including radiation physics, safety, tracer principles, and dosimetry. Prerequisite: BMT 004. Spring.

Credits: 3.

NMT 153 - Nuclear Med Clin Procedures I

Procedures I Principles of diagnostic imaging procedures emphasizing the nuclear medicine technologist's role in patient care and preparation, radiopharmaceutical selection, image acquisition, and data processing and analysis. Prerequisite: 52. Fall.

Credits: 3.

NMT 154 - Nuclear Med Clin Procedures II

Procedures II Principles and technical considerations of in vivo and in vitro nuclear medicine diagnostic and therapeutic procedures. Prerequisite: 153. Spring.

Credits: 3.

NMT 155 - Instrumentation I

Nuclear medicine instrumentation, with emphasis on planar imaging devices, computer, and quality control; introduction to SPECT camera systems.

Prerequisite: 52. Fall.

Credits: 3.

NMT 156 - Instrumentation II

Advanced nuclear medicine instrumentation with emphasis on state-of-the-art imaging devices. Prerequisite: 155. Spring.

Credits: 3.

NMT 163 - Nuclear Med Clin Practicum I

Students observe and participate in Fletcher Allen Health Care's Nuclear Medicine Department. NMT majors only. Fall.

Credits: 1.

NMT 164 - Nuclear Med Clin Practicum II

Students participate in routine imaging procedures emphasizing patient care, positioning, and instrumentation. NMT majors only. Prerequisite: 163. Spring.
Credits: 2.

NMT 175 - Medical Imaging Techniques

Introduction to radiographic anatomy and the various imaging techniques presently available to include magnetic resonance imaging (MRI), positron emission tomography (PET), ultrasound, etc. Fall. Crosslisted w/RADT.
Credits: 2.

NMT 263 - Adv Nuclear Med Clin Pract III

Experience in advanced clinical and pharmacological procedures. NMT majors only. Prerequisite: 164. Fall.
Credits: 3.

NMT 264 - Nuclear Medicine Internship

Full-time clinical experience at an affiliated institution. NMT majors only. Prerequisite: 263. Spring.
Credits: 15.

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Courses in Radiation Therapy

RADT 052 - Principles Radiation Therapy

Introduction to the practice and theory of radiation therapy through lectures and discussions.

Credits: 2.

RADT 144 - Seminar:Patient Care Issues

S/U grading.

Credits: 1.

RADT 173 - Clinical Lab:Radiation Therapy

which include patient care and handling, immobilization techniques, therapy unit calibrations and manipulation, etc. RADT majors only. Prerequisite: 52. Fall.

Credits: 2.

RADT 174 - Clinical Practicum

Students participate and observe in the Fletcher Allen Health Care Radiation Therapy Department. RADT majors only. Prerequisite: RADT 173. Spring.

Credits: 2.

RADT 175 - Medical Imaging

tomography (PET), ultrasound, etc. Fall.

Credits: 2.

RADT 176 - Clinical Radiation Oncology

The various types of neoplasms, methods of diagnosis of treatment, and elementary pathology are presented. RADT majors only. Prerequisites: Anatomy and Physiology 19-20, concurrent enrollment in RADT 174. Spring.

Credits: 3.

RADT 223 - Clin Pract: Radiation Therapy

A continuation of RADT 174 emphasizing increasing clinical capabilities. RADT majors only. Prerequisite: 174. Fall.

Credits: 3.

RADT 274 - Clin Intern:Radiation Therapy

Students are assigned to approved clinical education sites to observe and increase their participation in the clinical environment. Evaluations based on defined clinical objectives and competencies to be completed by the clinical and University faculty. RADT majors only. Prerequisite: Successful completion of all

previous required major courses and concurrent enrollment in RADT 280. Spring.
Credits: 14.

RADT 275 - Dosimetry

Treatment plan verification using three-dimensional computer models, simulation data, and knowledge of treatment unit capabilities. RADT majors only.

Prerequisites: Physics 11 & 12, BMT4. Fall.

Credits: 2.

RADT 277 - Techniques Radiation Therapy

Instructs students in the theory and clinical application of radiotherapeutic techniques. RADT majors only. Prerequisites: Concurrent enrollment in 275 and 223. Fall.

Credits: 4.

RADT 280 - Qual Assurance&Treatment Plan

The integration of clinical oncology, radiobiology, dosimetry, and treatment planning, and how they affect patient outcomes. RADT majors only. Spring.

Credits: 3.

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Biomedical Technologies Undergraduate Honors

College: [College of Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Concentrations: [Biomedical Technology](#), [Medical Laboratory Science](#), [Nuclear Medicine Technology](#), [Radiation Therapy](#)

A student of at least junior standing whose minimum grade-point average is 3.0 in professional and basic science courses is eligible for invitation by the faculty to participate in the departmental honors program. Students who accept the invitation will be required to complete one of the following options: (1) participation in at least two senior level specialty seminars with completion of an independent reading thesis; (2) completion of an independent research project. Excellent and committed work will be required for a student to be granted Departmental Honors.

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Biomedical Technology (B. S.)

College: [Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Overview

This four-year curriculum leading to the baccalaureate degree prepares students for careers in biomedical research. All students pursuing this degree option are required to complete an approved cross-college minor, as well as a research internship. The student's major course of study blends basic science course work with intensive laboratory experiences. Special emphasis is placed on the application of molecular techniques to the health sciences industry.

- [Honors Program](#)

General Requirements

- [University](#)
- [Nursing and Health Sciences](#)
- [Biomedical Technologies](#)

Specific Requirements

Students in the Biomedical Technology degree program are required to complete a cross-college minor. Students should contact the department administering the minor program to determine requirements, and fill out the application. If accepted, the student will be assigned a "minor advisor" from that department who must approve all program plans and course selections. Students wishing to pursue a minor not listed must confer with their advisor. With permission, students may complete a concentration in clinical microbiology in place of a minor. The concentration requirements are available in the department. The following have been approved:

Accounting

Prerequisites are Economics 11, 12, Math. 19 or 21, Statistics 111 or 141.

Requirements are Business Administration 65 or 60, 61, plus 161, 162, 164, 168.

Business Administration

Prerequisites are Economics 11, 12, Math. 19 or 21, Statistics 111 or 141.

Requirements are Business Administration 65 or 60, 61, plus three courses from 120, 132, 141, 150, 173, 180.

Computer Science

Requirements are 18 hours in computer science to include at least nine hours at the 100 level or above. Note: Careful planning of prerequisite math courses will be required.

Consumer Economics

Requirements are Community Development and Applied Economics 58, 157, 158, 159, 127 or 155, plus one from 127, 128, 150, 151, 158, 291 or 296. Fifteen credit hours are required.

Microbiology

Requirements are MMG 101, 102, Botany 132 plus six hours from MMG 195, 201, 203, 211, 220, 222, 223, or 225.

Molecular Genetics

Requirements are MMG 101, 102, 211, Botany 132, plus three hours from MMG 195, 201, 203, 223, 225.

Possible Curriculum

First Year

	Fall	Spring
BMT 1, First Year Seminar	1	
BMT 3, Medical Terminology	1	
EDSS 11, Race and Culture	1	
English	3	
Math (13, 19, or higher)	3	
Chemistry 31-32	4	4
Electives	3	6-10
Physical Education	1	1
Computer Science		3
BMT 34, Human Blood Cells		3
Total	17	17

Sophomore Year

	Fall	Spring
BMT 4, Intro to Radiologic Science	3	
STAT 141		3
BMT 123, Intro to Clinical Chemistry	4	
Anatomy & Physiology 19-20	4	4
Chemistry 42 (or 141 and 142)	(4)	4
Electives	0-3	3

BMT 54, Principles of Microbiology	4
Total	17 15

Junior Year

	Fall	Spring
Biochemistry 201	3	
BMT 295, Prin of Education & Management	3	
Pathology 101	3	
BMED 284-285, Undergraduate Research I & II	3	3
Electives	3	6
Biochemistry 212		3
BMT 242, Immunology		4
BMED 293, Research Concepts		1
Total	15	17

Senior Year

	Fall	Spring
BMED 281, Molecular Applications	4	
BMT 296, Senior Seminar	2	
BMED 286, Undergraduate Research III	3	
MLS 231, Pathophysiology of Blood Cells	3	
Statistics 200 (or higher)	3	
BMED 298, Undergraduate Research Seminar		3
MLS 222, Advanced Clinical Chemistry (or Biology 101 or Botany 132)		3
Electives		7
Total	15	13

Total Credits: 127

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Biomedical Technologies: Medical Laboratory Science Concentration (B. S.)

College: [Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Overview

This four-year curriculum leading to the baccalaureate degree is accredited by the [National Accrediting Agency for Clinical Laboratory Sciences](#) .

The clinical laboratory scientist is involved in the development, performance, and evaluation of laboratory tests that lead to assessment of health status, diagnosis of disease, and monitoring of therapeutic treatment. The clinical laboratory experience is obtained at Fletcher Allen Health Care — Vermont's Academic Medical Center (FAHC) — and the Vermont State Health Department Laboratories.

On completion of the baccalaureate program, graduates are eligible for national certification.

- [Honors Program](#)
- [Cytotechnology Option](#)

General Requirements

- [University](#)
- [Nursing and Health Sciences](#)
- [Biomedical Technologies](#)

Specific Requirements

Upon consultation with an advisor, students may follow an individualized curriculum that can lead to certification in one of the clinical laboratory specialties (Microbiology, Chemistry, Hematology, or Immunology).

Possible Curriculum

First Year

	Fall Spring	
Chemistry 23 (or 31-32)	4	(4)
BMT 1, First Year Seminar	1	
BMT 3, Medical Terminology	1	
English	3	
Math (10 or 13 or 19 or higher)	3	
Computer Science	3	
BMT 34, Human Blood Cells	3	
Electives	3	6-9
Physical Education	1	1
EDSS 11, Race and Culture	1	
Total	17	16-17

Sophomore Year

	Fall	Spring
Anatomy & Physiology 19-20	4	4
BMT 54, Principals of Microbiology		4
BMT 123	4	
Statistics 111 or 141	3	
Chemistry 42 (or 141 and 142)	(4)	4
Electives	3-6	3
Total	17-18	15

Junior Year

	Fall	Spring
Biochemistry 201	3	
Biochemistry 202	1	
BMT 244, Immunology Lab	1	
BMT 295, Education & Management	3	
Pathology 101	3	
Allied Health 120	3	
Electives	3	3
BMT 293, Research Concepts		1
MLS 262, Advanced Immunohematology		4
Microbiology		4
Biochemistry 212 or AGBI 220 or 230		3
Total	17	15

Senior Year

Fall Spring

MLS 255, Advanced Clinical Microbiology	3	
MLS 231, Pathophys of Blood Cells	3	
BMT 296, Senior Seminar	2	
Electives	3	
MLS 201, 220, 230, 250, 256, 260, Clinical Practica	5-6	5-6
MLS 222, Adv Clinical Chemistry		3.5
BMT 242, Immunology		3
BMT 110-111, Phlebotomy	0.5	0.5
Total	16.5-17.5	12-13

Total Credits: 126.5

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Biomedical Technologies: Nuclear Medicine Technology Concentration (B. S.)

College: [Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Overview

This four-year curriculum leading to the baccalaureate degree is accredited by the [Joint Review Committee on Educational Programs in Nuclear Medicine Technology](#) .

Nuclear medicine technology is the medical specialty concerned with the use of small amounts of radioactive materials for diagnosis, therapy, and research. Nuclear medicine provides information about both the structure and function of virtually every major organ system.

- [Honors Program](#)

General Requirements

- [University](#)
- [Nursing and Health Sciences](#)
- [Biomedical Technologies](#)

Specific Requirements

Clinical education takes place at one of our clinical affiliations. The initial experience is obtained at the Fletcher Allen Health Care (FAHC). At least one experience will be at an affiliation outside Burlington which will require additional room, meals and transportation expenses.

Students who already have the Associate in Science degree in Nuclear Medicine Technology may apply for transfer into the baccalaureate program.

Clinical Affiliations

- Lahey Clinic, Burlington, MA

- Maine Medical Center, Portland, ME
- Mercy Hospital, Portland, ME
- Dartmouth-Hitchcock Medical Center, Hanover, NH
- Fletcher Allen Health Care, Burlington, VT
- Pharmalogic, LTD, Williston, VT
- Winchester Memorial Hospital, Winchester, MA

Note: The above list of clinical affiliations is subject to change.

Possible Curriculum

First Year

	Fall	Spring
BMT 1, First Year Seminar	1	
BMT 3, Medical Terminology	1	
English	3	
Math (10 or higher)	3	
Race and Culture	1	
Chemistry 23 (or 31-32)	4	(4)
Electives	3	3-6
Physical Education	1	1
Computer Science		3
BMT 34, Human Blood Cells	3	
Psychology 1		3
Total	17	16-17

Sophomore Year

	Fall	Spring
NMT 51, Principals of Nuclear Med Tech	3	
NMT 175, Medical Imaging Techniques	2	
BMT 4, Intro Radiologic Science	3	
Anatomy & Physiology 19-20	4	4
Chemistry 42 (or 141 and 142)	(4)	4
Electives	0-3	3
NMT 52, Nuclear Medicine Radiopharmacy		3
Statistics 111 or 141		3
Total	15-16	17

Junior Year

	Fall	Spring
Biochemistry 201	3	
Biochemistry 202	1	
Pathology 101	3	

BMT 295, Prin Ed & Manangement	3	
NMT 153, Nuclear Med Clin Procedures I	3	
NMT 155, Instrumentation I	3	
NMT 163, Nuclear Med Clin Practicum I	1	
BMT 242, Immunology		4
NMT 154, Nuclear Med Clin Procedures II	3	
NMT 156, Instrumentation II		3
NMT 164, Nuclear Med Clin Practicum II	2	
BMED 293, Research Concepts	1	
Electives		3
Total	17	16

Senior Year

		Fall	Spring
BMT 110, Phlebotomy	0.5		
BMT 120	3		
BMT 296, Senior Seminar	2		
NMT 263, Adv Nuclear Med Clin Pract III	3		
Electives	6		
NMT 264, Nuclear Medicine Internship		15	
Total	14.5	15	

Total Credits: 127.5

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Biomedical Technologies: Radiation Therapy Concentration (B. S.)

College: [Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Overview

Radiation Therapy is the medical specialty that uses high energy radiations (x-rays, gamma rays, electron beams, etc.) in the treatment of disease. Radiation therapists are responsible for daily treatments, providing support for patients as they cope with their disease, and contributing as vital members of the medical team responsible for the patient's treatment plan.

- [Honors Program](#)

General Requirements

- [University](#)
- [Nursing and Health Sciences](#)
- [Biomedical Technologies](#)

Specific Requirements

Clinical education takes place at one of our clinical affiliations. The initial experience is obtained at the Fletcher Allen Health Care (FAHC). At least one experience will be an affiliation outside Burlington which will require additional room, meals, and transportation expenses.

Clinical Affiliations

- Dartmouth-Hitchcock Medical Center, Hanover, NH
- Elliot Hospital, Manchester, NH
- Fletcher Allen Health Care, Burlington, VT
- Massachusetts General Hospital, Boston, MA

Note: The above list of clinical affiliations is subject to change.

Students who already have the Associate in Science degree in Radiation Therapy may apply for transfer into the baccalaureate program. Requirements are a total of 127 credit hours for graduation including approved transfer credits from their Associate degree. Additional required courses for the baccalaureate degree are Chemistry 23 (or 31 and 32), Physics 11 and 12, BMT 120, Pathology 101, Biomedical Technology 293, Biomedical Technologies 295, and 12 credit hours of special topics (Biomedical Technologies 299) in the concentration areas of dosimetry, topographical anatomy, patient care, treatment planning, and quality assurance. These independent studies will be coordinated by the student's advisor.

Possible Curriculum

First Year

	Fall	Spring
BMT 1, First Year Seminar	1	
BMT 3, Medical Terminology	1	
English	3	
Math (10 or higher)	3	
EDSS 11, Race and Culture	1	
Physical Education	1	1
Chemistry 23 (or 31-32)	4	(4)
Electives	3	3-6
BMT 34, Human Blood Cells	3	
Computer Science	3	
Psychology 1	3	
Total	17	16-17

Sophomore Year

	Fall	Spring
Nutrition 43	3	
BMT 4, Intro Radiologic Science	3	
RADT 175, Medical Imaging	2	
Anatomy & Physiology 19-20	4	4
Electives	3	3
Sociology	3	
Statistics 111 (or 141)	3	
RADT 52, Principles Radiation Therapy	2	
Total	15	15

Junior Year

Fall Spring

RADT 173, Clinical Lab Rad Therapy	2	
BMT 295, Princ Ed Management	3	
Pathology 101	3	
Physics 11, 12	4	4
Electives	5	6
RADT 144, Seminar Patient Issues	1	
RADT 174, Clinical Practicum	1	
RADT 176, Clinical Radiation Oncology	3	
BMED 293, Research Concepts	1	
Total	17	16

Senior Year

		Fall	Spring
BMT 120			3
BMT 296, Senior Seminar			2
RADT 223, Clinical Practicum			3
RADT 275, Dosimetry			2
RADT 277, Techniques Radiation Therapy			4
RADT 274, Clinical Internship			14
RADT 280, Quality Assurance & Treatment Plan			3
Total		14	17

Total Credits: 127

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Minor in Molecular Diagnostics

College: [Nursing and Health Sciences](#)

Department(s): [Biomedical Technologies](#)

Requirements

The Department of Biomedical Technologies offers a cross-college minor in Molecular Diagnostics. The minor emphasizes the applications of molecular biology techniques to diagnostic testing. The program of study includes 15-16 credit hours of both didactic and laboratory experiences. Prerequisite courses include at least one semester each of general and organic chemistry and two semesters of biology, or anatomy and physiology. Acceptance into the program requires the completion of the prerequisite courses with a GPA of 2.5 or better. An application is required for admission and may be obtained in 302 Rowell Building.

Required Courses: Immunology (BMT 242), Immunology Laboratory (BMT 244), Molecular Applications (BMED 281), Research Concepts (BMED 293), Undergraduate Research (BMED 297); plus 3-4 credit hours from BMT 4, 34, 54, 123, MLS 222, 231, 255.

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Departments and Programs

Dental Hygiene Department

Colleges: [Nursing and Health Sciences](#), [Graduate College](#)

Faculty: Dental Hygiene

Courses: [Dental Hygiene \(DHYG\)](#)

Contact Information:

*University of Vermont
Dental Hygiene Department
002 Rowell Building
106 Carrigan Drive
University of Vermont
Burlington, VT 05405*

Phone: (802) 656-2585

Fax: (802) 656-8440

Email:

Web Site: <http://www.uvm.edu/dentalhygiene/>

Academic Offerings

- Undergraduate Degrees
 - Associate in Science (A. S.)
 - [Dental Hygiene](#)

Overview

NOTE: The University of Vermont's Dental Hygiene program is in the process of transitioning from The University of Vermont (UVM) to [Vermont Technical College](#) (VTC). The last UVM Dental Hygiene class will be admitted in Fall 2003 and will transfer to VTC in Fall 2004 from which they will receive their degrees. Students admitted to UVM in Fall 2003 will not graduate from UVM.

The Department of Dental Hygiene offers a two-year curriculum leading to an Associate in Science degree and a Certificate in Dental Hygiene.

The program is accredited by the Commission on Dental Accreditation of the American Dental Association. Graduates are eligible to write the National Board Examination in Dental Hygiene. The program meets requirements for licensure determined by most states.

Requirements for admission to Dental Hygiene are the same as for the general University. Applicants are welcome to visit the department to discuss dental hygiene with faculty and students.

| Burlington, VT 05405 | (802) 656-3131 | [Contact UVM](#) © 2018

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Courses in Dental Hygiene

DHYG 001 - Intro to Dental Hygiene

Principles of dental hygiene, orientation to clinical practice, and preclinical experience.

Credits: 4.

DHYG 002 - Intro Clinical Dental Hygiene

A continuation of 1 with early clinical experience. Prerequisites: 1, Anatomy and Physiology 19.

Credits: 2.

DHYG 011 - Oral Tissues I

Introduction to the morphology and physiology of the oral tissues.

Credits: 3.

DHYG 012 - Oral Tissues II

Continuation of 11 emphasizing head and neck anatomy and oral embryology. Prerequisites: 11, Anatomy and Physiology 19.

Credits: 3.

DHYG 061 - Dental Radiology

Study, demonstration, and practice of fundamentals of intraoral radiographic technique. Recognition of radiographic appearance of common oral disorders. Prerequisites: 1, 11, Anatomy and Physiology 19 or permission.

Credits: 2.

DHYG 062 - Community Oral Health

Discussion and project participation in the planning, development, and implementation of dental health education, public health dentistry, and the private practice of dentistry.

Credits: 3.

DHYG 091 - Dental Materials

Study and manipulation of the materials commonly used in dental practice. Prerequisites: 2, 12 or permission.

Credits: 2.

DHYG 141 - Clinical Dental Pharmacology

Introduction to clinical pathology and pharmacological management in the treatment of dental patients. Prerequisites: 2, 12.

Credits: 3.

DHYG 143 - Periodontics

Morphologic and functional aspects of the supporting structures, recognition and therapy for diseases of the periodontium. Prerequisites: 2, 12, Anatomy and Physiology 20.

Credits: 3.

DHYG 146 - Oral Pathology

Functional and organic diseases of the oral cavity and their clinical management.

Prerequisite: 143 or permission.

Credits: 2.

DHYG 181 - Senior Clinic & Seminar

Clinical practice with patients from simple to more difficult cases, both children and adults. Prerequisites: 2, 12, 61, Anatomy and Physiology 20.

Credits: 4.

DHYG 182 - Senior Clinic & Seminar

Continuation of 181. Prerequisites: 143, 181.

Credits: 4.

DHYG 195 - Special Topics

Prerequisites: Instructor's permission.

Credits: 1-6.

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Dental Hygiene (A.S.)

College: [Nursing and Health Sciences](#)

Department(s): [Dental Hygiene](#)

Overview

The courses of study are designed to give the student a well-rounded foundation in basic sciences, specific knowledge in dental sciences, and an understanding of the humanities. Clinical experience is obtained in the Department's dental hygiene clinic where patients of all ages present with a variety of clinical problems. Dental hygiene students also have an opportunity to increase their communication skills through oral health education presentations in area schools.

The dental hygiene curriculum is highly structured, and semester course loads are heavy. Students who have the opportunity to complete liberal arts and/or basic science courses prior to entering the program are encouraged to do so. Further guidance can be obtained by calling or writing to the departmental office. First-year Dental Hygiene students should add approximately \$1,800 for an instrument kit and clinical attire.

NOTE: The University of Vermont's Dental Hygiene program is in the process of transitioning from The University of Vermont (UVM) to [Vermont Technical College](#) (VTC). The last UVM Dental Hygiene class will be admitted in Fall 2003 and will transfer to VTC in Fall 2004 from which they will receive their degrees. Students admitted to UVM in Fall 2003 will not graduate from UVM.

General Requirements

- [University](#)
- [Nursing and Health Sciences](#)

Specific Requirements

A minimum of 71 approved credit hours, including one hour of physical education, and a minimum grade-point average of 2.0 are required for the Associate in Science degree in this curriculum. A grade of C or better is required for all professional courses.

Possible Curriculum

First Year

	Fall	Spring
Dental Hygiene 1, 2	4	2
Dental Hygiene 11, 12	3	3
Dental Hygiene 61		2
Nutritional Science 43	3	
Anatomy and Physiology 19-20	4	4
Chemistry 23		4
English 1	3	
Psychology 1		3
Physical Education	1	
Total	18	18

Sophomore Year

	Fall	Spring
Dental Hygiene 62		3
Dental Hygiene 91	2	
Dental Hygiene 141	3	
Dental Hygiene 143	3	
Dental Hygiene 146		2
Dental Hygiene 181-182	4	4
Microbiology BMT 54 or MMG 65	4	
Social Anthropology		3
Speech 11		3
Elective		3
EDSS 11, Race and Culture		3
Total	17	18

Total Credits: 71

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Departments and Programs

Nursing Department

Colleges: [Nursing and Health Sciences](#), [Graduate College](#)

Faculty: Nursing

Courses: [Nursing \(NURS\)](#), [Professional Nursing \(PRNU\)](#)

Contact Information:

University of Vermont

Nursing Department

216 Rowell Building

106 Carrigan Drive

University of Vermont

Burlington, VT 05405

Phone: (802) 656-3830

Fax: (802) 656-8306

Email: nursing@uvm.edu

Web Site: <http://nursing.uvm.edu/>

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - [Nursing](#)

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Courses in Nursing

NURS 015 - Personal Power in Health

Explores consumer power in health care. Addresses how an individual can influence personal health as well as health of community.

Credits: 3.

NURS 020 - Aging:Change & Adaptation

(Same as Early Childhood and Human Development 20 and Sociology 20).

Individual and social meanings of aging and old age; physical, physiological, psychological, and sociological changes accompanying aging; individual family, community, and societal adaptations to aging.

Credits: 3.

NURS 100 - Biology of Aging

Human aging examined emphasizing biological and nonpathological physiological changes and their effects on the functioning of elders. Prerequisites: Biology 4 or Anatomy and Physiology 9, 10 or 19-20 or Instructor permission. Cross-listed with: HDFS 152.

Credits: 3.

NURS 115 - Women's Health & Advocacy

diseases, relationships, addictive disorders, Aims to demystify women's health care issues through understanding options/choices concerning sexuality, contraception, reproductive health, sexually transmitted anxiety/depression and more. Fall semester.

Credits: 3.

NURS 120 - Pathophysiology

will be examined. Prerequisites: ANPS 19,20. Recommended: This course is designed to provide the student with a comprehensive foundation in pathophysiology. The phenomena that result in dysfunction in human physiologic response MMG 65 or BMT 54.

Credits: 3.

NURS 135 - Hlth Issues in Dev Countries

Discussion of status and practice issues in developing countries including several Black African countries and Peoples' Republic of China. Historical, sociocultural, religious, political perspectives.

Credits: 3.

NURS 138 - Critical Care Nursing

management strategies. Prepares the experienced registered nurse with the knowledge to competently manage the critically ill adult patient. Focuses on assessment, analysis, and nursing

Credits: 6.

NURS 140 - Issues in Women's Health

A holistic exploration of the health care needs of women. This course will consider the stereotypical, theoretical, and clinical approaches of care used in treating women. Prerequisite: PSYC 001, HDFS 005; Sociology course below SOC 100.

Credits: 3.

NURS 141 - Healing Touch Level I

and healing. Healing Touch is an energy based therapeutic approach to healing which uses touch to influence the energy system thus affecting physical, emotional and spiritual health

Credits: 1.

NURS 195 - Special Topics

Credits: 1-6.

NURS 196 - Special Topics

Credits: 1-6.

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Courses in Professional Nursing

PRNU 050 - Intro to Profession of Nursing

This course begins the socialization process of undergraduate nursing students as members of a profession and will introduce the historical foundations, evolution, and contemporary characteristics of nursing.

Credits: 1.

PRNU 110 - Art & Science of Nursing

Exploration of ways of knowing in nursing that lead to understanding of the human experience of health. Content includes: theory, professional role development, ethics, and legal aspects of nursing practice. Prerequisites: or 7 or ENSC 1 or NR 185.

Credits: 3.

PRNU 111 - Research in Nursing

Provides an introduction to nursing research and its relationship to nursing theory and practice. Knowledge and skills essential for the critique and utilization of nursing research are presented. Prerequisites: PRNU 110, STAT 111 or 141.

Credits: 3.

PRNU 113 - Assess of Hlth:Indiv&Fam/Comm

Through classroom and practicum, students learn to holistically assess and differentiate healthy from at-risk findings of clients in a variety of settings.

Prerequisites: ANPS 19, NFS 43, HDFS 5; Pre/Corequisites: PRNU 110, 111, ANPS 20, MMG 65 or BMT 54.

Credits: 4.

PRNU 127 - Hlth Promotion Across Lifespan

This course focuses on health promotion and disease prevention across the lifespan. Varied practicum experiences provide students the opportunity to assess, plan, implement and evaluate care. Prerequisites: PRNU 110, 111, 113 and all related pre or corequisites and ENV5 1,2,7, ENSC 1 or NR 185; Pre/corequisite: PRNU 128.

Credits: 3.

PRNU 128 - Nurs Implications Drug Therapy

Prerequisites: PRNU 110, 111, 113, CHEM 26, ANPS 20; Pre/corequisite: NURS 120.

Credits: 4.

PRNU 129 - Fam Care/Chldbrg Women&Newborn

This course focuses on the human experiences of child-bearing. Students will have opportunities to care for childbearing women, neonates and their families in a variety of settings. Prerequisites: PRNU 110,111,113; Pre/corequisites: PRNU 127,128,NURS 120.

Credits: 4.

PRNU 130 - Prof Nursing&HealthCare System

examined from multiple perspectives. Prerequisites: 110, 111,113 and all related pre or corequisites.

Credits: 2.

PRNU 131 - Exp of Alterations in Health I

Focus on the human experience of alterations in health for individuals and their families. Content addresses individual and family responses to disease processes from a holistic perspective. Prerequisites: 127, 128,129; NURS 120.

Credits: 3.

PRNU 132 - Caring for Child W/Alter Hlth

Focus on children experiencing alterations in health. Through classroom and practicum students learn to holistically care for children experiencing alterations within the context of family, in a variety of settings. Prerequisites: PRNU 127, 128, 129, NURS 120; Pre/corequisite: PRNU 131.

Credits: 5.

PRNU 134 - Care Adult/Elders W/Alt Hlth

holistically care for adults and elders experiencing alterations within the context of family, in a variety of settings. Prerequisites:PRNU 127,128,129,NURS 120; Pre/corequisite: PRNU 131.

Credits: 5.

PRNU 151 - Eval Hlth:Indiv/Fam/Community

(3-2) This course will focus on health assessment of individuals, families, and communities, as client. Students will demonstrate the ability to assess clients using a successful completion of NLN ACE II or equivalent.

Credits: 4.

PRNU 152 - Protect/Prom Hlth:Ind/Fam/Comm

This course will focus on health protection and health promotion of individuals, families, and communities. Student placement for the practicum will be in a variety of settings. Pre/co-requisite: PRNU 151.

Credits: 4.

PRNU 196 - Special Topics

Refer to course schedule for specific title. Prerequisite: Majors only; Senior standing.

Credits: 1-6.

PRNU 197 - Independent Study

An independent study is an educational experience taken for credit that occurs separate from a group class. The student develops a plan specific to their learning needs and interests and works under the guidance of a faculty member to achieve the predetermined objectives. Prerequisite: Agreement from a faculty sponsor and

approval by the Baccalaureate Education Committee.

Credits: 1-3.

PRNU 231 - Experience:Alteration:Hlth II

This course focuses on individual and family responses to alterations in health. A holistic and lifespan approach will be used in examining the nursing care of these clients. Prerequisites: PRNU 132,134 and all related pre and corequisites.

Credits: 3.

PRNU 234 - Care Adlts/Elders w/Alt HlthII

The second course of a two-course sequence focusing on adults and elders experiencing alterations in health. Through classroom and practicum students learn to holistically care for adults and elders experiencing alterations within the context of family, in a variety of settings. Prerequisites: 231 and all related pre and Corequisites.

Credits: 5.

PRNU 235 - Care Indv w/Alt in Mental Hlth

Focus on individuals experiencing alterations in mental health. Through classroom and practicum students learn to holistically care for individuals experiencing alterations in mental health in a variety of settings. Prerequisites: PSYC 152, PRNU 231 and all related pre and Corequisites.

Credits: 5.

PRNU 238 - Caring For Select Populations

Health/psych/ICU/ED/OR/PACU specialty.

Credits: 1-3.

PRNU 240 - Contemp Iss&Ldrshp Prof Nursng

Current issues and leadership in the nursing profession. Prominent issues in nursing are explored from a historical, political, and futuristic perspective. Strategies dealing with issues are formulated using theories of change and leadership. Pre- or corequisites: 234, 235.

Credits: 3.

PRNU 241 - Hlth Care Iss Pop at Risk

Focus on populations at risk and pertinent health care issues. The role of the nurse as leader and provider of care to groups and communities is addressed. Prerequisites: 240,242.

Credits: 3.

PRNU 242 - Care for Client&Pop at Risk

Through seminar and practicum the student will understand the continuum of care required by populations at risk. The role of the nurse as leader and provider of direct care is emphasized. Students with assistance of faculty select the primary practicum site. Pre/co-requisite: PRNU 241.

Credits: 5.

PRNU 244 - Senior Practicum

Provides students with the opportunity to focus on a clinical area of interest. Settings include health clinics, homes, hospitals, and long term care facilities. Prerequisites: PRNU 231, 234, 235; Corequisites: PRNU 240, 241, 242.

Credits: 3.

PRNU 261 - Clients & Populations At Risk

Focus on roles of the nurse in community and public health within a multidisciplinary context. Students will explore factors that place populations at risk. Prerequisite: PRNU 152.

Credits: 4.

PRNU 262 - Care Clients/Pop At Risk:Cmty

Focus on the roles of nursing that emphasize community care. Students will engage in a practice situation involving aggregate care of populations at risk.

Pre/co-requisite: PRNU 261.

Credits: 4.

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Nursing Science (B. S.)

College: [Nursing and Health Sciences](#)Department(s): [Nursing](#)

Requirements:

General Requirements

- [University](#)
- [Nursing and Health Sciences](#)

Specific Requirements

The Nursing department offers an undergraduate educational program to prepare qualified individuals for the practice of professional nursing and a graduate program for advanced nursing practice. This program leads to the Bachelor of Science degree and is approved by the Vermont State Board of Nursing and the [National League for Nursing Accreditation Commission](#), 800-664-1656 Ext 153, 61 Broadway 33rd floor New York, NY 10006. Graduates of the nursing program are eligible to apply for registered nurse licensure.

Applicants must meet the general admission requirements for the University. Financial Aid is available in the form of scholarships, loans, awards, and employment (see section on Financial Aid). A minimum of 128 approved semester hours is required for the Bachelor of Science degree. A grade of C is required in selected cognate nursing prerequisite courses (see Student Handbook for details). A grade of C or better is required in all nursing major courses. A minimum 2.0 overall grade-point average is required for graduation. Full-time and part-time plans of studies are available. Students are encouraged to purchase a personal computer. Specifications for hardware and software requirements may be found in the Nursing Department's Handbook for Undergraduate Students.

The curriculum, conducted in four academic years, provides balance in general and professional education. Courses in the sciences — biological, physical, social, and humanities — serve as a foundation for the nursing courses.

The required courses in the humanities and sciences complement the preparation for nursing as well as contribute to a well-rounded education. Graduates are eligible to apply for licensure as registered nurses and have the foundation for continued formal study in nursing at the master's and doctoral levels.

Transfer to Nursing:

Individuals planning to seek admission are urged to call the Nursing Department for more detailed information and to arrange for a personal interview prior to applying for admission.

Possible Curriculum

First Year

	Fall	Spring
PRNU 50, Intro to the Profession of Nursing 1		
Environmental Studies ²	3-4	
English	3	
Psychology 1	3	
Human Development 5	3	
Chemistry 23, 26	4	4
Physical Education		1
Philosophy, Religion, or Ethics		3
Abnormal Psychology 152		3
Sociology 1 ¹		3
Elective		3
Total	17-18	17

Sophomore Year

	Fall	Spring
Elective	3	
Microbiology 65	4	
Nutrition 43, Fundamentals	3	
Statistics 111 or 141	3	
Anatomy & Physiology 19-20	4	4
Professional Nursing 110	3	
Professional Nursing 111	3	
Professional Nursing 113	4	
Physical Education	1	
Total	17	15

Junior Year

Fall Spring

NURS 120, Pathophysiology	3	
Professional Nursing 127	3	
Professional Nursing 128	4	
Professional Nursing 129	4	
Professional Nursing 130	2	
Professional Nursing 131	3	
Professional Nursing 132	5	
Professional Nursing 134	5	
Elective	3	
Total	16	16

Senior Year

	Fall	Spring
Professional Nursing 231	3	
Professional Nursing 234	5	
Professional Nursing 235	5	
Elective	3	
Professional Nursing 240		3
Professional Nursing 241		3
Professional Nursing 242		5
PRNU 244, Senior Practicum		3
Total	16	14

Total Credits: 128

Notes:

¹ Any sociology course under 100

² One of the following: ENVS 1, 2, or 7; ENSC 1 or 130; NR 2.

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College: [Nursing and Health Sciences](#)

Undergraduate Degrees

- Associate in Science (A.S.)
 - [Dental Hygiene](#)
- Bachelor of Science (B. S.)
 - Biomedical Technologies
 - [Biomedical Technology Concentration](#)
 - [Medical Laboratory Science Concentration](#)
(Includes Cytotechnology Option)
 - [Nuclear Medicine Technology Concentration](#)
 - [Radiation Therapy Concentration](#)
 - [Nursing](#)

Undergraduate Minors

- [Molecular Diagnostics](#)

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Nursing and Health Sciences Undergraduate Degree Requirements

College: [Nursing and Health Sciences](#)

Requirements for admission, retention and graduation are detailed below for each of the undergraduate degree programs. The College of Nursing and Health Sciences reserves the right to require the withdrawal of any student whose academic record, performance, or behavior in the professional programs is judged unsatisfactory. All candidates for admission and continuation must be able to perform the essential clinical as well as academic requirements of CNHS programs. These requirements include: the capacity to observe and communicate; sufficient motor ability to perform physical diagnostic examinations and basic laboratory and clinical procedures; emotional stability to exercise good judgment and to work effectively in stressful situations; and intellectual ability to synthesize data and solve problems. CNHS students must be able to meet these technical standards either with, or without, reasonable accommodations. Some professional licensing examiners, clinical affiliates and/or potential employers may require students and graduates to disclose personal health history, substance abuse history, and/or criminal convictions, which may, under certain conditions, impact eligibility for professional examinations, licensing, clinical affiliation, and/or employment. Some programs have additional clinical requirements such as CPR certification.

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Nursing and Health Sciences Undergraduate Responsibilities

College: [Nursing and Health Sciences](#)

There are some special responsibilities associated with clinical education. Students are responsible for their own transportation to and from clinical sites, and where relevant, the costs of housing for clinical experiences. Some clinical sites require a criminal background check and students are responsible for the associated costs. All students must carry professional liability insurance during clinical rotations. The University is not responsible for medical costs resulting from injury during clinical rotation, or during any other curricular activity, unless this injury is due to negligence by the University. The Center for Health and Wellbeing, UVM Student Health, offers a student insurance plan for students who need health insurance.

Applicants to the College's clinical programs must realize there is always an element of risk through exposure to infectious disease. Faculty and clinical staff make every effort to educate all students in appropriate modes of infection control in order to minimize these risks. Hepatitis B immunization series and a tetanus booster within the last 10 years are required prior to beginning the clinical experience. Additional immunization requirements are described in the Student Handbook for each of the respective programs. Immunizations will be available through the Student Health Center for a discounted fee. In our experience, health insurance coverage for immunization varies. If and when coverage is provided, pre-authorization by the insurance provider is usually required.

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Colleges & Schools

- College of Agriculture & Life Sciences
- College of Arts & Sciences
- College of Education & Social Services
- College of Engineering & Mathematics
- College of Nursing & Health Sciences
- Rubenstein School of Environment and Natural Resources
- **School of Business Administration**
- Graduate College

Colleges and Schools

School of Business Administration

Contact Information:

University of Vermont
School of Business Administration
Kalkin Hall
55 Colchester Ave
Burlington, VT 05405-0158

Phone: (802) 656-3175
Fax: (802) 656-8279
E-Mail Address: business@bsad.uvm.edu
Web Site: <http://www.bsad.uvm.edu/>

- [Academic Offerings](#)
- [B. S. Degree Requirements and Academic Standards](#)
- [B. S. in Business Administration Course Requirements](#)
- [Business Administration Faculty Listing](#)
- [Business Administration Course Listings \(BSAD\)](#)
- [Special Programs](#)
- [Transfers to Business Administration](#)

Overview

The mission of the School of Business Administration is to educate Vermont, national, and international students for careers in management, to conduct research that extends knowledge and contributes to the effectiveness of teaching and learning, to forge productive links with business and not-for-profit organizations, and to develop faculty capabilities to interpret and respond to significant changes in management education, research, and practice. In its education, research, and service programs, the School is committed to our special responsibility to serve the citizens of Vermont.

The program integrates forward-looking professional studies with rigorous studies in the

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liberal arts and sciences by graduating bachelors' candidates who

- know how to think critically, learn independently, and search for and integrate new information;
- understand what managers do, how businesses operate, and how markets behave;
- understand how knowledge is created;
- use knowledge, creative abilities, and analytical skills to frame and solve management problems;
- have strong communication skills;
- use information technologies to improve individual and organizational performance;
- have a sense of history, familiarity with great world literature and an understanding of global economic, political and technological developments;
- appreciate the diversity of cultures, values and ideas.

During their first two years, students build the conceptual and analytical base for studying the art and science of management. They partially complete general education requirements and learn required skills for upper level business courses. Students take business field courses and business discipline concentration courses in their junior and senior years.

The School of Business Administration cooperates with the College of Engineering and Mathematics in offering a B. S. in Engineering Management. (See [Engineering Management Department](#))

The undergraduate and graduate programs offered by the School are accredited by AACSB International: The Association to Advance Collegiate Schools of Business.

The offices of the School of Business Administration are located in Kalkin Hall.

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Academic Offerings

College: School of Business Administration

Undergraduate Degrees

- Bachelor of Science (B. S.)
 - Business Administration
 - Accounting
 - Finance
 - Marketing
 - Entrepreneurship
 - International Management
 - Management and the Environment
 - Management Information Systems
 - Production and Operations
 - Human Resource Management

Undergraduate Minors

- Accounting
- Business Administration

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Business Administration (B. S.)

College: [School of Business Administration](#)

General Requirements

- [University](#)
- [School of Business Administration](#)

Specific Requirements

Basic Business Core (24-26 credit hours)

To be completed by the end of the sophomore year with a grade-point average of 2.0.

- Math 19 and 20; or Math 21
- Economics 11 and 12
- Statistics 141
- BSAD 40, 60, 61

Business Field Courses (24 credit hours)

To be completed beginning junior year, with a grade-point average of at least 2.0.

- Quantitative Methods, BSAD 120, 132, 141, 150, 173, 180, 191.
- Students must have junior status and have completed the Basic Business Core before taking Business Field courses.
- The Quantitative Methods course is selected from among BSAD 170, 174, 177, 178, 266, 270, 272, or Statistics 151, 195, 201, 221, 223, 224, 225, 231, 233, 237 or 253. BSAD 191 is taken in the senior year.

Business Discipline Concentration (at least 12 credits)

To be completed with a grade point average of at least 2.0.

The student must complete at least 12 hours in Business Administration courses

numbered 100 or above beyond those required for the Business Field courses. One approach is to concentrate these courses in one of the areas of Accounting, Entrepreneurship, Finance, Human Resource Management, Management and the Environment, Management Information Systems, Marketing, International Management, or Productions and Operations Management. Students may also complete a self-designed program.

The specific requirements for each Discipline Concentration are available from the Student Services Office in 101 Kalkin Hall. A faculty member teaching in the discipline of the concentration must approve any exception to these requirements.

General Education Requirements

The General Education Requirement framework is based on six field blocks. The Six Fields are:

1. Arts and Humanities – Art, Classics, Film, History, Music, Philosophy, Religion, Theatre
2. Writing and Speaking – Speech, English (writing, literature, and film courses)
3. Social Sciences – Anthropology, Environmental Studies, Geography, Political Science, Psychology, Sociology, Women's Studies
4. Natural Sciences and Mathematics – Astronomy, Biology, Botany, Chemistry, Environmental Science, Geology, Computer Science, Mathematics, Natural Resources, Statistics, Physics
5. Area and International Studies – African Studies, Asian Studies, Canadian Studies, European Studies, Latin American Studies, Middle East Studies, Russian/East European Studies
6. Language and Literature – Chinese, American Sign Language (in CMSI), French, German, Greek, Hebrew, Italian, Japanese, Latin, Literature classes, Russian, Spanish, World Literature

Basic General Education Core (at least 19 credit hours)

Six courses. Each requirement must be filled with a course worth at least 3 credits. One from each of the following:

1. United States or Global History from History 9, 10, 11, 12, 19, 25, 26, or 68
2. English course that emphasizes practice in writing from English 1, 50, 53, 120
3. Social Science from any discipline in field 3 above
4. Natural Science that includes a laboratory or field experience from Astronomy 5 and 23, 5 and 24; Biology 1, 2; Botany 4; Chemistry 20, 23, 31, 35; Geology 1, 4, 55; Natural Resources 1; Physics 11 and 21, 31 and 21
5. Area and International Studies from any discipline in field 5 above
6. Language or Literature from any discipline in field 6 above

Cross-listed courses may count for only one Basic General Education Core requirement.

General Education Field Concentration (at least 12 credit hours)

Students must complete at least 12 credits in any one of the six general fields listed above. They may take any combination of courses within the field. For example, in the Social Sciences field, two Political Science courses, a Sociology course and a Women's Studies course might make up the field concentration.

One course from the Basic General Education Core may be used as one of the General Education Field Concentration courses.

History of Science (HST 85, 86) can count toward General Education Field Concentrations in either field 1 or field 4.

General Education Discipline Concentration (at least 12 credit hours)

Students must accumulate 12 credits in a single discipline. The discipline may not be in the field chosen for the General Education Field Concentration. Community Development & Applied Economics and Economics, may not be chosen as the discipline concentration.

Disciplines are specific academic areas, not broad fields. For example, Religion is a discipline in field 1. If Religion is chosen, the student may not include Philosophy and Art classes, even though they are in the same field.

One course from the Basic General Education Core may be used as one of the General Education Discipline Concentration.

As a general rule, two discipline concentration courses must be numbered 100 or higher. Exceptions: (1) if a language is chosen, at least one course must be numbered 51 or higher; (2) if Mathematics or Computer Science is chosen, at least two courses must be numbered 21 or higher; (3) if a Natural Science is chosen, there is no restriction on course level.

Caution: In some disciplines, there may not be sufficient courses or space in courses for a discipline concentration to be an option. Currently these include, but may not be limited to, Speech, Studio Art, and American Sign Language. Check with the department if there are any questions.

Students may submit a petition to the Undergraduate Studies Committee to seek approval on an exception basis to pursue a self-designed General Education Discipline Concentration. The petition should provide a rationale for the combination of courses proposed. Submit petition in 101 Kalkin Hall.

Race Relations and Ethnic Diversity in the U.S. (3 credit hours)

One three-credit course that addresses the question of race relations and ethnic diversity in the U.S. Courses that fill this requirement are approved by the College of Arts and Sciences. The course selected to satisfy this requirement may also be used to fulfill another general education requirement. Otherwise, an elective course must be used to meet the requirement.

Physical Education (2 credit hours)

All students are required to complete two credits in Physical Education Activities. No more than two credits will count toward the 122 hours required for graduation. Students who enter the University at age 25 or older may waive the two credits of PEAC.

Electives

General Education Electives

Students will take additional courses in subjects so that at least half of their course work is outside of Business Administration an Upper-level (100 level or above) Economics.

Other Electives

Students take additional electives, either inside or outside of Business to achieve the total 122 credit hours required for their degree.

Restrictions on Electives

1. No credit will be granted for a course that is assumed prerequisite knowledge for a course previously completed.
2. No credit will be granted for a course that substantially duplicates material in courses offered in Business Administration or in other previously completed courses.
3. No credit will be granted for Physical Education credits beyond the two credits that are required.

Possible Curriculum

Here is *one* illustrative schedule for the program. (Numbers shown are credit hours.)

First Year		
	Fall	Spring
Math 19, 20	3	3
EC 11, 12	3	3
BSAD 40	3	
General Education Courses 6-7	9-10	
Total	15-16	15-16
Sophomore Year		
	Fall	Spring
BSAD 60, 61	4	4
STAT 141		3
General Education Courses 12-13	9-10	

Total	16-17	16-17
Junior Year		
	Fall Spring	
Business Field Courses	12	9
General Education or Electives	3	6
Total	15	15

Senior Year

	Fall Spring	
Business Discipline Concentration Courses	6	6
General Education or Electives	9	6
BSAD 191, Business Policy		3
Total	15	15

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Minor in Accounting

College: [School of Business Administration](#)

Requirements

Prerequisites:

Economics 11, Economics 12, Mathematics 19 or 21, Statistics 111 or 141. Students must have basic microcomputer literacy, including a working knowledge of word processing and spreadsheet software. Students lacking this basic knowledge are responsible for attaining it through course work, self study, tutorials, or workshops.

Introductory Accounting: BSAD 60 and 61 or BSAD 65. (A student may not receive credit for BSAD 65 after completion of either BSAD 60 or BSAD 61.) Students must earn at least a 2.0 in *each* introductory accounting course taken to continue with an accounting minor. If a 2.0 is not achieved, a student may switch to a business administration minor.

Upper Level Accounting Requirements: BSAD 161, 162, 164, and 168. A student must earn a 2.0 average in these four courses to earn an accounting minor.

Students Majoring in Business

Students majoring in Business Administration are not required to have a minor to meet degree requirements; however, a business student may choose to have a minor outside of Business. The department issuing the minor sets the requirements and determines if the student is eligible to minor in their program. The student must contact the appropriate department to obtain more information.

Non-Business Students

Two different minors are available in the School of Business Administration for non-business majors: Business Administration or Accounting. An application is required and may be obtained at the Student Services Office, 101 Kalkin Hall. Acceptance into the minor program requires completion of the prerequisite courses with a GPA of 2.0 or better in these courses. Admission may be more restrictive if applications exceed the

capacity of the program.

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Minor in Business Administration

College/School: [School of Business Administration](#)

Requirements

Prerequisites:

Economics 11, Economics 12, Mathematics 19 or 21, Statistics 111 or 141. Students must have basic microcomputer literacy, including a working knowledge of word processing and spreadsheet software. Students lacking this basic knowledge are responsible for attaining it through course work, self study, tutorials, or workshops.

Accounting: BSAD 60 and 61 or BSAD 65. (A student may not receive credit for BSAD 65 after completion of BSAD 60 or BSAD 61.)

Other Business requirements: Three businessfield courses (numbered 100-299), at least one of which must be from the followinglist: BSAD 120, 132, 141, 150, 173, or 180.

One year MBA opportunity: A student minoring in Business Administration may complete an MBA at UVM in one year after earning a bachelor's degree if: (1) BSAD 60 and 61 are completed; (2) three of BSAD 120, 132, 150, 173, and 180 are selected to meet the minor requirement; (3) the other two courses on this list are taken as electives; and (4) the student applies and is admitted to the MBA program under regular criteria.

Students Majoring in Business

Students majoring in Business Administration are not required to have a minor to meet degree requirements; however, a business student may choose to have a minor outside of Business. The department issuing the minor sets the requirements and determines if the student is eligible to minor in their program. The student must contact the appropriate department to obtain more information.

Non-Business Students

Two different minors are available in the School of Business Administration for non-business majors: Business Administration or Accounting. An application is required and

may be obtained at the Student Services Office, 101 Kalkin Hall. Acceptance into the minor program requires completion of the prerequisite courses with a GPA of 2.0 or better in these courses. Admission may be more restrictive if applications exceed the capacity of the program.

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School of Business Administration Degree Requirements

College: [School of Business Administration](#)

Overview

Students must comply with the degree requirements as stated in a single catalogue edition in place during the time they are enrolled. The catalogue to be followed is the one in effect at the time a student enrolls at UVM, unless the student requests in writing to follow a catalogue that is published subsequently during their enrollment at UVM. Students who have a separation from the University of three years or more must meet the requirements of the current catalogue at the date of readmission.

A minimum of 122 approved semester hours is required for the degree of Bachelor of Science in Business Administration. At least 50% of course work must be taken in subjects that are not business or upper level economics. A cumulative grade point average of 2.0 is required. Additional grade requirements exist for basic business core, business field, and business discipline concentration courses.

Students must complete 30 of the last 45 hours of credit in residence at UVM as a matriculated student.

See also [specific degree requirements](#).

Academic Standards

Students will be placed on trial if their semester or cumulative average is less than 2.0. They will remain on trial until both semester and cumulative averages reach at least a 2.0, or until they are dismissed.

Full-time students are eligible to be dismissed in three situations: (1) failure of at least half of their course credit for any semester; (2) three successive cumulative grade-point averages below a 2.0; (3) two successive semester averages below a 2.0. (For dismissal purposes, part-time students' semester averages are calculated using at least 12 consecutive credits. Also, cumulative grade-point averages will not be considered as a basis for dismissal until at least 12 credit hours have been completed, unless over half of courses attempted are failed.)

A student eligible to be dismissed will be dismissed unless there are circumstances supporting an extension of trial status.

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Courses in Business Administration

BSAD 017 - Business Law

Concepts of law as related to business, including law of contracts, sales, bailments, and negotiable instruments, business and laws of agency, partnerships, and corporations. Prerequisite: Sophomore standing.

Credits: 3.

BSAD 018 - Business Law

Concepts of law as related to business, including law of contracts, sales, bailments, and negotiable instruments, business and laws of agency, partnerships, and corporations. Prerequisite: Sophomore standing.

Credits: 3.

BSAD 040 - Information Technology & Mgmt

and programming. Credit cannot be received for Computer Introduction to use of technology and computers in decision-making functions of management. Includes coverage of information technology, computer software applications, Science 2 or Computer Science 3 after completion of BSAD 40.

Credits: 3.

BSAD 060 - Financial Accounting

Introduction to generally accepted accounting principles and techniques regarding corporations, partnerships, and proprietorships as they apply to income determination and financial position presentation. Prerequisite: Sophomore standing.

Credits: 4.

BSAD 061 - Managerial Accounting

Introduction to use of accounting for planning, cost behavior and control, and decision making. Prerequisite: BSAD 60 or 65.

Credits: 4.

BSAD 065 - Fundamentals of Accounting

Overview of the financial accounting model and basic managerial accounting concepts, including accounting for service, merchandising and manufacturing companies, financial Statement components (assets, liabilities and equity), cost analysis, and budgeting. Prerequisite: Sophomore standing. Business Administration majors will not receive credit for BSAD 65.

Credits: 4.

BSAD 095 - Special Topics

Credits: 0-3.

BSAD 096 - Special Topics

Credits: 1-4.

BSAD 120 - Prin Mgmt & Org Behavior

Fundamentals of management, organization theory, behavior, and interpersonal communication in a transnational context. Prerequisite: Junior standing.

Credits: 3.

BSAD 121 - ST in Organizational Behavior

Focuses on ways in which individuals and work groups within organizations can be better utilized as organizational resources. Prerequisite: BSAD 120.

Credits: 3.

BSAD 123 - Collective Barg & Conflict Res

Focuses on union-employer relations and on developing the student's negotiation skills. Topics include the union contract, the causes of strikes, and the techniques for resolving conflict. A bargaining simulation is incorporated. Prerequisite: BSAD 120.

Credits: 3.

BSAD 127 - International Management

Reviews special problems in the management of human resources in a global economy. Focuses on cultural differences, a comparison of labor-management systems in a number of countries, the role of multinational corporations, and the impact of foreign enterprises on employment practices in host countries.

Prerequisite: BSAD 120; Senior standing.

Credits: 3.

BSAD 132 - Legal & Political Envir of Bus

Interaction of business and society. Emphasis on business roles in the complex and dynamic, legal, political, and social environment. Prerequisites: Economics 11, 12; junior standing.

Credits: 3.

BSAD 137 - Entrepreneurship

Understanding of the business challenges that confront entrepreneurs and their approaches to opportunities. Emphasizes real-world information gathering and integrated approaches needed for entrepreneurial success. Prerequisite: Junior standing and strong personal motivation.

Credits: 3.

BSAD 138 - New Venture Creation I

Students develop business plans for their own new business ideas. Evaluate market and financial feasibility and develop strategy and business objectives for the new venture. Prerequisite: BSAD 137 or permission of the instructor plus strong personal motivation.

Credits: 6.

BSAD 139 - New Venture Creation II

Continuation of BSAD 138. Students develop detailed and integrated operational business plans to support the business concept, strategy and objectives

developed in BSAD 138. Prerequisite: BSAD 138.

Credits: 3.

BSAD 141 - Mgmt Information Systems

Integrates computer hardware and software concepts with a classical methodology for developing business information systems. Presents the relevant factors in the development of information systems. Discusses the problems of analyzing, designing, and implementing such systems. Prerequisites: Statistics 141 or 111, Math 20 or 21, BSAD 40 or Computer Science major, junior standing.

Credits: 3.

BSAD 142 - Structured Business Prgmning

Fundamental principles of business computer programming. Topics include: the constructs of structured programming, modular development, sequential and nonsequential access techniques. Exercises include data editing, reporting, file updating. An on-line program development mode is used. Credit cannot be received for both CS 014 and BSAD 142. Prerequisite: BSAD 141.

Credits: 3.

BSAD 143 - Struc Anyl & Dsgn Business Sys

In-depth study of business information system development cycle emphasizing analysis and design phases. Structured analysis and design techniques used to develop models of business information systems. Case studies such as payroll, inventory, accounts receivables, order entry, billing. Prerequisite: BSAD 141.

Credits: 3.

BSAD 144 - Data Base Development & Admin

Data base system development cycle from analysis to design, implementation, and administration. Central focus on complex data structure modeling, data base implementation and administration. A project involving analysis, design, and implementation required. Prerequisite: BSAD 141, BSAD 143, or Instructor permission.

Credits: 3.

BSAD 145 - Managing Info System Resource

Theory and practice of managing resources of an organization's information system. Responsibilities and interactions of upper level, function area, and information system managers emphasized. Topics include project selection and control, staffing, organizing, planning, and managing the information system function. Prerequisites: BSAD 120, BSAD 143, concurrent enrollment in BSAD 144, or instructor's permission. Variable 3-4 hours.

Credits: 3.

BSAD 146 - Loc Area Net/Wrk Grp & Sm Bus

Planning and installation of local area networks (LANs). Covers fundamental principles of telecommunications and networking with application to both peer to peer and client server networks. (Offered summer session only). Prerequisites: BSAD 141 and instructor permission. Corequisite: BSAD 147.

Credits: 3.

BSAD 147 - Local Area Networking Lab

Laboratory to accompany BSAD 146. Install, configure, and test two different network systems in a simulated small business setting; include basic network

services. (Offered summer session only). Prerequisite: BSAD 141 or instructor permission. Corequisite: BSAD 146.

Credits: 1.

BSAD 150 - Marketing Management

The place of marketing in our economy. Analysis of the market structure by function, institutions, and commodities. Consumer and organizational activities reviewed. Prerequisites: Statistics 141 or 111, Economics 11, 12; junior standing.

Credits: 3.

BSAD 152 - Business to Business Marketing

Exploration and analysis of the marketing of goods and services to organizations. Topics include organizational buying, market segmentation, positioning, pricing, communication, physical distribution and customer service, and sales management. Prerequisite: BSAD 150.

Credits: 3.

BSAD 153 - Consumer Behavior

Exploration and analysis of research evidence from marketing and behavioral science relevant to a theory of consumer behavior. Emphasis also given to research methodologies. Prerequisite: BSAD 150.

Credits: 3.

BSAD 155 - Marketing Communications

Emphasizes the coordination of advertising and sales promotion into cohesive, single-minded promotional programs. Stresses the need to integrate promotional activity into the overall marketing strategy. Prerequisite: BSAD 150.

Credits: 3.

BSAD 158 - Current Marketing Developments

Analysis of both present and future changes affecting marketing theory and practice. Topics include social changes, functional and institutional marketing system changes. Individual research projects required. Prerequisite: BSAD 150.

Credits: 3.

BSAD 159 - Mktg Planning & Programming

The use of advanced cases to aid in the formulation of overall policies and planning strategies for marketing programs. Topics include product planning and channel selection. Prerequisite: BSAD 150 and one other marketing course.

Credits: 3.

BSAD 161 - Intermediate Accounting

Principles, concepts, techniques, and issues involved in accounting for the assets, liabilities, and owners equity and their related effect on income determination of an enterprise. Prerequisites: BSAD 60, junior standing.

Credits: 3.

BSAD 162 - Intermediate Accounting

Principles, concepts, techniques, and issues involved in accounting for the assets, liabilities, and owners equity and their related effect on income determination of an enterprise. Prerequisites: BSAD 161, junior standing.

Credits: 3.

BSAD 164 - Intro to Federal Taxation

Examination of the Internal Revenue Code primarily regarding individuals and

property transactions. Tax research methodology, and the taxation of corporate and partnership income, are introduced. Prerequisites: BSAD 060 or BSAD 065; Junior standing.

Credits: 3.

BSAD 168 - Cost Accounting

Accounting for inventory valuation and income determination, nonroutine decisions, policy making and long-range planning. Prerequisite: BSAD 061; Junior standing.

Credits: 3.

BSAD 170 - Business Forecasting Methods

Looks inside the crystal ball at major forecasting methods (Smoothing, Regression, Econometric, Box-Jenkins, Combined), and analyzes elements of good forecasting practice in an organization. Extensive use of PC forecasting packages. Prerequisites: STAT 141, EC 011, EC 012; Junior standing.

Credits: 3.

BSAD 173 - Production&Operations Analysis

Study of methods used in planning, analysis, and control of production and service processes. Topics include forecasting, scheduling, production and inventory control, sequencing, line balancing, learning curves, and networks. Prerequisites: Math 20 or 21, Statistics 141, junior standing.

Credits: 3.

BSAD 174 - Manufacturing Planning&Control

Study of systems to plan and control flows of materials through manufacturing. Topics include production, materials, and capacity planning; master scheduling; shop-floor control, and just-in-time production. Prerequisite: BSAD 173 or Senior standing in Engineering or Mathematics.

Credits: 3.

BSAD 175 - Management of Technology

Role of technology in industry, the nature of technological change, strategies, management, research and development, forecasting, product service/project selection, development, management, transition to market, and evaluation. Prerequisite: Senior standing in Engineering or Business Administration. Cross-Listed with: EMGT 175.

Credits: 3.

BSAD 177 - Decision Analysis

Thinking through difficult decisions. Course utilizes case studies and professional software to analyze decision making, design decision models and perform risk analyses. Prerequisite: STAT 141; Junior standing.

Credits: 3.

BSAD 178 - Quality Control

Prerequisite: MATH 020 or MATH 021, STAT 141 or Analysis and design of systems for obtaining quality in operations. Statistical process control (SPC) emphasized, along with current management philosophies and concepts. equivalent; Junior standing.

Credits: 3.

BSAD 180 - Managerial Finance

standing.

Credits: 3.

BSAD 181 - Intermediate Financial Mgmt

Examines key areas of financial decision making. With cases and problems, issues such as capital budgeting, leasing, mergers, and acquisitions examined.

Prerequisite: BSAD 180.

Credits: 3.

BSAD 183 - International Finance Mgmt

Theories and practices of international financial management examined. Topics investigated include: systems of international exchange, spot and forward markets, and expropriation and exchange risk. Prerequisite: BSAD 180.

Credits: 3.

BSAD 184 - Financial Institutions&Markets

Study of level and structure of interest rates and characteristics of financial institutions and markets. Topics include market vs. natural rate of interest, interest rate structure, behavior of interest rates. Prerequisite: BSAD 180.

Credits: 3.

BSAD 191 - Business Policy

Processes of total enterprise strategy formation, implementation, and performance measurement. Uses and limits of techniques for strategy analysis. Strategic change and the job of the general manager. Prerequisite: Senior standing.

Credits: 3.

BSAD 192 - Business Process Improvement

Familiarizes students with the basic conceptual issues of continuously improving business processes to compete more effectively on quality, time, and cost.

Prerequisite: Junior standing.

Credits: 3.

BSAD 194 - Internship

Independent research under faculty supervision, in connection with a preprofessional work experience. Written requirements include a substantive analysis of an aspect of the internship, linking it with the academic curriculum.

Prerequisite: Completion of the Basic Business Core courses; at least one Business Field Course; cumulative GPA of at least a 3.0; permission of the School of Business Administration.

Credits: 3.

BSAD 195 - Special Topics

Specialized or experimental courses offered as resources permit.

Credits: 1-6.

BSAD 196 - Special Topics

Specialized or experimental courses offered as resources permit.

Credits: 1-4.

BSAD 197 - Independent Study

Independent investigation designed by the student as a means of applying prior course work to a specialized problem. Well suited for senior projects. Prerequisite: Permission of BSAD Undergraduate Studies Committee.

Credits: 1-6.

BSAD 198 - Independent Study

Independent investigation designed by the student as a means of applying prior course work to a specialized problem. Well suited for senior projects. Prerequisite: Permission of BSAD Undergraduate Studies Committee.

Credits: 1-6.

BSAD 222 - Human Resource Management

Critical examination of contemporary problems in human resource management; including job analysis, recruitment, training and employee development, health and safety, compensation, performance appraisal, and related topics. Prerequisite: BSAD 120; Senior standing.

Credits: 3.

BSAD 226 - Current Iss in Mgmt & Org Thry

Subjects may include training and development, selection and recruitment, and affirmative action. Prerequisite: BSAD 120.

Credits: 1-3.

BSAD 234 - Canadian-US Business Relations

Prerequisite: EC 011, EC 012. A study of the Canadian-U.S. bilateral relationship as it affects international business, emphasizing trade, investment, energy, and industrial development policies.

Credits: 3.

BSAD 251 - Marketing Research

The role of research in a marketing information framework. Emphasis on survey research, data collection, and analysis. Experimental designs also examined. Prerequisite: BSAD 150.

Credits: 3.

BSAD 252 - Marketing Research Practicum

Market research field project. Students design survey instruments, collect and analyze data, and present results to clients in a business environment.

Prerequisite: BSAD 251.

Credits: 3.

BSAD 258 - International Market Analysis

Examines the cultural, economic, historic, and political factors that affect the analysis of foreign markets. Specific attention is given to the processes by which market entry decisions are developed and implemented. Prerequisites: Senior or graduate standing; BSAD 150 or permission of instructor.

Credits: 3.

BSAD 260 - Financial Statement Analysis

A study of the concepts and techniques underlying corporate financial statement analysis, emphasizing business equity valuation. Prerequisites: BSAD 180 or 308.

Credits: 3.

BSAD 263 - Accounting & the Environment

An examination of the critical role of accounting in implementing and assessing the firm's environmental strategy. A variety of accounting issues are addressed through readings and case studies. Prerequisites: Junior standing, BSAD 61 or 65 or concurrent enrollment in BSAD 308.

Credits: 3.

BSAD 266 - Advanced Accounting

Accounting for partnerships, special sales contracts, parent-subsidary relationships, fiduciary relationships, and governmental units. Prerequisite: BSAD 162.

Credits: 3.

BSAD 267 - Auditing

Independent and internal auditing. Topics include standards, ethics and legal responsibilities of the profession, financial statements, audit concepts, and techniques, and the audit option. Prerequisite: BSAD 162.

Credits: 3.

BSAD 270 - Quant Anyl for Managerial Dec

Application of management science methods to managerial decision making, emphasizing modeling and use of solution results. Topics include mathematical programming, waiting-line analysis, and computer simulation. Prerequisite: STAT141, MATH 020 or MATH 021.

Credits: 3.

BSAD 272 - Discrete Simulation

Discrete simulation using monte-carlo techniques and the GPSS simulation processor; mathematical modeling of systems; control systems; validation and sensitivity analysis. Prerequisites: Statistics 141 or 151, senior standing. UG only.

Credits: 3.

BSAD 282 - Security Val & Portfolio Mgmt

Examination of theories and evidence on the investment decision process including operations of equity securities markets, market efficiency, financial asset prices, and portfolio management. Prerequisites or Corequisites: BSAD 181 and 184 or BSAD 308.

Credits: 3.

BSAD 285 - Options and Futures

Topics include: structures of the markets for exchange

Credits: 3.

BSAD 293 - Integrated Product Development

(Cross-listed with Mechanical Engineering 265, Statistics 265.) Project-based course focusing on the entire product life cycle. Team dynamics, process and product design, quality, materials, management, and environmentally-conscious manufacturing. Prerequisite: Senior standing.

Credits: 3.

BSAD 295 - Special Topics

Advanced courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles and prerequisites. Prerequisite: Senior standing.

Credits: 1-3.

BSAD 302 - Business Economics

An introduction to the principles of economics as relevant to business decision-making. The use of various analytical tools are stressed through their application in solving a variety of managerial problems. Prerequisite: MBA standing or permission of MBA Program Director.

Credits: 3.

BSAD 304 - Managerial Economics

Application of economic, mathematical, and statistical models to managerial decision making. Emphasis given to optimization techniques, spreadsheet analyses, decision trees, and cost/benefit analysis. Prerequisite: MBA standing.

Credits: 3.

BSAD 305 - Fundamentals of Marketing Mgmt

Prerequisite: MBA standing.

Credits: 3.

BSAD 306 - Fundamentals of Accounting

Introduction to basic concepts, assumptions, conventions providing foundation for developing financial statements. Analysis, interpretation of the income statement, balance sheet, statement of changes in financial position. Prerequisite: MBA standing.

Credits: 3.

BSAD 307 - Organization & Mgmt Studies

A survey course of the principles of management and organization behavior. The fundamentals of planning, organizing, leading, staffing, and controlling are covered. Particular attention is given to organization theory and behavior, including topics such as motivation, group behavior and decision making. All areas are covered in an international context. Prerequisite: MBA standing.

Credits: 3.

BSAD 308 - Corporate Finance

An introduction to financial decision making in the firm. Decisions related to acquisition and allocation of funds are examined and practiced through cases and problems. Prerequisite: MBA standing; BSAD 306.

Credits: 3.

BSAD 309 - Fund Legal Environ of Business

General overview of areas of interaction between businesses and governments. Examination of governmental policy toward business and review of laws governing business-government interactions. Prerequisite: MBA standing.

Credits: 3.

BSAD 331 - Health Care Management

Addresses changing challenges confronted by managers in health services delivery organizations. Examines applications and limitations of management concepts and processes in the health care context. Prerequisite: MBA

Credits: 3.

BSAD 337 - Internatnl Trade&Invstmnt Pol

Examination of international trade rules of the GATT and the pending World Trade Organization; analysis of the impact on domestic and international firms.

Prerequisite: MBA standing; BSAD 309.

Credits: 3.

BSAD 340 - Production & Operations Mgmt

Study of the operations function in manufacturing and service organizations. Design, planning, and control are examined, with emphasis on managerial analysis and decision making. Prerequisite: One course in STAT.

Credits: 3.

BSAD 341 - Forecasting

Modern forecasting methods and practices including smoothing, regression, econometric and Box-Jenkins models; combining forecasts and forecasting simulations. Professional software used for developing forecasts. Prerequisite: MBA standing; one course in Statistics or research methods.

Credits: 3.

BSAD 345 - Management Information Systems

An introduction to the design and implementation of management information systems. A theoretical framework is developed and applied by students to an information system. Prerequisite: MBA standing.

Credits: 3.

BSAD 346 - Decision Making Models

Application of decision-making models to administrative problems. Structuring decisions through decision trees, making choices, assessing risk, resolving conflicting objectives and overcoming organizational impediments. Prerequisite: One course in Statistics. Cross-listed with: PA 308.

Credits: 3.

BSAD 352 - Business to Business Marketing

Exploration and analysis of the marketing of goods and services to organizations. Topics include organizational buying, market segmentation, positioning, pricing, communication, physical distribution and customer services, and sales management. Prerequisite: MBA standing; BSAD 305.

Credits: 3.

BSAD 359 - Marketing Policy

Concepts from quantitative methods, economics, behavioral sciences applied to marketing management. Includes: marketing opportunities, organizing for marketing, planning marketing programs, control of marketing effort. Case book method. Prerequisite: MBA standing; BSAD 305.

Credits: 3.

BSAD 360 - Contemporary Financial Acctg

Current financial accounting, reporting practices; focus on contemporary issues, problems. Impact of pronouncements of Accounting Principles Board, Financial Accounting Standards Board, Securities and Exchange Commission, and other bodies. Prerequisites: MBA standing, BSAD 306.

Credits: 3.

BSAD 365 - Managerial Accounting

Study of development, utilization of accounting information for product costing and pricing purposes, for routine planning and control of organizational activities, for decision-making purposes. Prerequisites: MBA standing, BSAD 306.

Credits: 3.

BSAD 375 - Organization Theory

Organization theories examined for insights into behaviors of organizations and their members. Open systems perspective. Identification of contingencies in organization design based on human, structural, technological, environmental variables. Prerequisite: MBA standing; BSAD 307.

Credits: 3.

BSAD 376 - Mgmt of Change in Organization

accomplishment of planned changes in organizational

Credits: 3.

BSAD 379 - Strategic Management

Case studies of existing organizations are used to illustrate the intellectual, social processes of adaptation to a changing environment; strategy formulation, implementation. Not offered every year. Prerequisite: MBA standing; completion of First-Year courses.

Credits: 3.

BSAD 380 - Managerial Finance

Prerequisites: MBA standing, BSAD 308. Focus on key financial decisions that affect the value of the firms. Topics: capital structure, leasing, mergers and acquisitions, capital market theories and evidence.

Credits: 3.

BSAD 394 - Independent Readings&Research

Allows a student to pursue independent research under the direction of a faculty member. Normally, the course will include a research paper. Prerequisite: MBA standing; permission of the Graduate Studies Committee.

Credits: 1-3.

BSAD 395 - Special Topics

Topics and material that may develop later into a regular course offering; in addition, it may include topics and material offered only once. Prerequisite: MBA standing; permission of the Graduate Studies Committee.

Credits: 1-3.

BSAD 396 - Business Policy

A case course focusing on the resolution of complex cases involving simultaneous solutions of problems in two or more functional areas. Prerequisites: MBA standing; last semester of study.

Credits: 3.

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School of Business Administration Special Programs

College: [Business Administration](#)

[Professional Accounting Program](#) | [International Management](#) | [Preprofessional Work Programs](#)

Professional Accounting Program

Students planning to sit for the CPA examination should complete the Professional Accounting Program: BSAD 17, 18, 161, 162, 164, 168, 266, 267. Completion of the Professional Accounting Program satisfies the Business Discipline Concentration requirement. BSAD 266 may be used to satisfy both the Quantitative Methods requirement and the Professional Accounting Program requirement.

Completion of the professional accounting program fulfills the academic requirements to sit for the CPA examination in the State of Vermont. The requirements to sit for the CPA examination vary among states, therefore students who plan to sit for the examination in a state other than Vermont are advised to contact the state's [Board of Accountancy](#) to obtain current requirements.

International Management

Students interested in International Management are expected to spend the spring semester of their junior year studying abroad.

The University has formal arrangements with universities in Grenoble, France, and Vienna, Austria. Courses are taught in English.

It is also possible for students to spend a semester at other international universities. International Management students need to complete BSAD 120, 150, and 180 before going abroad.

Preprofessional Work Programs

Students are encouraged to participate in preprofessional work opportunities. These opportunities include internships and cooperative education (CO-OP) programs. For both

of these programs students must first successfully complete the Basic Business Core.

Cooperative Education — CO-OP opportunities are coordinated and supervised through Career Services. If a full-time CO-OP work experience is done during a regular semester, students will need to take classes in a summer session.

Internships — Internships may involve part-time work during the academic year, or summer work. The time required of an internship and whether or not it is a paid experience depends on the employer.

Credit may be available for demonstrated academic learning in relation to a preprofessional work experience. A faculty member in each area of business will be designated each semester to work with students and grade the written assignments. To enroll for credit, students must have a minimum of junior standing, completion of Basic Business Core, a related Business Field Course with a grade of B, and a cumulative grade-point average of 3.0. If these requirements are met, students should talk with the assigned faculty member in their field of study to discuss the written assignments required for credit and to obtain approval. Once the internship is approved, students must enroll in BSAD 194 to receive internship credit. Business students may not earn Business practicum or internship credit through other academic units.

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Transfer to School of Business Administration

College: [School of Business Administration](#)

Students planning to transfer to the School of Business Administration from another college or school on campus must comply with the Intercollege Transfer policy. Applications may be obtained in the Student Services Office at 101 Kalkin Hall.

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Colleges & Schools

- College of Agriculture & Life Sciences
- College of Arts & Sciences
- College of Education & Social Services
- College of Engineering & Mathematics
- College of Nursing & Health Sciences
- **Rubenstein School of Environment and Natural Resources**
- School of Business Administration
- Graduate College

Colleges and Schools

The Rubenstein School of Environment and Natural Resources

Contact Information:

University of Vermont
 The Rubenstein School of Environment and Natural Resources
 George D. Aiken Center
 81 Carrigan Drive
 Burlington, VT 05405

Phone: (802) 656-4280
 FAX: (802) 656-8683
 E-mail: webber@snr.uvm.edu
 Web Site: <http://www.uvm.edu/envnr/>

- [Departments and Programs](#)
- [Academic Offerings](#)
- [Undergraduate Honors Program](#)
- [Undergraduate Internships](#)
- [Undergraduate Degree Requirements](#)

Overview

In The Rubenstein School, excitement for discovery and a commitment to lifelong learning are central. Our emphasis on the integration of natural science and cultural perspectives reflects the interdisciplinary context in which ecosystem management, resource planning, and environmental concerns must be addressed. We believe that there is a strong interplay between teaching and scholarship and that each is vital to the other.

The Rubenstein School seeks to cultivate an appreciation and enhanced understanding of ecological and social processes and values aimed at maintaining the integrity of natural systems and achieving a sustainable human community. We pursue this goal by generating and broadly disseminating knowledge and by challenging students,

Faculty

colleagues, and citizens to acquire knowledge, skills, and values to become innovative, environmentally responsible, and accountable leaders.

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We are actively committed to diversity biodiversity in natural communities and cultural diversity in human communities. Individual and professional responsibility, as well as scholastic excellence, are emphasized within the School's supportive atmosphere. Faculty members are conscientious advisors, and students communicate frequently with them for guidance in clarifying educational, career, and personal goals. While these programs prepare students for a variety of positions in natural resources and the environment, graduates are also well prepared to pursue careers or advanced study in other professions.

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The Office of the Dean of the School is located in the George D. Aiken Center for Natural Resources.

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Departments and Programs

College: [The Rubenstein School of Environment and Natural Resources](#)

- [Environmental Sciences](#)
- [Environmental Studies](#)
- [Forestry](#)
- [Natural Resources](#)
- [Recreation Management](#)
- [Wildlife and Fisheries Biology](#)

Undecided: Students interested in studying natural resources, but who wish to postpone their decision on a specific major, enroll in Undecided-Natural Resources.

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Departments and Programs

Environmental Sciences Program (College of Agriculture and Life Sciences or The Rubenstein School of Environment and Natural Resources)

Colleges: Agriculture and Life Sciences, The Rubenstein School of Environment and Natural Resources

Faculty: Environmental Sciences

Courses: Environmental Sciences (ENSC)

Contact Information

University of Vermont

The Rubenstein School of Environment and Natural Resources

Environmental Sciences Program

George D. Aiken Center

81 Carrigan Drive

Burlington, VT 05405

Phone: (802) 656-2691

Email: Alan.McIntosh@uvm.edu

Web Site (College of Agriculture and Life Sciences): <http://pss.uvm.edu/ENSC/>

Web Site (The Rubenstein School of Environment and Natural Resources):

http://www.uvm.edu/envnr/?Page=undergrads/enviro_sciences.html

Related Programs:

- Environmental Sciences (College of Arts and Sciences)

Academic Offerings

- Undergraduate Majors
 - Bachelor of Science (B. S.)
 - Environmental Sciences
Concentrations [*College of Agriculture and Life Sciences*]:

- Agriculture and the Environment
- Conservation Biology and Biodiversity
- Ecological Design
- Environmental Analysis and Assessment
- Environmental Resources
- Water Resources
- Environmental Sciences
Concentrations [*The Rubenstein School of Environment and Natural Resources*]:
 - Agriculture and the Environment
 - Conservation Biology and Biodiversity
 - Ecological Design
 - Environmental Analysis and Assessment
 - Environmental Resources
 - Water Resources

Overview

Students with an aptitude for science and an interest in the quality of the environment can choose alternate pathways in pursuing a major in Environmental Sciences at UVM. The Rubenstein School of Environment and Natural Resources and the College of Agriculture and Life Sciences jointly offer a science-based education emphasizing the application of scientific skills and knowledge in addressing complex environmental problems. The Environmental Sciences major provides students with the fundamental knowledge and hands-on experience to identify, analyze, and solve "real world" environmental problems arising from human activities.

The College of Arts and Sciences offers a science education with an emphasis on basic science approaches to understanding the environment. See the [Environmental Sciences Program in the College of Arts and Sciences](#) for more information.

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Courses in Environmental Sciences

ENSC 001 - Intro Environmental Sciences

Emphasizes the impacts of human activity on the environment. Attention to resources at risk and pollutant fate and effects on ecosystems.

Credits: 3.

ENSC 101 - Pollutant Mvmt/Air, Land & Water

Physical, chemical, and biological aspects of pollutant behavior from source to ultimate fate. Laboratory methodologies for measuring pollutants and predicting their transport, behavior, and fate. Prerequisites: 1; Biology 1, 2; Chemistry 31, 32; Math. 19, 20; co-requisite Chemistry 42.

Credits: 4.

ENSC 130 - Global Environmental Assessment

Assessment of human impacts on the global environment. Hands-on application of satellite remote sensing and geographic information systems to address key environmental issues. Prerequisite: BIOL 001 or BOT 004, CHEM 023, or equivalent, MATH 019.

Credits: 3.

ENSC 185 - Special Topics

See Schedule of Courses for specific titles. Variable credit.

Credits: 1-12.

ENSC 195 - Internship

Professionally-oriented field experience under joint supervision of faculty and business or community representative. Prerequisite: Proposal and permission of ENSC Director; Junior standing; good academic standing; Maximum of six hours. Three can be applied to elected concentration with Director permission.

Credits: 1-6.

ENSC 196 - Independent Research

Special study and research activity under the directory of a faculty member. Prerequisite: Proposal and permission of ENSC Director; Junior standing; good academic standing. Up to six hours. Three can be applied to elected concentration with Director permission.

Credits: 1-6.

ENSC 201 - Recovery & Restor Altered Ecosys

Role of stress and disturbance and the natural process of recovery in aquatic and terrestrial ecosystems. Human efforts to modify, restore, and remediate altered ecosystems. Prerequisites: Natural Resources 103 or an intermediate-level ecology course; or instructor's permission. Environmental Sciences 101 strongly recommended.

Credits: 3.

ENSC 202 - Ecological Risk Assessment

Approaches used to identify, measure, and manage ecological risk. Problem formulation, characterization, uncertainty analysis, and risk management. Case studies. Prerequisite: ENSC 201, NR 140 or STAT 141; Senior standing, or Instructor permission.

Credits: 3.

ENSC 222 - Pollution Ecology

Impacts of pollutants on the structure and function of ecosystems. Examination of how air, land, and water influence ecological fate and effects of pollutants.

Prerequisites: Biology 1; Chemistry 23, Natural Resources 103 or equivalent ecology course. (Not offered for graduate credit.)

Credits: 3.

ENSC 285 - Adv Special Topics ENSC

See Schedule of Courses for specific titles. Prerequisites: Senior standing or instructor's permission. Variable credit. (Not offered for graduate credit.)

Credits: 1-12.

ENSC 299 - Environmental Sciences Honors

Honors project dealing with environmental sciences. Prerequisites: By application only; see program chair.

Credits: 3-6.

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Environmental Sciences (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Environmental Sciences](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

A total of 122 credits are required for the degree.

Required courses: BIOL 1, 2; CHEM 31, 32; **CHEM 42; GEOL 55 or PSS 161; *MATH 19, 20; *NR 140 or STAT 141; ENSC 1, 101, 130, 185, 201, 202; 14 credits in one of the following advising tracks - Water Resources, Environmental Analysis and Assessment, Ecological Design, Agriculture and the Environment, Conservation Biology and Biodiversity, or Environmental Resources. Students may also elect a self-designed track in a particular area of interest.

*Also fulfills ENVNR general education requirement.

**Students interested in areas such as environmental analysis and assessments should consider taking more advanced courses, such as CHEM 141/142.

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Departments and Programs

Environmental Studies Program

Colleges: [Agriculture and Life Sciences](#), [Arts and Sciences](#), [Education and Social Services](#), [The Rubenstein School of Environment and Natural Resources](#)

Faculty: Environmental Studies

Courses: [Environmental Studies \(ENVS\)](#)

Contact Information:

*University of Vermont
Environmental Program
Bittersweet
153 South Prospect St.
Burlington, VT 05401*

Phone: (802) 656-4055

Fax: (802) 656-8015

Email: Elizabeth.Getchell@uvm.edu

Web Site: <http://www.uvm.edu/~envprog/>

- [Degree Requirements and Curriculum](#)

Academic Offerings

- Undergraduate Majors
 - Bachelor of Science (B. S.)
 - [Environmental Studies](#)
[The Rubenstein School of Environment and Natural Resources]

Overview

Environmental Studies is a University-wide undergraduate environmental curricular option directed by the Environmental Program in cooperation with several colleges and professional schools. This option is one of UVM's most distinctive and popular academic programs — unique nationally in its breadth and interdisciplinary nature.

Students entering UVM may apply for admission to Environmental Studies through several of the undergraduate divisions. Choice of the appropriate college or school will depend on the individual's interests, career and educational objectives.

The Environmental Program involves students and faculty from throughout the University, as well as community professionals, recognizing that study of the environment must draw upon all academic disciplines and professional fields. The activities of the Program include undergraduate education, research, and community service programs dedicated to the study and improvement of the cultural and natural environments essential to the quality of life on earth.

The Program serves a wide range of environmental interests, with its primary mission being undergraduate education, and its primary focus the individual student. Working closely with the faculty, each student plans an individualized program that combines a broad, comprehensive understanding of the environment with depth in a specific discipline or profession. Major concentrations can be in the natural or technical sciences, the humanities or arts, the social sciences or professions, or broadly interdisciplinary.

Many graduates continue their education in graduate or professional schools; others work in public and private sectors in highly diverse fields throughout Vermont, the nation, and in countries around the globe.

Students enrolled in Early Childhood, Elementary Education and Physical Education may complete the major concentration in Environmental Studies as a fulfillment of the liberal arts and sciences major requirement. Environmental Studies is not a Vermont State Department of Education approved endorsement area for Secondary Education.

Program offices and a Student Services Center are located in The Bittersweet, where students are encouraged to visit with the staff and faculty regarding their academic plans, to gain assistance with research or action projects, and to seek information about academic programs, internships, international study opportunities, graduate studies, and future careers.

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Courses in Environmental Studies

ENVS 001 - Intro to Environmental Studies

Survey of environmental studies examining ecological, socioeconomic, aesthetic, and technological influences determining quality of life on earth. Prerequisite: First-year/Sophomore standing or Instructor permission.

Credits: 4.

ENVS 002 - Internat'l Environmental Stds

A multidisciplinary analysis of the interaction of global and local variables in understanding and solving pervasive environmental problems. Prerequisite: First-year or sophomore standing.

Credits: 4.

ENVS 007 - Environmental Awareness

Selected current environmental issues from evolving political, religious, scientific, and social perspectives. For non-majors. Cannot receive credit for both ENVS 001 and ENVS 007

Credits: 3.

ENVS 095 - Special Topics

Introductory courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural areas management.

Credits: 1-4.

ENVS 096 - Special Topics

Credits: 1-3.

ENVS 100 - Environmental Theory

Comparative analysis of emerging concepts of human/environment relationships; the history, philosophy, and theoretical framework of environmental studies.

Prerequisites: 1,2.

Credits: 3.

ENVS 151 - Intermed Environmental Studies

Individual investigation of interdisciplinary areas of environmental studies with emphasis on academic and career choices and preparation for senior thesis/project. Prerequisites: Major in Environmental Studies; 1, 2; permission.

Credits: 3.

ENVS 152 - Environment Information Skills

age by teaching information concepts, skills, and broad ranging resources.

Prerequisite: ENVS 151, or concurrently enrolled in ENVS 151.

Credits: 1.

ENVS 156 - Permaculture

Cross-listed with: PSS 156. Design of agriculturally productive environments that have the diversity, stability, and resilience of the natural biosphere to harmoniously integrate landscape and people. Prerequisite: Three hours basic biological or ecological science, or permission.

Credits: 2.

ENVS 173 - Landscape Natural History

This field-based course examines patterns and processes on local landscapes from an interdisciplinary perspective, with an emphasis on geology, soil science, plant ecology, and ecosystem geography. Prerequisites: ENVS 001;

Credits: 3.

ENVS 174 - Nat Areas Conservation&Steward

Prerequisites: ENVS 001, NR 001, or Instructor permission.

Credits: 3.

ENVS 177 - Intro to Landscape Restoration

Introduction to the history, philosophical foundations, and approaches to restoration of natural landscapes damaged by human activity and neglect. Case studies of selected local sites. Prerequisite: ENVS 001, NR 001, or Instructor permission.

Credits: 3.

ENVS 178 - Environmental Ethics

Current approaches and problems in environmental ethics drawing on philosophy and case studies in animal rights, land ethics, deep ecology, wilderness protection, and human rights. Prerequisite: One environmental course; Junior standing.

Credits: 0-3.

ENVS 179 - Ecofeminism

(Cross-listed with Women's Studies 179.) Investigation of the parallel dominations of women and nature, through analysis and reflection on ecofeminist theory, activism, and spirituality. Prerequisites: ENVS 001, ENVS 002 or WST 073, sophomore standing.

Credits: 3.

ENVS 180 - Radical Environmentalism

Survey of radical environmental philosophy and activism from a liberation ethics perspective. Includes deep ecology, ecofeminism, environmental justice, and ecological resistance movements around the world. Prerequisite: ENVS 001, ENVS 002; Sophomore standing.

Credits: 3.

ENVS 181 - Strategic Environmental Leadership

Theory and analysis of strategic environmental leadership as it varies with culture, ethnicity, and gender. Prerequisites: 1, 2, junior standing, permission of instructor.

Credits: 1.

ENVS 182 - Religion and Ecology

or ENVS 002; or

Credits: 3.

ENVS 190 - Environmental Skills

Workshops to develop applied skills useful for environmental work and/or research. Topics vary by semester. Prerequisite: ENVS 001, ENVS 002.

Credits: 1-3.

ENVS 191 - Environmental Practicum

Individual readings and research, internship, or field-based learning experience under direction of a faculty member or environmental practitioner. Credit arranged.

Prerequisite: Permission of course coordinator.

Credits: .5-9.

ENVS 195 - Special Topics

Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course; Sophomore standing.

Credits: 1-6.

ENVS 196 - Special Topics

Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course; Sophomore standing.

Credits: 1-6.

ENVS 197 - Student Designed Course

Course Student-taught courses beyond the scope of existing formal courses in environmental studies. Developed according to Program guidelines, with sponsorship by interested faculty. Prerequisites: 1, 2, permission.

Credits: 1-3.

ENVS 201 - Research Methods

(Not offered for graduate credit.) Planning, design, and methods for the required senior thesis or project. Includes literature review and proposal writing.

Prerequisites: 151, junior standing.

Credits: 3.

ENVS 202 - Senior Project and Thesis

Senior level project or thesis under faculty direction. Prerequisites: 201, permission of Environmental Program. Credits arranged. (Not offered for graduate credit.)

Credits: 1-9.

ENVS 203 - Honors Thesis

Undergraduates only.

Credits: 1-9.

ENVS 204 - Seminar Environmental Studies

Review and discussion of current environmental research and literature.

Prerequisites: 1, 2, junior or senior standing. (Not offered for graduate credit.)

Credits: 1-3.

ENVS 284 - Teaching Assistantship

in ENVS course. Variable credit. May be repeated. UG only. Students gain practical teaching experience through assisting with instruction, evaluation, and reflection. Tasks may include: leading discussion sessions, grading, and developing course materials. Prerequisites: Senior standing or permission of instructor, concurrent teaching assistant
Credits: 1-2.

ENVS 289 - Environmental Economics

Application of economic theory and methods to environmental problems and policies. Includes cost-benefit analysis and economic incentives as tools for environmental problem solving. Prerequisites: 1, three hours intermediate economics. For students in Arts and Sciences: Economics 11-12, intermediate course in ENVS. UG only.
Credits: 3.

ENVS 290 - Environmental Policy

environmental resource institutions. Prerequisites: Six Public policy dimensions of natural resource management and environmental protection; U.S. historical context; policy analyses of contemporary issues; administration of hours of intermediate or advanced courses in ENVS or related areas. UG only.
Credits: 3.

ENVS 291 - Advanced Environmental Pract

Individual readings and research, internship, or field-based learning experience at the advanced level, under direction of faculty member or environmental practitioner. Prerequisite: ENVS 001, ENVS 002; Senior/Graduate standing.
Credits: 1-12.

ENVS 293 - Environmental Law

Principles of environmental law, including legal research methods, threshold issues, case law, trial procedure, and international comparisons in aspects of air, land, and water law. Prerequisite: Junior standing.
Credits: 3.

ENVS 294 - Environmental Education

Philosophy, concepts, and strategies of environmental education, emphasizing integration of environmental concerns into formal and nonformal educational programs for youth and adults. Prerequisite: Six hours of intermediate or advanced courses in Environmental Studies or related areas.
Credits: 3.

ENVS 295 - Advanced Special Topics

Advanced courses of current areas of interest which may vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course at 100 level; Junior standing.
Credits: 0-6.

ENVS 296 - Advanced Special Topics

Advanced courses of current areas of interest which may vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisites: One environmental course at 100 level, junior standing. UG only.

Credits: 1-6.

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Environmental Studies (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Environmental Studies](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

A total of 122 credits are required for the degree.

Required courses: ENVS 1, 2, 151, 201, 202; 30 hours of approved environmentally-related courses* at the 100 or 200 level, including three hours at the 200 level, with at least one course in each of four areas - natural sciences, humanities, social sciences, and international studies (may be fulfilled by a study abroad experience).

*These courses are in addition to the ENVNR core and general education requirements.

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Department and Programs

Forestry Program

Colleges: [The Rubenstein School of Environment and Natural Resources](#)

Faculty: Forestry

Courses: [Forestry \(FOR\)](#)

Contact Information:

University of Vermont

The Rubenstein School of Environment and Natural Resources

Forestry Program

George D. Aiken Center

81 Carrigan Drive

Burlington, VT 05405

Phone: (802) 656-2511

FAX: (802) 656-8683

E-mail: John.Shane@uvm.edu

Web Site: <http://www.uvm.edu/envnr/?Page=undergrads/forestry.html> ↻

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B.S.)
 - [Forestry](#)
- Undergraduate Minors
 - [Forestry](#)

Overview

The Forestry major provides students with an education in ecologically responsible

forestry, emphasizing the complex landscapes of the northeastern United States. Students develop their abilities to coordinate and manage all aspects of sustainable forestry through an education that combines a strong foundation in natural and social sciences with hands-on field-based classes, internships, research experiences, and forest management projects. The curriculum is integrative, technologically current, and science-based.

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Courses in Forestry

FOR 001 - Forest Conservation

Introduction to the ecology and management of American forests: forest distribution, ownership, and ecological factors, species interactions, multi-resource management goals, and silvicultural practices. Cannot be taken by junior- or senior-level SNR students.

Credits: 3.

FOR 021 - Dendrology

Classification, silvical characteristics, and identification features of native and introduced trees and shrubs.

Credits: 4.

FOR 073 - Small Woodland Management

Concepts of forest ecology, resource inventory, cultural practices, and multiple use management for small woodland areas.

Credits: 3.

FOR 081 - Forestry Seminar

Readings and discussions introducing current issues in forestry. Prerequisite: First-Year/Sophomore standing in Natural Resources.

Credits: 1.

FOR 120 - Forest Ecology

Forest environment and its effects on the development and distribution of forest communities. Introduction to population dynamics, systems and analysis, diversity, stability, ecosystem disturbances, and succession. Prerequisite: NR 001, or another introductory Biological Science course. Not offered 2001-02.

Credits: 3.

FOR 121 - Forest Ecology Laboratory

Application of ecological principles in the analysis of forest communities.

Prerequisite: NR 025; a course in tree identification; previous or concurrent enrollment in NR 103.

Credits: 2.

FOR 122 - Forest Ecosystem Analysis

An integrated field course to investigate, through quantification and interpretation, the flora, fauna, and abiotic components (soils, physiography, water, and

- microclimate) of a selected forest ecosystem. Prerequisite: FOR 121, NR 140.
Credits: 4.
- FOR 126 - Forest Ecology Field Trip
Assessment of southeastern forest ecosystems including Smoky Mountain communities, and upland and bottomland forests of the Georgia Piedmont and South Carolina Coastal Plain. Field trip at end of spring semester. Prerequisite: A course in plant identification; a course in ecology; Instructor permission.
Credits: 2.
- FOR 132 - Forest Fire Behavior & Mgmt
Forest fire ecology, behavior, effects, weather relationships, danger rating, prevention, detection, management, prescribed fire, smoke management, wildland/urban interface, and multi-resource perspectives. Prerequisite: A course in plant ecology or concurrent enrollment; Knowledge of plant identification.
Alternate years.
Credits: 3.
- FOR 133 - Forest Entomology
(Cross-listed with Plant and Soil Science 107.)
Credits: 3.
- FOR 146 - Remote Sensing of Natural Res
Cross-listed with: NR 146, GEOG 185. Identification, resources from aerial photographs and satellite imagery. Labs include air photo interpretation and digital image analysis. Prerequisites: Junior standing. Alternate years.
Credits: 3.
- FOR 152 - Forest Resources Values
History, methods, and current issues associated with the nonmarket and market values of forest-based resources, including aesthetics, wildlife, recreation, water, and as Recreation Management 152).
Credits: 3.
- FOR 158 - Stewardship: Private Woodlands
Basic financial, legal and operational aspects for long-term ownership and stewardship of woodlands; appraisals, taxation, land trusts, conservation easements, estate planning; Vermont focus. Prerequisite: Course in Economics.
Credits: 3.
- FOR 162 - Properties & Uses of Wood
Properties, uses, and identification of commercial woods of the U.S. Manufacture of major wood products. Prerequisite: A course in tree identification. Alternate years.
Credits: 3.
- FOR 163 - Timber Harvesting
Private forest emphasis; impacts of alternative techniques on cultural and natural resources; preharvest inventory, prescription, layout, contracts, bookkeeping; postharvest operations. Alternate years.
Credits: 3.
- FOR 182 - Advanced Forestry Seminar
In-depth examination of contemporary issues in forestry. Prerequisite: Junior/Senior standing in Forestry. Credit arranged.

Credits: 1.

FOR 185 - Undergrad Special Topics

Readings, investigations, and lectures in selected forest resource subjects.

Prerequisite: Instructor permission. Credit arranged.

Credits: 0-6.

FOR 191 - Forestry Work Practicum

Supervised work experience in forest resource area. Prerequisite: Instructor permission. Credit arranged.

Credits: 1-9.

FOR 205 - Mineral Nutrition of Plants

Cross-listed with: BOT 205.

Credits: 3.

FOR 222 - Advanced Silviculture

Scientific basis and contemporary status of silviculture practices. Prerequisite: FOR 223; permission. Alternate years, 2000-01.

Credits: 3.

FOR 223 - Multi-Resource Silviculture

Theory and application of forest stand maintenance/manipulation for forest ecosystem sustainability. Topics: Silvics, regeneration, tree improvement, protection, stand structure/dynamics/tending, and multi-resource perspectives.

Prerequisites: NR 25, 103, FOR 121 (FOR 122-Forestry majors). UG only.

Credits: 4.

FOR 225 - Tree Structure & Function

Basic anatomy and physiology of trees and other woody plants, emphasizing their unique structural and physiological adaptations to the environment. Prerequisite:

Permission.

Credits: 3.

FOR 228 - Ecosystem Ecology

Examination of the structure and function of terrestrial ecosystems using a systems approach. Laboratory sessions involve modeling and data analysis.

Prerequisites: Biology 1, 2, Chemistry 23, an intermediate ecology course, Natural Resources 140, Math. 19, Physics 11 or equivalent. Alternate years, 2002-03.

Credits: 2.

FOR 231 - Integrated Forest Protection

Integration of concepts of forest protection using a holistic ecological approach to forest pest management. Detection, population dynamics, evaluation, prediction, and pest management considerations. Prerequisite: FOR 133, FOR 234, or

Instructor permission. Alternate years, 2001-02.

Credits: 3.

FOR 234 - Forest Pathology

An in-depth survey of diseases of forest and shade trees emphasizing identification, morphology, physiology, ecology, epidemiology, genetic relationships, integrated disease management, and multi-resource perspectives.

Prerequisites: Biology 1 & 2, knowledge of plant identification and ecology. UG only.

Credits: 4.

FOR 272 - Sustainable Mgmt Forest Ecosys

planning project. Prerequisite: FOR 122, NR 205; Principles of long-term planning and plan implementation in support of sustainable forestry; Adaptive management; biodiversity and ecosystem health; major management concurrent or prior enrollment in FOR 223, or Graduate standing.

Credits: 4.

FOR 275 - Forest Watershed Management

Concepts of forest hydrology and forest watershed management; emphasis on natural processes and impacts of quantity, quality, and seasonal distribution of flow from watersheds. Prerequisite: Natural Resources 102, junior standing or permission. (Not offered for graduate credit.)

Credits: 3.

FOR 285 - Advanced Special Topics

Advanced special topics courses or seminars in forestry beyond the scope of existing formal courses. Prerequisite: Graduate or advanced undergraduate standing; Instructor permission. Credit as arranged.

Credits: 0-6.

FOR 291 - Senior Research

Work on research problem under direction of a staff member. Findings submitted in written form as prescribed by department. Prerequisites: Senior standing, permission. (Not offered for graduate credit.)

Credits: 3.

FOR 292 - Senior Research

(Not offered for graduate credit.) Work on research problem under direction of a staff member. Findings submitted in written form as prescribed by department. Prerequisites: Senior standing, permission.

Credits: 3.

FOR 299 - Honors

Honors project dealing with the biology and/or management of forest ecosystems. Prerequisite: By application only; see program chair. UG only.

Credits: 3-6.

FOR 382 - Seminar in Research Planning

Discussions of the planning and activities associated with Graduate student projects and research. Prerequisite: Instructor Permission. Cross-listed with: NR 382.

Credits: 1.

FOR 385 - Selected Problems in Forestry

Prerequisite: Instructor permission. Advanced readings, or a special investigation dealing with a topic beyond the scope of existing formal courses.

Credits: 1-6.

FOR 391 - Master's Thesis Research

Credits: 1-6.

FOR 392 - Master's Project Research

Credits: 1-6.

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Forestry (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Forestry](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

Students supplement a core of required Forestry and related courses with a student-proposed, faculty-approved area of concentration¹ such as forest ecosystem health, forest ecology, consulting forestry, public forest administration, or international development. The concentration represents at least 12 credit hours and may be self-designed², an appropriate University minor, or a natural resource-oriented study abroad experience.

A total of 126 credits are required for the degree.

Required courses: BOT 4; CHEM 23; MATH 18³; NR 25, 140³, 224; PSS 161; FOR 21, 73, 81⁴, 121, 122⁵, 158, 182, 223, 272; a course in forest health⁶; 12 additional credits in area of concentration.

¹ Must be endorsed by the student's advisor and approved by the Forestry faculty prior to the last four semesters of study.

² At least 9 credits are to be at the 100-level or higher.

³ Also fulfills SNR general education requirement.

⁴ Transfer students with 45 or more credit hours are exempt from FOR 81.

⁵ Field intensive course offered only during the summer session.

⁶ Currently can be fulfilled with either FOR 234-Forest Pathology or PSS 107-Forest

Entomology

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Minor in Forestry

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Forestry Program](#)

Requirements

The Bachelor of Science degree in Natural Resources does not require completion of a minor. However, many students in The Rubenstein School do complete minors, either within the School or in other departments across campus. Interested students should contact the chair of the minor program or department.

Applications for the minor must be filed no later than June 1 of the year preceding graduation. A minimum of 16 credit hours is required, with at least nine at the 100-level or higher.

Required courses: FOR 1* or 73; FOR 21; additional FOR courses to total 16 credits.

* Students in the The Rubenstein School may not count FOR 1 towards completion of a Forestry minor.

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Department and Programs

Natural Resources Program

Colleges: [The Rubenstein School of Environment and Natural Resources](#), [Graduate College](#)

Faculty: Natural Resources

Courses: [Natural Resources \(NR\)](#)

Contact Information:

University of Vermont

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Natural Resources Program

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Web Site: http://www.uvm.edu/envnr/?Page=undergrads/natural_res.html (undergraduate), http://www.uvm.edu/envnr/?Page=master_phd_info/snr_doctor.html (graduate)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - Concentrations:
 - [Integrated Natural Resources](#)
 - [Resource Planning](#)
 - [Resource Ecology](#)

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Courses in Natural Resources

NR 001 - Natural Hist & Field Ecology

Introduction to the dynamics of the natural world. Basic concepts of biological, chemical, physical, and ecological sciences and the application and interpretation of quantitative measurements are presented within a natural history context.

Credits: 4.

NR 002 - Nature & Culture

Introduction to natural resources and the environment from a social/cultural perspective. Emphasis on environmental history, values, and ethics with application to natural

Credits: 3.

NR 006 - Race & Culture in NR

Introduces the first-year student to issues of race and culture from a variety of disciplinary perspectives.

Credits: 1.

NR 025 - Measurements & Mapping

Introduction to surveying, mapping, aerial photo measurements, and interpretation for natural resource planning and management. Prerequisite: A course in high school or college trigonometry; permission required of nonmajors.

Credits: 4.

NR 051 - Environ Aesthetics & Planning

Examines historical changes in perceptions of natural and built landscapes, the issues involved in the appearance of landscapes today, and techniques for enhancing landscape beauty.

Credits: 3.

NR 073 - Understanding Water Quality

Introduction to water quality and water pollution in streams, lakes, wetlands, and ground water. Provides foundation for knowledgeable citizen participation in management of public waters. Credit not allowed for both NR 073 and NR 102.

Credits: 3.

NR 099 - Aiken Scholars Seminar

Seminar discussions on current environment issues. Guest speakers and field trips. Prerequisite: Open only to First-Year Aiken Scholars.

Credits: 1.

NR 102 - Water as a Natural Resource

Characteristics of water-sheds, lakes, rivers, and wetlands; discussion of the management of these ecosystems; effects of society on the water resource.

Prerequisites: Biology 1; Zoology 9 or Botany 4 or equivalent; Chemistry 31, 23, 26, or 42 or equivalent.

Credits: 3.

NR 103 - Ecology, Ecosystems & Environ

Major ecological concepts and their application. Analysis of form, structure, and function of organisms, populations, communities, ecosystems, and landscapes.

Prerequisites: 1; concurrent enrollment in 104 and 105 required.

Credits: 3.

NR 104 - Social Proc & the Environment

Social science theories and their application to environmental issues. Analysis of issues using theories of government, economics, and social movements.

Emphasis on integrating frameworks to analyze environmental issues.

Prerequisite: 2 and concurrent enrollment in 103 and 105 required.

Credits: 3.

NR 105 - Environmental Problem Analysis

Examination of interdisciplinary dimensions of natural resource and environmental problems. Emphasis on social and ecological aspects of environmental issues and interdisciplinary teamwork. Prerequisite: NR 001, NR 002; concurrent enrollment in NR 103 and NR 104.

Credits: 1.

NR 107 - The Environment&Human Health

Interdisciplinary understanding of the effects of anthropogenic factors including pollution, reduced biodiversity, climate change, overpopulation, and resource depletion on the health of natural systems and human populations. Pre/co-requisites: a college level science course and sophomore standing. (Crosslisted with NH 107).

Credits: 3.

NR 130 - Global Environmental Assessmnt

Cross-listed with ENSC 130.

Credits: 3.

NR 140 - Natrl Resources Biosstatistics

Introduction to applied statistical methods for typical natural resources biological problems. Descriptive statistics, hypothesis testing, regression, and sampling design. Emphasis on problem formulation and solution. Prerequisites: Sophomore standing, two years of high school algebra.

Credits: 4.

NR 143 - Intro to Geog Info Systems

Understanding and application of computer-based, geographically-referenced information systems. Prerequisites: Junior standing; CS 003 or CS 011.

Credits: 3.

NR 146 - Remote Sensing of Natural Res

Cross-listed with: FOR 146, GEOG 185.

Credits: 3.

NR 155 - Fluvial Geology

Cross-listed with: GEOL 155.

Credits: 3.

NR 170 - Intro Dynamic Simulation Mdlg

Elementary principles of dynamic simulation modeling and use of the STELLA II dynamic simulation software. Example simulations of natural environmental systems. Prerequisite: Sophomore standing.

Credits: 1.

NR 176 - Water Quality Analysis

Selected aspects of elementary water chemistry and bioassay as related to surface and ground waters. Five laboratory experiences. Prerequisite: 176. (2.5 hours lecture per week and 20 hours lab per semester.)

Credits: 3.

NR 185 - Special Topics

Special topics in natural resources beyond the scope of existing formal courses. Variable credit.

Credits: 1-6.

NR 189 - Student-Designed Course Work

Student-taught course work beyond the scope of formal courses in natural resources. Developed according to SNR guidelines with sponsorship by interested faculty. Variable credit.

Credits: 1-3.

NR 199 - Honors Seminar

A discussion and readings seminar that features guest speakers, and is part of the SNR Spring Seminar Series. Focus of the seminars change annually. Can be repeated. Prerequisite: Sophomore standing; open only to SNR Honors Students.

Credits: 1.

NR 205 - Ecosys Mgt:Integ Sci,Soc & Pol

Integration of natural and social science into ecosystem management and policy. Consideration of ecosystem integrity, ecosystem degradation, human needs and values, and the application of management principles within a (Not offered for graduate credit.)

Credits: 3.

NR 206 - Env Prob Sol & Impact Assessmt

Group dynamics, impact assessment, risk assessment, and decision making. Emphasis on the process of solving complex environmental problems, interdisciplinary team work, and the National Environmental Policy Act.

Prerequisites: 1, 2, 103, 104, 205, and statistics. (Not offered for graduate credit.)

Credits: 4.

NR 220 - Landscape Ecology

Study of pattern, process, and dynamics in the landscape. Considers the role of landscape pattern in determining habitat quality and ecosystem function.

Prerequisites: One biology, one ecology course; senior standing. Alternate years, 2002-03.

Credits: 2.

NR 222 - Pollution Ecology

(Cross-listed with Environmental Sciences 222.)

Credits: 3.

NR 224 - Conservation Biology

Conservation of biological diversity at genetic, species, ecosystem, and landscape levels. Emphasis on genetic diversity, population viability, endangered species, critical habitats, international implications. Prerequisites: Biology 1, 2; a 100-level ecology course. (Not offered for graduate credit.)

Credits: 3.

NR 228 - Ecosystem Ecology

(Cross-listed with Forestry 228.) UG only.

Credits: 2.

NR 235 - Legal Aspects of Plng & Zoning

Comparison of Vermont planning and zoning law with that of other states. Case studies in planning, zoning, and land use controls. Prerequisite: Senior standing. Not offered 2002-03.

Credits: 3.

NR 236 - Geochemistry

(Cross-listed Geology 235.)

Credits: 3.

NR 240 - Wilderness & Wilderness Mgmt

(Cross-listed with Recreation Management 240.)

Credits: 3.

NR 244 - Quantitative Assmnts of NR

Credits: 3.

NR 250 - Limnology

experience. Prerequisites: One year Biology; one Ecology of lakes and reservoirs, including their origin, physics, chemistry and biology, and the effects of anthropogenic perturbations. Field and laboratory year Chemistry; ecology course.

Credits: 4.

NR 252 - Visual Resource Planning & Mgt

Investigates the theories and principles of aesthetics related to landscape perception, and their applications to visual impact assessment and scenic resource planning. Prerequisite: Senior standing.

Credits: 3.

NR 254 - Adv Natural Resource Policy

Advanced seminar in natural resource policy, emphasizing current issues in forest policy. Prerequisite: Graduate or advanced undergraduate standing; Instructor permission.

Credits: 3.

NR 255 - Field Mthds in Water Resources

Techniques used in field assessment of water quality in rivers and lakes. Case studies on the LaPlatte River and Lake Champlain. Sampling strategies, field measurements, and data evaluation. Extensive field work. Prerequisite: NR 102 or equivalent basic course in water.

Credits: 3.

NR 256 - Ecology of a Large Lake

A field exploration of the littoral zone and deep lake environments and human impacts on large lakes using Lake Champlain as the class laboratory.

Prerequisite: 100-level ecology course.

Credits: 4.

NR 260 - Wetlands Ecology & Mgmt

Structure, dynamics and values of natural and artificial BIOL 001 and BIOL 002; an upper-level ecology course.

Credits: 3.

NR 261 - Wetlands Ecology Lab

Credits: 1.

NR 262 - Int'l Problems in NR Mgmt

Discussion of problems associated with the management of natural resources which have international implications. Topics may include deforestation, desertification, fisheries, wildlife, refuges, fuelwood, pollution. Prerequisite: Senior standing; permission.

Credits: 3.

NR 270 - Toxic&Hazardous Subst in Surf Water

The fate of toxic and hazardous pollutants, including trace elements and organics, in surface waters; effects on human health and aquatic biota. Prerequisite: BIOL 001, CHEM 023, CHEM 042; CHEM 102 or equivalent; Senior standing.

Credits: 3.

NR 275 - NR Planning: Theory & Methods

Investigates theoretical development of natural resource planning. Studies planning methods appropriate to protection and use of scenic, recreational, forest, agriculture, and historic resources and ecologically sensitive areas. Prerequisite: Senior standing.

Credits: 3.

NR 276 - Water Quality Anlys & Interp

Selected aspects of water chemistry and bioassay as related to surface and ground waters. Laboratory analysis of water quality parameters and data interpretation. Prerequisite: One course in Chemistry, calculus, and Statistics; Senior standing.

Credits: 3.

NR 278 - Principles of Aquatic Systems

Study of physical, chemical and biological principles as related to natural aquatic systems. Modeling dynamic behavior of aquatic systems using system simulation techniques. Prerequisite: MATH 019, PHYS 011, CHEM 023, CHEM 026 or equivalent; NR 170 or equivalent or as a co-requisite; Senior standing. Lecture and three hours laboratory per week.

Credits: 3.

NR 279 - Watershed Management Hydrology

Fundamental elements of hydrology and contaminant transport in watersheds. Application of dynamic simulation techniques. Discussion of new technologies for watershed management. Prerequisite: NR 170 or equivalent or as a co-requisite; NR 020, PHYS 011, CHEM 023, CHEM 026 or equivalent; Senior standing.

Credits: 3.

NR 280 - Stream Ecology

Ecology of streams including hydrodynamics, morphology, sediment transport, chemistry, biology and human impacts. Field and laboratory experience.

Prerequisites: One year Biology; one year Chemistry;

Credits: 4.

NR 285 - Advanced Special Topics

Graduate/Senior standing; Instructor permission.

Credits: 0-6.

NR 298 - Honors 'Project' Planning

Discussions leading to the development of an individual or group Senior Honors Project Proposal. Prerequisites: Junior standing; open only to SNR Honors Students. UG only.

Credits: 1.

NR 299 - Honors

Honors project dealing with aquatic resources, terrestrial ecology, or integrated natural resources. Prerequisite: By application only; see program chair. UG only.

Credits: 3-6.

NR 360 - Environmental Sociology

Instructor permission.

Credits: 3.

NR 361 - Politic:Landscape,Place,Nature

Seminar exploring the social and political construction of nature, emphasizing how natural resources and environment are defined through social relationships in particular landscapes and places.

Credits: 2.

NR 370 - Sp Tpcs in Aquatic Toxicology

Concurrent enrollment in NR 270. Prerequisite:

Credits: 1.

NR 375 - NR Planning: Laboratory

theory and methods to local or regional issues. Students conduct a planning exercise for a town or region. Co-requisite: Concurrent enrollment in NR 275.

Credits: 1.

NR 378 - Integrating Analyses NR Issues

Resource Issues. Seminar contrasting epistemologies and ontologies of natural resource disciplines. Applications from fields such as ecology, policy, sociology, engineering, and ethics. Prerequisite: Graduate standing.

Credits: 2.

NR 380 - Seminar in Natural Resources

Presentation and discussion of advanced problems, research, and current topics in natural resources by faculty, graduate students, and outside guest speakers.

Credits: .5-2.

NR 382 - Seminar in Research Planning

Cross-listed with: FOR 382.

Credits: 1.

NR 384 - Independent Study in NR

Readings, with conferences, to provide graduate students with backgrounds and specialized knowledge relating to an area in which an appropriate course is not offered.

Credits: 1-3.

NR 385 - Special Topics in NR

Graduate topics and material that may eventually develop into a regular course offering; in addition, it may include topics and material presented only once.

Credits: 0-3.

NR 391 - Master's Thesis Research

Credits: 1-18.

NR 392 - Master's Project Research

Credits: 1-12.

NR 491 - Doctoral Dissertation Research

Credits: 1-18.

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Natural Resources: Integrated Natural Resources Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Natural Resources](#)

Overview

Integrated Natural Resources (INR) is a self-designed major. INR is the right choice for students who have strong interests in natural resources and the environment, clear academic direction, and the motivation to develop a well-focused, personally meaningful course of study. Working closely with a faculty advisor, the student builds on a solid foundation of natural resources courses to create an individualized program that combines course work from disciplines within and outside the School.

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

A total of 122 credits are required for the degree.

Required courses (minimum nine credits): Students elect from a list of approved courses at least one course in each of three areas - biology/ecology; NR courses in social sciences and communications; and quantitative and analytical methods. These courses are in addition to those taken to fulfill ENVNR general education requirements.

Individualized Program of Study Option (minimum 39 credits)

The student develops an individualized Program of Study composed primarily of intermediate-level School of Environment and Natural Resources courses (ENVS, ENSC, FOR, NR, RM or WFB prefix). This may include no more than 15 credits outside the School and no more than 6 credits below the 100-level. With careful selection of courses, students develop concentrations such as Environmental Education, Resource

Management, Resource Conservation, International Resource Issues, and Spatial Analysis of Natural Resources. All programs of study must be endorsed by the advisor, then approved by the faculty. If not approved, the student may not continue in the INR option and must seek another major. The program of study is to be completed by the end of the sophomore year (60 credits). Transfer students with more than 60 credits must have a program of study approved as part of the transfer application. It is expected that transfer students will be active in the program for at least two years (four semesters) after transferring into the INR option. Any course substitution request must be approved prior to the end of the add/drop period for the semester in which the student enrolls in the substitute course.

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Natural Resources: Resource Planning Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Natural Resources](#)

Overview

The Resource Planning curriculum explores interactions among individuals, communities, and society with nature, resources, and the environment. It allows students to select courses around specific individual interests such as natural resource planning and community, policy and economic dimensions of resource planning, and international dimensions of resource planning.

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

A total of 122 credits are required for the degree.

Required courses: PSYC 1; CDAE 2; POLS 21 or 41; SOC 1 or 11; PHIL 4 or CDAE 156; ANTH 21 or GEOG 1; EC 12 or CDAE 61. 27 additional credits in Option Electives to be chosen from approved list in consultation with student's academic advisor. Any course substitution request must be approved prior to the end of the add/drop period for the semester in which the student enrolls in the substitute course.

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Natural Resources: Resource Ecology Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Natural Resources](#)

Overview

The Resource Ecology curriculum explores the biology and ecology of plants and animals in both aquatic and terrestrial systems and allows students to select courses around specific individual interests.

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

A total of 122 credits are required for the degree.

Required courses: BIOL 1,2; GEOL 1 or PSS 161; *MATH 13 or 19; *NR 140; CHEM 23 or CHEM 31,32; CHEM 26 or CHEM 42 or CHEM 141,142; NR 25; NR 143 or FOR 146; PHYS 11 or 31; 24 additional credits in Option Electives to be chosen from approved list in consultation with student's academic advisor. Any course substitution request must be approved prior the end of the add/drop period for the semester in which the student enrolls in the substitute course.

* Also fulfills ENVNR general education requirement.

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Department and Programs

Recreation Management Program

Colleges: [The Rubenstein School of Environment and Natural Resources](#)

Faculty: [Recreation Management](#)

Courses: [Recreation Management \(RM\)](#)

Contact Information:

University of Vermont

The Rubenstein School of Environment and Natural Resources

Recreation Management Program

George D. Aiken Center

81 Carrigan Drive

Burlington, VT 05405

Phone: (802) 656-2911

FAX: (802) 656-2623

E-mail: Robert.Manning@uvm.edu

Web Site: http://www.uvm.edu/envnr/?Page=undergrads/rec_management.html ↻

- [Core Curriculum](#)

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - Concentrations:
 - [Private Outdoor Recreation and Tourism](#)
 - [Public Outdoor Recreation](#)
- Undergraduate Minors
 - [Recreation Management](#)

Overview

The Recreation Management major integrates the study of environmentally based tourism and hands-on management of outdoor recreation resources. Students may major in Public Outdoor Recreation or Private Outdoor Recreation and Tourism. Public recreation resources include parks, forests, wilderness areas, and other outdoor recreation environments at the local, regional, state, and federal government levels. Private resources include ski areas, campgrounds, resorts, and other natural resource-based recreation facilities. The program permits specialization in several types of private recreation businesses, including ski resorts.

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Courses in Recreation Management

RM 001 - Intro to Recreation Management

Introduction to the broad field of outdoor recreation and tourism, including history, philosophy, current issues, career opportunities, and the Recreation Management Program.

Credits: 1.

RM 030 - US National Parks

The natural beauty and unique phenomena of our National Parks are emphasized. Historical development and current problems are cited. Credit not granted for both 30 and Natural Resources 2.

Credits: 3.

RM 050 - Tourism Planning

Examination of tourism including its economic, environmental, and social effects. Emphasis on planning to maintain the integrity of tourist regions.

Credits: 3.

RM 138 - Park & Recreation Design

Recreation design methodology applied to the design of public and private recreational facilities.

Credits: 4.

RM 152 - Forest Resource Values

Cross-listed with Forestry 152.

Credits: 3.

RM 153 - Recreation Admin & Operations

Administration and operation of outdoor recreation agencies and businesses. Special emphasis on recreation administrative structures, personnel management, and maintenance of parks and outdoor recreation areas. Prerequisites: Junior or senior standing.

Credits: 3.

RM 157 - Ski Area Management

An analysis of current management problems affecting private ski areas in Vermont and the Northeast. Prerequisites: Junior or senior standing. Alternate years.

Credits: 3.

RM 158 - Resort Mgmt & Marketing

Study of the management of year-round resort facilities. Emphasis on resort marketing, internal support functions, and associated recreational facilities.

Prerequisites: Junior or senior standing.

Credits: 3.

RM 160 - Parks & People I

A Living/Learning Center Program. Consideration of impacts of recreation on the environment. Discussion of the operation of the Vermont State Park System.

Credit for 160 will not be granted until 161 has been successfully completed.

Credits: 1.

RM 161 - Parks & People II

A Living/Learning Center Program. Consideration of impacts of recreation on the environment. Discussion of the operation of the Vermont State Park System.

Credit for 160 will not be granted until 161 has been successfully completed.

Credits: 1.

RM 188 - Special Topics

Independent study. Prerequisites: Junior standing, permission.

Credits: 1-3.

RM 191 - Rec Management Practicum

Supervised field experience in national, state, urban, or private park and recreation operations. Prerequisite: Junior or senior standing in Recreation Management.

Credits: 1-6.

RM 230 - Ecotourism

Study of nature-based travel emphasizing international destinations. Examination of ecotourism as a tool for preservation and economic development. Prerequisites: Junior or senior standing (Not offered for graduate credit.)

Credits: 3.

RM 235 - Outdoor Recreation Planning

Planning large land areas for outdoor recreation use. Emphasis on the planning process relative to the leisure time use of natural resources. Prerequisites:

Advanced standing in Recreation Management or permission. UG only.

Credits: 3.

RM 240 - Park and Wilderness Management

History, philosophy, and management of wilderness, national parks, and related areas. Prerequisite: Junior or senior standing in Recreation Management.

Credits: 3.

RM 255 - Environmental Interpretation

Philosophy, principles, and techniques of communicating environmental values, natural history processes, and cultural features to recreation visitors through the use of interpretive media. Prerequisite: Advanced standing in Recreation Management or permission.

Credits: 4.

RM 258 - Entrepreneurship Rec&Tourism

Study of entrepreneurial theories, concepts, and practices and their application to recreation and tourism. Emphasis on preparation of individual business plans.

Prerequisites: Junior or senior standing in Recreation Management or permission.

(Not offered for graduate credit.)

Credits: 3.

RM 299 - Recreation Management Honors

Honors project dealing with management of outdoor recreation and tourism.

Prerequisite: By application only; see program chair. UG only.

Credits: 3-6.

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Recreation Management: Private Outdoor Recreation and Tourism Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [RecreationManagement](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)
- [Recreation Management Core Courses](#)

Specific Requirements

Required courses: RM 1, 50, 157, 158, 191, 230, 258; three courses selected from RM 138, 153, 235, 240, 255; and nine additional credits of professional electives to be chosen in consultation with an advisor.

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Recreation Management: Public Outdoor Recreation Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [RecreationManagement](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)
- [Recreation Management Core Courses](#)

Public Outdoor Recreation Option

Required courses: RM 1, 138, 153, 191, 235, 240, 255; three courses selected from RM 50, 157, 158, 230, 258; and nine additional credits of professional electives to be chosen in consultation with an advisor.

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Minor in Recreation Management

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Recreation Management](#)

Requirements

The Bachelor of Science degree in The Rubenstein School of Environment and Natural Resources does not require completion of a minor. However, many students in the Rubenstein School do complete minors, either within the School or in other departments across campus. Interested students should contact the chair of the minor program or department.

The minor requires a planned course of study which will provide a substantive introduction into the field of recreation management. Interested students should contact the Program Chair. A total of 15 credit hours are required. A minimum of nine credits are to be selected from RM 1, 50, 138, 153, 157, 158. A minimum of six credits are to be selected from RM 230, 235, 240, 255, 258.

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Department and Programs

Wildlife and Fisheries Biology Program

Colleges: [The Rubenstein School of Environment and Natural Resources](#), [Graduate College](#)

Faculty: Wildlife and Fisheries Biology

Courses: [Wildlife and Fisheries Biology \(WFB\)](#)

Contact Information:

University of Vermont

The Rubenstein School of Environment and Natural Resources

Wildlife and Fisheries Biology Program

George D. Aiken Center

81 Carrigan Drive

Burlington, VT 05405

Phone: (802) 656-2691

Fax: (802) 656-8683

E-mail: David.Hirth@uvm.edu

Web Site: <http://www.uvm.edu/envnr/?Page=undergrads/wlfbio.html> ↻

Academic Offerings

- Undergraduate Degrees
 - Bachelor of Science (B. S.)
 - Concentrations:
 - [Wildlife Biology](#)
 - [Fisheries Biology](#)
- Minor
 - [Wildlife Biology](#)

Overview

The areas of wildlife biology and fisheries biology deal with the management and conservation of animal populations that range from species that are common enough to be hunted/fished to species that are endangered. Management strategies may include manipulation of populations directly or indirectly through alteration of habitat. Courses emphasize applied ecology and provide hands-on experience in labs and field trips. All Wildlife and Fisheries Biology majors complete the same core of courses during the first year. As sophomores, students elect either the Wildlife Biology or the Fisheries Biology option. Required courses in the major satisfy educational requirements of the U.S. Office of Personnel Management for entry-level positions in these fields.

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Courses in Wildlife & Fisheries Biology

WFB 074 - Wildlife Conservation

Historical and contemporary values of wildlife; impacts on habitats and populations; strategies for conservation, allocation, and use. Nonmajors only. Prerequisite: Basic understanding of biological terms and concepts.

Credits: 3.

WFB 130 - Ornithology

Taxonomy, classification, identification, morphology, physiology, behavior, and ecology of birds. Prerequisite: BIOL 001, BIOL 002, or equivalent.

Credits: 3.

WFB 131 - Field Ornithology

Identification and field studies of birds, emphasizing resident species. Two weeks in summer. Prerequisite: WFB 130 . Preference to WFB majors.

Credits: 2.

WFB 150 - Wildf Habitat & Pop Measrmt

Field methods for measuring habitat variables and estimating population parameters. One week in summer. Prerequisites: 131, Forestry 21 or Botany 109, Natural Resources 140.

Credits: 1.

WFB 161 - Fisheries Biology & Management

Introduction to freshwater fish, habitats, and life histories. Overview of fishery management techniques and principles, including sampling and assessment methods, stocking, population and habitat manipulation, and regulations.

Prerequisites: Biology 1, 2 or equivalent.

Credits: 4.

WFB 174 - Prin of Wildlife Management

Application of ecology and sociology to the management of wildlife populations and habitat; integration of wildlife management with demands for other resources; consideration of game species, endangered species, and biological diversity.

Prerequisites: Natural Resources 103 or Biology 102 or Botany 160.

Credits: 3.

WFB 175 - Wildlife and Society

Investigates how people's attitudes, institutions, policies, and behaviors have

affected wildlife across the North American landscape. Alternate years.

Credits: 3.

WFB 176 - Florida Ecology Field Trip

Major ecosystems and associated wildlife, ranging from north Florida flatwoods to south Florida Everglades. Field trip over spring recess. Prerequisite: WFB 130, WFB 174; Instructor permission. Alternate years.

Credits: 2.

WFB 177 - Texas Wildlife Field Trip

Major ecosystems and associated wildlife of south Texas, including Gulf coast, coastal prairies, lower Rio Grande Valley, and Chihuahuan desert. Field trip over spring recess. Prerequisite: WFB 130; Instructor permission. Alternate years.

Credits: 2.

WFB 185 - Special Topics

Credits: 1-6.

WFB 186 - Special Topics

Credits: .5-6.

WFB 187 - Undergrad Special Projects

Individual projects supervised by a faculty member. Projects may involve independent field, laboratory, or library investigations. Formal report required. Prerequisite: Junior standing; submission of a project prospectus for permission.

Credits: 1-5.

WFB 188 - Undergrad Special Projects

Individual projects supervised by a faculty member. Projects may involve independent field, laboratory, or library investigations. Formal report required. Prerequisite: Junior standing; submission of a project prospectus for permission.

Credits: 1-5.

WFB 191 - Wildlife & Fisheries Practicum

Supervised work experience in the wildlife and fisheries area. Prerequisite: Instructor permission. Credit as arranged.

Credits: 1-6.

WFB 232 - Ichthyology

graduate credit.

Credits: 3.

WFB 271 - Wetlands Wildlife

graduate credit.

Credits: 2.

WFB 272 - Wetlands Wildlife Laboratory

Laboratory and field assessment of the ecology and management of wetland habitats and their associated wildlife populations. Prerequisites: Previous or concurrent enrollment in WFB 271 or NR 260. Undergraduate/graduate credit.

Credits: 1.

WFB 273 - Terrestrial Wildlife

Integration of ecological principles, wildlife biology, land use, and human dimensions in wildlife. Emphasis on development and maintenance of terrestrial wildlife habitat, and population regulation of terrestrial species. Prerequisite: 174. Undergraduate/graduate credit.

Credits: 3.

WFB 274 - Terrestrial Wildlife Lab

Laboratory and field experience related to terrestrial species and management of their habitat. Field project required. Prerequisite: Previous or concurrent enrollment in 273.

Credits: 1.

WFB 275 - Wildlife Behavior

Behavior and social organization of game and nongame species as they pertain to population management. Prerequisites: One year of biology, an ecology course, 74 or 174 recommended. Undergraduate/graduate credit.

Credits: 3.

WFB 279 - Marine Ecology

credit.

Credits: 3.

WFB 285 - Advanced Special Topics

Credits: 1-6.

WFB 286 - Advanced Special Topics

Credits: 1-6.

WFB 287 - Advanced Special Projects

Advanced readings and discussions or special field and/or laboratory investigations dealing with a topic beyond the scope of existing formal courses.

Prerequisite: Senior graduate credit.)

Credits: 1-6.

WFB 288 - Advanced Special Projects

Advanced readings and discussions or special field and/or laboratory investigations dealing with a topic beyond the scope of existing formal courses.

Prerequisite: Senior standing or permission. Credit arranged. (Not offered for graduate credit.)

Credits: 1-6.

WFB 299 - Wildlife & Fisheries Honors

Honors project dealing with wildlife or fisheries biology. Prerequisite: By application only; see program chair.

Credits: 3-6.

WFB 311 - Ecology of Fishes

Structure of fish assemblages, zoogeography, morphology, life history strategies, bioenergetics, competition, predation, and fish effect on ecosystems. NR 140 or STAT 201; an ecology course.

Credits: 3.

WFB 352 - Population Dynamics & Modeling

Modeling and analysis of animal population dynamics, as influenced by environmental, ecological, and management factors; estimation of population size, density, survivorship, reproduction, and migration. Prerequisite: NR 140 or STAT 211; an ecology course.

Credits: 4.

WFB 387 - Graduate Special Problems

Advanced readings or special investigation dealing with a topic beyond the scope

of existing formal courses or thesis research, culminating in an acceptable paper.

Prerequisite:

Credits: 1-6.

WFB 388 - Graduate Special Problems

Advanced readings or special investigation dealing with a topic beyond the scope of existing formal courses or thesis research, culminating in an acceptable paper.

Prerequisite: Instructor Permission.

Credits: 1-3.

WFB 391 - Master's Thesis Research

Credit as arranged.

Credits: 1-18.

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Wildlife and Fisheries Biology: Wildlife Biology Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Wildlife and Fisheries Biology](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)
- [Wildlife and Fisheries Biology Requirements](#)

Specific Requirement

Required courses: FOR 21; WFB 130, 131*, 150*; BOT 109; BIOL 217; three courses (one must have a lab) selected from NR 224; WFB 271/272, 273/274, 275, or 279.

* Field intensive courses offered only during the summer session.

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Wildlife and Fisheries Biology: Fisheries Biology Concentration (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Wildlife and Fisheries Biology](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)
- [Wildlife and Fisheries Biology Core Requirements](#)

Specific Requirement

Required courses: PHYS 11/21 or 12/22 or PHYS 96, Green Mountain Physics; WFB232; NR 250; NR 260/WFB 272; NR 270 or WFB 279; six additional hours selected from NR 270, NR 280, BIOL 264, BOT 234, WFB 271, WFB 279, WFB 286.

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Minor in Wildlife Biology

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Wildlife and Fisheries Biology](#)

Requirements

The Bachelor of Science degree in The Rubenstein School of Environment and Natural Resources does not require completion of a minor. However, many students in The Rubenstein School do complete minors, either within the School or in other departments across campus. Interested students should contact the chair of the minor program or department.

Applications for the minor must be filed no later than June 1 of the year preceding graduation or of the completion of the requirements for the minor. A minimum of 15 credit hours is required in prescribed and elective courses. Required courses: WFB 130, WFB 174; WFB 271 or 273. Elective courses: WFB 131, 150, 176, 185/186, 187/188, 271, 272, 273, 274, 275, 279, 285/286, 287/288; NR 224.

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Academic Offerings

College: [The Rubenstein School of Environment and Natural Resources](#)

Undergraduate Degrees

- Bachelor of Science (B. S.)
 - [Environmental Sciences](#)
 - Agriculture and the Environment Concentration
 - Conservation Biology and Biodiversity Concentration
 - Ecological Design Concentration
 - Environmental Analysis and Assessment Concentration
 - Environmental Resources Concentration
 - Water Resources Concentration
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 - [Forestry](#)
 - Natural Resources
 - [Resource Planning Concentration](#)
 - [Resource Ecology Concentration](#)
 - [Integrated Natural Resources Concentration](#)
 - Recreation Management
 - [Private Outdoor Recreation and Tourism Concentration](#)
 - [Public Outdoor Recreation Concentration](#)
 - Wildlife and Fisheries Biology
 - [Wildlife Biology Concentration](#)
 - [Fisheries Biology Concentration](#)

Undecided

Students interested in studying the environment and natural resources, but who wish to postpone their decision on a specific major, enroll in Undecided-Natural Resources.

Undergraduate Minors

- [Environmental Studies](#)
- [Forestry](#)

- [Recreation Management](#)
- [Wildlife Biology](#)

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The Rubenstein School of Environment and Natural Resources Undergraduate Honors Program

College: [The Rubenstein School of Environment and Natural Resources](#)

Honors Program and Aiken Scholars

The ENVNR Honors Program is a two- or three-year experience that students are invited to join based on their academic performance at the University. Selection is based on either achievement of Dean's List for two semesters and a minimum cumulative GPA of 3.2 or nomination by a faculty sponsor. At minimum, ENVNR Honors students participate in one honors seminar course during the spring semester, enroll in a research methods course in the junior year, and conduct an independent or team research project under the guidance of a faculty member during their senior year. Their projects provide valuable experience in designing, implementing, and reporting results of research.

Aiken Scholars: Students with outstanding high school records are admitted to The Rubenstein School as Lola Aiken Scholars and invited to participate in a special fall seminar open to Aiken Scholars only. Those who then achieve Dean's List for fall semester are automatically nominated by the Dean for the ENVNR Honors Program.

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The Rubenstein School of Environment and Natural Resources Undergraduate Internships

College: [The Rubenstein School of Environment and Natural Resources](#)

Internships and Cooperative Education

Experiential learning is encouraged. The School offers students assistance in securing summer, part-time, and permanent employment in natural resources fields. Well-developed internship and cooperative education programs award academic credit for contracted work experiences. These opportunities to explore and confirm career interests, to develop professional contacts and exposure, give graduates a competitive edge when they enter the job market.

Travel Courses and Field Studies

The Rubenstein School relies heavily on Vermont's natural landscapes - its mountains, lakes, fields, and forests - to provide students hands-on experience studying ecology and ecosystem processes. In addition, ENVNR offers a variety of intensive field courses during vacation breaks and summer session that provide students special opportunities to study the wildlife of Florida or south Texas (WFB 176/177), environmental research in the Chesapeake Bay region (ENSC 185), ecotourism and environmental interpretation in Costa Rica or Sub-Saharan Africa (RM 188), regional examples of sustainable forest management and practices (FOR 185) and the aquatic ecology of large lakes (NR 255) from the deck of the Melosira, UVM's research vessel.

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The Rubenstein School of Environment and Natural Resources Undergraduate Degree Requirements

College: [The Rubenstein School of Environment and Natural Resources](#)

[ENVNR Degree Requirements](#) | [ENVNR Core Curriculum](#) | [ENVNR General Education Courses](#)

Degree Requirements

Students must be matriculated in The Rubenstein School and in residence at The University of Vermont during the period in which they earn 30 of the last 45 hours of academic credit applied toward the degree. Students must earn a cumulative grade-point average of 2.0 or above. Students must complete a program of study which includes:

1. ENVNR core curriculum.
2. ENVNR general education courses.
3. ENVNR major requirements
4. University requirement in Physical Education Activities (two credits).

ENVNR Core Curriculum

ENVNR's core curriculum provides a common experience for all students. The innovative seven-course sequence creates an integrated foundation upon which the individual majors in the School are constructed. Core courses focus on the underlying fundamentals from which natural resources disciplines have evolved and the application of these fundamentals to problems or issues in the natural world and society. The core courses also promote development of thinking, communications, problem solving, and analytical skills. Faculty from all undergraduate programs teach in the core. The ENVNR core curriculum represents a body of knowledge, skills, and values that the faculty believe is central to the study of natural resources and the environment.

Seven Required Courses

	Hours
Nat. Res. 1, Natural History and Field Ecology	4
Nat. Res. 2, Nature and Culture	3
Nat. Res. 103, Ecology, Ecosystems and Environment	3
Nat. Res. 104, Social Processes and the Environment	3
Nat. Res. 105, Environmental Problem Analysis	1
Nat. Res. 205, Ecosystem Management: Integrating Science, Society, and Policy	3
Nat. Res. 206, Environmental Problem Solving and Impact Assessment	4

NR 1 and NR 2 provide an introduction to the study of natural resources and the environment from natural and social science standpoints, respectively. At the completion of these courses, students should (1) have a basic understanding of the School's integrated approach to natural resources and the environment, (2) be better prepared to make informed decisions about their academic majors, and (3) be prepared to advance to an intermediate level of study in natural resources. The intermediate courses in the sequence, NR 103 and NR 104, emphasize ecosystems and social systems, respectively. They are linked through a one-credit interdisciplinary problem analysis module, NR 105. The last two courses focus directly on integrated and holistic management. In NR 205, students integrate natural and social science to understand environmental management principles and policies. In NR 206, the capstone course taken senior year, students are challenged to synthesize and apply the interdisciplinary knowledge, skills, and values they have learned to contemporary natural resources and environmental issues.

General Education Courses

ENVNR general education requirements are designed to enhance a student's ability to assimilate and analyze information, think and communicate clearly, and respect multiple perspectives. These requirements are flexible in order to encourage creativity in meeting educational goals. Two sets of courses are stipulated:

Five courses in required areas:

1. Writing - English 1, 50, or 53
2. Speaking - Speech 11, Theatre 5, AGRI 183, or NR 185 (Speaking & Listening)
3. Race and Culture - NR 6 or EDSS 11.
4. Mathematics - Math 9 or higher (but not Math 17) *Varies depending on major choice.
5. Statistics - NR 140, Statistics 111, 141, or 211. *Varies depending on major choice.

Three courses in a self-design sequence:

Student defines a learning objective and selects at least 9 credits from departments outside ENVNR to meet that objective. This sequence of courses must be approved in advance.*

*Before completion of four semesters or 60 credit hours; time-frame may be extended for transfer students.

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- College of Agriculture & Life Sciences
- College of Arts & Sciences
- College of Education & Social Services
- College of Engineering & Mathematics
- College of Nursing & Health Sciences
- Rubenstein School of Environment and Natural Resources
- School of Business Administration
- Graduate College

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Overview

One of the distinctive features of UVM is its focus on studying the environment and environmental problems. Students interested in these issues have a rich array of choices. Many of these are within specific disciplines, but others offer the opportunity for multidisciplinary study. UVM has several multidisciplinary degree programs.

Environmental Studies is a curriculum offered to students from four different colleges and schools (Agriculture and Life Sciences, Arts and Sciences, Education and Social Services, and Natural Resources) and is coordinated within the Environmental Program.

Two distinct degree programs are offered in Environmental Sciences. The program in the College of Arts and Sciences provides a basic Environmental Sciences major with emphasis in biology, chemistry, or geology. The School of Natural Resources and the College of Agriculture and Life Sciences jointly offer an Environmental Sciences major with applied emphases in water resources, environmental analysis and assessment, conservation biology and biodiversity, ecological design, environmental resources, and agriculture.

The College of Engineering and Mathematics offers students the opportunity to pursue a degree in Environmental Engineering.

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Departments and Programs

College: [Studying the Environment](#)

Programs

- [Environmental Sciences \(College of Agriculture and Life Sciences or School of Natural Resources\)](#)
- [Environmental Sciences \(College of Arts and Sciences\)](#)
- [Environmental Studies](#)

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Departments and Programs

Environmental Sciences Program (College of Agriculture and Life Sciences or The Rubenstein School of Environment and Natural Resources)

Colleges: [Agriculture and Life Sciences](#), [The Rubenstein School of Environment and Natural Resources](#)

Faculty: [Environmental Sciences](#)

Courses: [Environmental Sciences \(ENSC\)](#)

Contact Information

University of Vermont

The Rubenstein School of Environment and Natural Resources

Environmental Sciences Program

George D. Aiken Center

81 Carrigan Drive

Burlington, VT 05405

Phone: (802) 656-2691

Email: Alan.McIntosh@uvm.edu

Web Site (College of Agriculture and Life Sciences): <http://pss.uvm.edu/ENSC/>

Web Site (The Rubenstein School of Environment and Natural Resources):

http://www.uvm.edu/envnr/?Page=undergrads/enviro_sciences.html

Related Programs:

- [Environmental Sciences \(College of Arts and Sciences\)](#)

Academic Offerings

- Undergraduate Majors
 - Bachelor of Science (B. S.)
 - [Environmental Sciences](#)
Concentrations [*College of Agriculture and Life Sciences*]:

- Agriculture and the Environment
- Conservation Biology and Biodiversity
- Ecological Design
- Environmental Analysis and Assessment
- Environmental Resources
- Water Resources
- Environmental Sciences
Concentrations [*The Rubenstein School of Environment and Natural Resources*]:
 - Agriculture and the Environment
 - Conservation Biology and Biodiversity
 - Ecological Design
 - Environmental Analysis and Assessment
 - Environmental Resources
 - Water Resources

Overview

Students with an aptitude for science and an interest in the quality of the environment can choose alternate pathways in pursuing a major in Environmental Sciences at UVM. The Rubenstein School of Environment and Natural Resources and the College of Agriculture and Life Sciences jointly offer a science-based education emphasizing the application of scientific skills and knowledge in addressing complex environmental problems. The Environmental Sciences major provides students with the fundamental knowledge and hands-on experience to identify, analyze, and solve "real world" environmental problems arising from human activities.

The College of Arts and Sciences offers a science education with an emphasis on basic science approaches to understanding the environment. See the [Environmental Sciences Program in the College of Arts and Sciences](#) for more information.

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Faculty for environmental sciences

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Courses in Environmental Sciences

ENSC 001 - Intro Environmental Sciences

Emphasizes the impacts of human activity on the environment. Attention to resources at risk and pollutant fate and effects on ecosystems.

Credits: 3.

ENSC 101 - Pollutant Mvmt/Air, Land & Water

Physical, chemical, and biological aspects of pollutant behavior from source to ultimate fate. Laboratory methodologies for measuring pollutants and predicting their transport, behavior, and fate. Prerequisites: 1; Biology 1, 2; Chemistry 31, 32; Math. 19, 20; co-requisite Chemistry 42.

Credits: 4.

ENSC 130 - Global Environmental Assessment

Assessment of human impacts on the global environment. Hands-on application of satellite remote sensing and geographic information systems to address key environmental issues. Prerequisite: BIOL 001 or BOT 004, CHEM 023, or equivalent, MATH 019.

Credits: 3.

ENSC 185 - Special Topics

See Schedule of Courses for specific titles. Variable credit.

Credits: 1-12.

ENSC 195 - Internship

Professionally-oriented field experience under joint supervision of faculty and business or community representative. Prerequisite: Proposal and permission of ENSC Director; Junior standing; good academic standing; Maximum of six hours. Three can be applied to elected concentration with Director permission.

Credits: 1-6.

ENSC 196 - Independent Research

Special study and research activity under the directory of a faculty member. Prerequisite: Proposal and permission of ENSC Director; Junior standing; good academic standing. Up to six hours. Three can be applied to elected concentration with Director permission.

Credits: 1-6.

ENSC 201 - Recovery & Restor Altered Ecosys

Role of stress and disturbance and the natural process of recovery in aquatic and terrestrial ecosystems. Human efforts to modify, restore, and remediate altered ecosystems. Prerequisites: Natural Resources 103 or an intermediate-level ecology course; or instructor's permission. Environmental Sciences 101 strongly recommended.

Credits: 3.

ENSC 202 - Ecological Risk Assessment

Approaches used to identify, measure, and manage ecological risk. Problem formulation, characterization, uncertainty analysis, and risk management. Case studies. Prerequisite: ENSC 201, NR 140 or STAT 141; Senior standing, or Instructor permission.

Credits: 3.

ENSC 222 - Pollution Ecology

Impacts of pollutants on the structure and function of ecosystems. Examination of how air, land, and water influence ecological fate and effects of pollutants.

Prerequisites: Biology 1; Chemistry 23, Natural Resources 103 or equivalent ecology course. (Not offered for graduate credit.)

Credits: 3.

ENSC 285 - Adv Special Topics ENSC

See Schedule of Courses for specific titles. Prerequisites: Senior standing or instructor's permission. Variable credit. (Not offered for graduate credit.)

Credits: 1-12.

ENSC 299 - Environmental Sciences Honors

Honors project dealing with environmental sciences. Prerequisites: By application only; see program chair.

Credits: 3-6.

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Environmental Sciences (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Environmental Sciences](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)

Specific Requirements

Students may major in Environmental Sciences through the College of Agriculture and Life Sciences, the College of Arts and Sciences, or the School of Natural Resources. For general information about the Environmental Sciences curriculum, see [Studying the Environment](#).

Environmental Sciences majors through the College of Agriculture and Life Sciences must fulfill the following requirements for graduation:

- General CALS distribution requirements.
- Core distribution requirements for major (also fill distribution requirements): Animal Science 1, 230; Community Development and Applied Economics 2; Plant and Soil Science 11; Botany 160; Microbiology and Molecular Genetics 101.
- Environmental Science minimal basic science/quantitative courses (also fill distribution requirements): Biology 1, 2; Chemistry 31, 32; Chemistry 42¹; Geology 55 or Plant and Soil Science 161²; Math 19, 20; Natural Resource 140 or Statistics 141.
- Environmental Sciences foundation courses: ENSC 1, 101, 130, 201, 202.
- Concentration requirement, 14 credit hours in one of the following: **Agriculture and the Environment, Conservation Biology and Biodiversity, Ecological Design, Environmental Analysis and Assessment, Environmental Resources, Water Resources**. Detailed lists of courses for each concentration are available from the Program Director and the Office of the Dean.

¹ Students should consider taking Chemistry 141/142.

² Plant and Soil Science 161 is required for many advanced PSS courses in several curricular concentrations; most students should take this course.

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Environmental Sciences (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Environmental Sciences](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

A total of 122 credits are required for the degree.

Required courses: BIOL 1, 2; CHEM 31, 32; **CHEM 42; GEOL 55 or PSS 161; *MATH 19, 20; *NR 140 or STAT 141; ENSC 1, 101, 130, 185, 201, 202; 14 credits in one of the following advising tracks - Water Resources, Environmental Analysis and Assessment, Ecological Design, Agriculture and the Environment, Conservation Biology and Biodiversity, or Environmental Resources. Students may also elect a self-designed track in a particular area of interest.

*Also fulfills ENVNR general education requirement.

**Students interested in areas such as environmental analysis and assessments should consider taking more advanced courses, such as CHEM 141/142.

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Departments and Program

Environmental Sciences Program (College of Arts and Sciences)

Colleges: [Arts and Sciences](#)

Contact Information:

University of Vermont

Biology Department

Environmental Sciences

120 Marsh Life Science Building

Burlington, VT 05405

Phone: (802) 656-2922

Fax: (802) 656-2914

Email: envsci@zoo.uvm.edu

Web Site: <http://www.uvm.edu/~envsci/>

Related Programs:

- [Environmental Sciences \(College of Agriculture and Life Sciences or School of Natural Resources\)](#)

Academic Offerings

- Undergraduate Degree
 - Bachelor of Science (B. S.)
 - [Environmental Sciences](#)
- Undergraduate Minors
 - [Environmental Biology](#)
 - [Environmental Chemistry](#)
 - [Environmental Geology](#)

Overview

Students with an aptitude for science and an interest in the quality of the environment can choose alternate pathways in pursuing a major in Environmental Sciences at UVM. The College of Arts and Sciences offers a science education with an emphasis on basic science approaches to understanding the environment.

The School of Natural Resources and the College of Agriculture and Life Sciences jointly offer a science-based education emphasizing the application of scientific skills and knowledge in addressing complex environmental problems. The Environmental Sciences major provides students with the fundamental knowledge and hands-on experience to identify, analyze, and solve "real world" environmental problems arising from human activities. See their [Environmental Sciences Program](#) for more information.

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Environmental Sciences (B. S.)

College: [Arts and Sciences](#)

Department(s): [Environmental Sciences](#)

Overview

The basic Environmental Sciences major in the College of Arts and Sciences provides students with a modern environmental science degree in the context of a liberal arts college. It is tailored for students who want an interdisciplinary science degree that is centered around environmental issues. It emphasizes basic approaches to understanding the environment and environmental problems. Students completing this major will have the scientific background necessary to compete in the job market for environmental science, or to continue with advanced studies in a graduate degree program. This major emphasizes flexible course choices at the upper level, guided by co-advisors from different departments who work with each student individually.

During the first two years, the major draws on a core curriculum of basic science courses in biology, chemistry, and mathematics. This core is designed so that students can easily flow between other science majors, such as Biology, Geology, and Chemistry. At the upper division level, students work closely with faculty advisors to develop a set of science courses that will meet their particular needs and career goals.

Learning through experience and advising are integral parts of this major. To experience environmental research first hand, an independent research project or honor thesis is completed in the senior year. Co-advisors help with research and also with choices of courses and career plans.

At the upper division level, students can be general in their choice of courses or three areas of concentration allow students to specialize their training.

Environmental Biology - ecological and molecular analysis of endangered populations, conservation biology, conservation genetics, and ecology.

Environmental Geology - earth science, geomorphology, and the analysis of ground water.

Environmental Chemistry - analytical methods for measuring and monitoring air, ground, and water pollutants.

General Requirements

- [University](#)
- [Bachelor of Science](#)

Specific Requirements

Introductory biology (Biology 11, 12 or 1B, 2B is preferred, but 1A, 2A is accepted); Chemistry 31,32 (or 35, 36); Math 19, 20 (or 21); Chemistry 42*, 141, or 143; Environmental Studies 1 or 2; one course among the list of technology-based courses (Statistics 141 or 211; Chemistry 121 or 221; Biology 205 or 267; Geology 255; Civil and Environmental Engineering 150); 12-15 credits in a broad selection or in a concentration chosen with co-advisors to include at least one semester of research or honors. Concentrations include ***Environmental Biology, Environmental Geology, Environmental Chemistry.***

Notes:

* Chemistry 42 is not allowed for either the Chemistry or Biology concentration.

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Minor in Environmental Sciences: Biology

College: [Arts and Sciences](#)

Department(s): [Environmental Science](#)

Requirements

Biology 1, 2 or 11, 12; 102, and two additional upper-division non-biology courses chosen in consultation with co-advisor.

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Minor in Environmental Sciences: Chemistry

College: [Arts and Sciences](#)

Department(s): [Environmental Science](#)

Requirements

Chemistry 31, 32; 121 or 42; and two additional upper-division non-chemistry courses chosen in consultation with co-advisor.

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Minor in Environmental Sciences: Geology

College: [Arts and Sciences](#)

Department(s): [Environmental Science](#)

Requirements

Geology 55, 101, 155, and two additional upper-division non-geology courses chosen in consultation with co-advisor.

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Departments and Programs

Environmental Studies Program

Colleges: [Agriculture and Life Sciences](#), [Arts and Sciences](#), [Education and Social Services](#), [The Rubenstein School of Environment and Natural Resources](#)

Faculty: [Environmental Studies](#)

Courses: [Environmental Studies \(ENVS\)](#)

Contact Information:

*University of Vermont
Environmental Program
Bittersweet
153 South Prospect St.
Burlington, VT 05401*

Phone: (802) 656-4055

Fax: (802) 656-8015

Email: Elizabeth.Getchell@uvm.edu

Web Site: <http://www.uvm.edu/~envprog/>

- [Degree Requirements and Curriculum](#)

Academic Offerings

- Undergraduate Majors
 - Bachelor of Arts (B. A.)
 - [Environmental Studies](#)
[College of Arts and Sciences]
 - Bachelor of Science (B. S.)
 - [Environmental Studies](#)
[College of Agriculture and Life Sciences]
 - [Environmental Studies](#)
[The Rubenstein School of Environment and Natural Resources]

- Secondary Education (Environmental Studies Concentration)
[College of Education and Social Services]

- Undergraduate Minors
 - Environmental Studies

Overview

Environmental Studies is a University-wide undergraduate environmental curricular option directed by the Environmental Program in cooperation with several colleges and professional schools. This option is one of UVM's most distinctive and popular academic programs — unique nationally in its breadth and interdisciplinary nature.

Students entering UVM may apply for admission to Environmental Studies through several of the undergraduate divisions. Choice of the appropriate college or school will depend on the individual's interests, career and educational objectives.

The Environmental Program involves students and faculty from throughout the University, as well as community professionals, recognizing that study of the environment must draw upon all academic disciplines and professional fields. The activities of the Program include undergraduate education, research, and community service programs dedicated to the study and improvement of the cultural and natural environments essential to the quality of life on earth.

The Program serves a wide range of environmental interests, with its primary mission being undergraduate education, and its primary focus the individual student. Working closely with the faculty, each student plans an individualized program that combines a broad, comprehensive understanding of the environment with depth in a specific discipline or profession. Major concentrations can be in the natural or technical sciences, the humanities or arts, the social sciences or professions, or broadly interdisciplinary.

Many graduates continue their education in graduate or professional schools; others work in public and private sectors in highly diverse fields throughout Vermont, the nation, and in countries around the globe.

Students enrolled in Early Childhood, Elementary Education and Physical Education may complete the major concentration in Environmental Studies as a fulfillment of the liberal arts and sciences major requirement. Environmental Studies is not a Vermont State Department of Education approved endorsement area for Secondary Education.

Program offices and a Student Services Center are located in The Bittersweet, where students are encouraged to visit with the staff and faculty regarding their academic plans, to gain assistance with research or action projects, and to seek information about academic programs, internships, international study opportunities, graduate studies, and future careers.

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Courses in Environmental Studies

ENVS 001 - Intro to Environmental Studies

Survey of environmental studies examining ecological, socioeconomic, aesthetic, and technological influences determining quality of life on earth. Prerequisite: First-year/Sophomore standing or Instructor permission.

Credits: 4.

ENVS 002 - Internat'l Environmental Stds

A multidisciplinary analysis of the interaction of global and local variables in understanding and solving pervasive environmental problems. Prerequisite: First-year or sophomore standing.

Credits: 4.

ENVS 007 - Environmental Awareness

Selected current environmental issues from evolving political, religious, scientific, and social perspectives. For non-majors. Cannot receive credit for both ENVS 001 and ENVS 007

Credits: 3.

ENVS 095 - Special Topics

Introductory courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural areas management.

Credits: 1-4.

ENVS 096 - Special Topics

Credits: 1-3.

ENVS 100 - Environmental Theory

Comparative analysis of emerging concepts of human/environment relationships; the history, philosophy, and theoretical framework of environmental studies.

Prerequisites: 1,2.

Credits: 3.

ENVS 151 - Intermed Environmental Studies

Individual investigation of interdisciplinary areas of environmental studies with emphasis on academic and career choices and preparation for senior thesis/project. Prerequisites: Major in Environmental Studies; 1, 2; permission.

Credits: 3.

ENVS 152 - Environment Information Skills

This course focuses on the complexities of conducting environmental research in a networked information age by teaching information concepts, skills, and broad ranging resources. Prerequisite: ENVS 151, or concurrently enrolled in ENVS 151. Credits: 1.

ENVS 156 - Permaculture

Cross-listed with: PSS 156. Design of agriculturally productive environments that have the diversity, stability, and resilience of the natural biosphere to harmoniously integrate landscape and people. Prerequisite: Three hours basic biological or ecological science, or permission. Credits: 2.

ENVS 173 - Landscape Natural History

This field-based course examines patterns and processes on local landscapes from an interdisciplinary perspective, with an emphasis on geology, soil science, plant ecology, and ecosystem geography. Prerequisites: ENVS 001; Credits: 3.

ENVS 174 - Nat Areas Conservation&Steward

Prerequisites: ENVS 001, NR 001, or Instructor permission. Credits: 3.

ENVS 177 - Intro to Landscape Restoration

Introduction to the history, philosophical foundations, and approaches to restoration of natural landscapes damaged by human activity and neglect. Case studies of selected local sites. Prerequisite: ENVS 001, NR 001, or Instructor permission. Credits: 3.

ENVS 178 - Environmental Ethics

Current approaches and problems in environmental ethics drawing on philosophy and case studies in animal rights, land ethics, deep ecology, wilderness protection, and human rights. Prerequisite: One environmental course; Junior standing. Credits: 0-3.

ENVS 179 - Ecofeminism

(Cross-listed with Women's Studies 179.) Investigation of the parallel dominations of women and nature, through analysis and reflection on ecofeminist theory, activism, and spirituality. Prerequisites: ENVS 001, ENVS 002 or WST 073, sophomore standing. Credits: 3.

ENVS 180 - Radical Environmentalism

Survey of radical environmental philosophy and activism from a liberation ethics perspective. Includes deep ecology, ecofeminism, environmental justice, and ecological resistance movements around the world. Prerequisite: ENVS 001, ENVS 002; Sophomore standing. Credits: 3.

ENVS 181 - Strategic Environmental Leadership

Theory and analysis of strategic environmental leadership as it varies with culture, ethnicity, and gender. Prerequisites: 1, 2, junior standing, permission of instructor. Credits: 1.

- ENVS 182 - Religion and Ecology
or ENVS 002; or
Credits: 3.
- ENVS 190 - Environmental Skills
Workshops to develop applied skills useful for environmental work and/or research. Topics vary by semester. Prerequisite: ENVS 001, ENVS 002.
Credits: 1-3.
- ENVS 191 - Environmental Practicum
Individual readings and research, internship, or field-based learning experience under direction of a faculty member or environmental practitioner. Credit arranged.
Prerequisite: Permission of course coordinator.
Credits: .5-9.
- ENVS 195 - Special Topics
Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course; Sophomore standing.
Credits: 1-6.
- ENVS 196 - Special Topics
Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course; Sophomore standing.
Credits: 1-6.
- ENVS 197 - Student Designed Course
Course Student-taught courses beyond the scope of existing formal courses in environmental studies. Developed according to Program guidelines, with sponsorship by interested faculty. Prerequisites: 1, 2, permission.
Credits: 1-3.
- ENVS 201 - Research Methods
Planning, design, and methods for the required senior thesis or project. Includes literature review and proposal writing. Prerequisites: 151, junior standing. (Not offered for graduate credit.)
Credits: 3.
- ENVS 202 - Senior Project and Thesis
Senior level project or thesis under faculty direction. Prerequisites: 201, permission of Environmental Program. Credits arranged. (Not offered for graduate credit.)
Credits: 1-9.
- ENVS 203 - Honors Thesis
Undergraduates only.
Credits: 1-9.
- ENVS 204 - Seminar Environmental Studies
Review and discussion of current environmental research and literature.
Prerequisites: 1, 2, junior or senior standing. (Not offered for graduate credit.)
Credits: 1-3.

ENVS 284 - Teaching Assistantship

Students gain practical teaching experience through assisting with instruction, evaluation, and reflection. Tasks may include: leading discussion sessions, grading, and developing course materials. Prerequisites: Senior standing or permission of instructor, concurrent teaching assistant in ENVS course. Variable credit. May be repeated. UG only.

Credits: 1-2.

ENVS 289 - Environmental Economics

Application of economic theory and methods to environmental problems and policies. Includes cost-benefit analysis and economic incentives as tools for environmental problem solving. Prerequisites: 1, three hours intermediate economics. For students in Arts and Sciences: Economics 11-12, intermediate course in ENVS. UG only.

Credits: 3.

ENVS 290 - Environmental Policy

Public policy dimensions of natural resource management and environmental protection; U.S. historical context; policy analyses of contemporary issues; administration of environmental resource institutions. Prerequisites: Six hours of intermediate or advanced courses in ENVS or related areas. UG only.

Credits: 3.

ENVS 291 - Advanced Environmental Pract

Individual readings and research, internship, or field-based learning experience at the advanced level, under direction of faculty member or environmental practitioner. Prerequisite: ENVS 001, ENVS 002; Senior/Graduate standing.

Credits: 1-12.

ENVS 293 - Environmental Law

Principles of environmental law, including legal research methods, threshold issues, case law, trial procedure, and international comparisons in aspects of air, land, and water law. Prerequisite: Junior standing.

Credits: 3.

ENVS 294 - Environmental Education

Philosophy, concepts, and strategies of environmental education, emphasizing integration of environmental concerns into formal and nonformal educational programs for youth and adults. Prerequisite: Six hours of intermediate or advanced courses in Environmental Studies or related areas.

Credits: 3.

ENVS 295 - Advanced Special Topics

Advanced courses of current areas of interest which may vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One environmental course at 100 level; Junior standing.

Credits: 0-6.

ENVS 296 - Advanced Special Topics

Advanced courses of current areas of interest which may vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management.

Prerequisites: One environmental course at 100 level, junior standing. UG only.

Credits: 1-6.

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Environmental Studies (B. A.)

College: [Arts and Sciences](#)

Department(s): [Environmental Studies](#)

General Requirements

- [University](#)
- [Bachelor of Arts](#)

Specific Requirements

Thirty-eight hours including Environmental Studies 1, 2, 151, 201, and six hours of 202 and/or 203; plus an Individually-Designed Program containing 18 hours of approved environmentally-related courses at 100 or higher level, including three hours at the 200 level, six hours of Environmental Studies courses, with at least one course in each of these areas* ❖ natural sciences, humanities, social sciences, and international studies (may be fulfilled by study abroad experience). The courses of the Individually-Designed Program combine, along with the senior project and thesis, to provide a coherent major for the student.

*Students are cautioned that courses approved in these areas by Environmental Studies might not fulfill the distribution requirements in the College of Arts and Sciences.

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Environmental Studies (B. S.)

College: [Agriculture and Life Sciences](#)

Department(s): [Environmental Studies](#)

General Requirements

- [University](#)
- [Agriculture and Life Sciences Core Curriculum](#)
- [Environmental Studies Degree Requirements and Curriculum](#)

Specific Requirements

The Major in Environmental Studies is an interdisciplinary program available to qualified students upon approval of the Director of the [Environmental Program](#).

Environmental Studies students majoring through the College of Agriculture and Life Sciences must complete a minimum of 122 credit hours, including ENVS 1, 2, 151, 201, and 202: 30 credit hours of approved environmentally-related courses at the 100 level or above, including three hours at the 200 level, with at least one course in each of the following areas — natural sciences, humanities, social sciences, and international studies (may be fulfilled with study abroad experience).

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Environmental Studies (B. S.)

College: [The Rubenstein School of Environment and Natural Resources](#)

Department(s): [Environmental Studies](#)

General Requirements

- [University](#)
- [ENVNR Degree Requirements](#)

Specific Requirements

A total of 122 credits are required for the degree.

Required courses: ENVS 1, 2, 151, 201, 202; 30 hours of approved environmentally-related courses* at the 100 or 200 level, including three hours at the 200 level, with at least one course in each of four areas - natural sciences, humanities, social sciences, and international studies (may be fulfilled by a study abroad experience).

*These courses are in addition to the ENVNR core and general education requirements.

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Education: Teacher Education/Secondary Education (Grades 7-12) (B. S.)

College: [Education and Social Services](#)

Department(s): [Education](#)

Overview

The Secondary Education Program prepares teachers to work with students with diverse needs in public school classrooms in grades 7-12. The curriculum includes general education; a major, a minor, or a broadfield major; a professional education component; and electives.

General Requirements

- [University](#)
- [Education and Social Services](#)
- [Academic Majors](#)
- [Teacher Education](#)

Specific Requirements

A minimum of 124 approved semester hours is required for the degree. Specific requirements, including PRAXIS information, as approved by the State Department of Education, may be obtained from the Office of Student Services, 528 Waterman. Program information is also available from the Secondary Education Program, 405A Waterman or on the [Web](#).

During the first two years, students enroll in a CESS course each semester, concentrating on completing their general education, major, and minor requirements while also taking selected coursework in education. The majority of professional education coursework is completed in the junior and senior years.

General Education Component (Minimum of 27 credits): The general education courses must include the following courses. Two semester hours of physical education activities must be included.

English Composition and English Literature
Science
Mathematics
U.S. History
American Government
Psychology 1
Humanities (Philosophy, Religion, Foreign Language)
Physical Education activities
Race and Culture

Academic Major and Minor Components (major minimum of 30 credits, minor minimum of 18 credits or broadfield major of 48-52 credits): Students who successfully complete their Teacher Education programs are recommended for licensure with a first endorsement in their major, and may apply directly to the State Department of Education for an endorsement to also teach their minor. Students are therefore encouraged to select a minor which is also a licensure area. (Approved majors and minors are listed in the Academic Majors box appearing earlier in this section.)

Professional Education Component (45 credits): By the time students begin the professional education component of their program as juniors, they should have completed most of their general education requirements, have taken 12 credits of professional education coursework, and be well into their academic major (15-18 credits completed) and their academic minor (six-12 credits completed). Students must complete the remainder of their requirements as they complete the following phases of the professional education component:

I. Exploring Learners' Needs in the Context of Schools: EDFS 203, EDSC207, 209.

Following completion of this first phase, students must submit their Initial Portfolio and their application to the Teacher Education Program. The Initial Portfolio documents learning, professional knowledge, collegiality, advocacy and accountability. Provided the Initial Portfolio is assessed as satisfactory, the student has achieved passing scores on PRAXIS I, and has a minimum 2.5 GPA overall, 2.5 in his or her major, and was successful in EDFS 203, EDSC207 and 209 (3.0 or better), the student is accepted into Teacher Education and may begin work on the second phase of the program.

II. Designing and Adapting Instruction: EDSC 215, 216 and subject methods.

Subject methods for major: EDSC 225 (Social Studies), EDSC 227 (Science), EDSC 240 (English), EDSC 257 (Mathematics), or EDSC 259 (Foreign Languages).

During this phase of the program, prior to student teaching, students must achieve passing scores on PRAXIS II. Students must also have an overall GPA of 3.0 and a minimum GPA of 2.75 in their major. Following a successful faculty review of a student's records, he or she is nominated for a placement. Students must complete the interview process for placement by the school in order to be confirmed for

student teaching. Students complete a semester of full-time student teaching as the third phase of the program. (In some cases, students must arrange to live off-campus during the student teaching semester.)

III. Achieving Results in Schools: EDSC 226, 230.

As students complete their degree program, they must submit their Licensure Portfolios which document Learning, Professional Knowledge, Collegueship, Advocacy and Accountability. Recommendation for licensure is based on successful completion of student teaching, an overall grade-point average of 3.0, as well as on submission of a satisfactory Licensure Portfolio, and meeting state accreditation standards.

Student's Responsibility: Information about application and assignment procedures for the Secondary Education Program may be obtained from 405A Waterman Building. Students are responsible for obtaining information regarding the process and requirements, and for notifying the office as to changes in their status, address, or intentions for completion of their program.

Language Proficiency: A Language Proficiency Test is required for the Secondary Education Foreign Language majors.

Speech/Theatre: All students must demonstrate competence in the area of speaking by taking a speech or theatre course or by submitting evidence of competence (go to 405A Waterman Building for more information).

Possible Curriculum

First Year

	Fall	Spring
EDSC 50, Exploring Education	3	
Minor	3	
Race & Culture	1	
Major	3	6
General Education Electives	6	6
Physical Education Elective		1
EDSP 5, Issues Affecting Persons with Disabilities		3
Total	16	16

Sophomore Year

	Fall	Spring
Physical Education Elective		1
EDSC 11, Educational Technology in the Secondary Education Classroom	3	
Major	3	6
General Education Electives	9	3

Minor	6
EDSC 197 (or other field-based elective)	3
Total	16 18

Junior Year

Fall Spring

EDSC 207, Adolescent Learning from a Behavioral & Cognitive Perspective	3
EDSC 209, Practicum in Teaching	3
EDFS 203, Soc Hist & Phil Found of Ed	3
Major	6 6
EDSC 215, Reading in Secondary Schools	3
EDSC 216, General Methods for Sec Teachers	3
Special Methods	3
Minor	3
Total	15 18

Senior Year

Fall Spring

EDSC 226, Teaching Internship	12	or 12
EDSC 230, Teaching for Results	3	or 3
Minor	6	or 6
General Education Electives	4	or 4
Total	12-18	12-18

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Minor in Environmental Studies

College: [Studying the Environment](#)

Department(s): [Environmental Studies](#)

Requirements:

For students in several colleges and schools, this program combines the basic interdisciplinary skills and perspectives necessary for the understanding of environmental issues with the curriculum of a traditional disciplinary major.

In addition to two introductory Environmental Studies courses and at least three intermediate or advanced ENVS courses, students complete a major in a related discipline or professional field.

Students in the College of Arts and Sciences may elect this minor to fulfill the minor requirements in that college. Minor programs are available on an elective basis in most other schools and colleges.

Consult the appropriate college or school for the exact requirements.

- [Environmental Studies Minor in the College of Agriculture and Life Sciences](#)
- [Environmental Studies Minor in the College of Arts and Sciences](#)
- [Environmental Studies Minor in the Rubenstein School of Environment and Natural Resources](#)
- [Environmental Studies Minor \(Secondary Education Majors\) in the College of Education and Social Services](#)

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College: [Studying the Environment](#)

Undergraduate Degrees

- Bachelor of Arts (B. A.)
 - [Environmental Studies](#)
[College of Arts and Sciences]
- Bachelor of Science (B. S.)
 - [Environmental Engineering](#)
[College of Engineering and Mathematics]
 - Civil Engineering □
[College of Engineering and Mathematics]
 - [Environmental Concentration](#)
 - [Environmental Sciences](#)
[College of Agriculture and Life Sciences]
 - Agriculture and the Environment Concentration
 - Conservation Biology and Biodiversity Concentration
 - Ecological Design Concentration
 - Environmental Analysis and Assessment Concentration
 - Environmental Resources Concentration
 - Water Resources Concentration
 - [Environmental Sciences](#)
[College of Arts and Sciences]
 - Environmental Biology Concentration
 - Environmental Chemistry Concentration
 - Environmental Geology Concentration
 - General Concentration
 - [Environmental Sciences](#)
[School of Natural Resources]
 - Agriculture and the Environment Concentration
 - Conservation Biology and Biodiversity Concentration
 - Ecological Design Concentration
 - Environmental Analysis and Assessment Concentration

- Environmental Resources Concentration
- Water Resources Concentration
- Environmental Studies
[College of Agriculture and Life Sciences]
- Environmental Studies
[School of Natural Resources]

Undergraduate Minors

- Environmental Studies
- Environmental Sciences
 - Environmental Biology Concentration
 - Environmental Chemistry Concentration
 - Environmental Geology Concentration

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Civil Engineering: Environmental Engineering Concentration (B. S.)

College: [Engineering and Mathematics](#)

Department(s): [Civil and Environmental Engineering](#)

General Requirements

- [University](#)
- [Engineering and Mathematics](#)
- [Engineering Curricula](#)
- [Civil and Environmental Engineering](#)

Possible Curriculum

Sophomore Year

	Fall	Spring
Math 121, Calculus III	4	
Physics 42 with 22, Electromag Modern Physics	5	
CE 1, Statics	3	
CE 10, Surveying	3	
CE 12, Surveying Lab		1
Statistics 143, Statistics for Engineering	3	
Math 271, Applied Math/Engineers	3	
ME 12, Dynamics	3	
Chemistry 32 or Biology 2	4	
CE 11, Computer Tools	4	
HSS Elective ¹	3	
Total	18	18

Junior Year

	Fall	Spring
CE 100, Mech of Materials	3	

CE 150, Environmental Engineering	3	
CE 160, Hydraulics	4	
ME 40/44, Thermodynamics	4	
CE 101, Materials Testing	2	
CE 151, Water/Wastewater	3	
CE 154, Environ Analysis	2	
CE 170, Struct Analysis I	4	
HSS Elective ¹	3	3
Total	17	14

Senior Year

	Fall	Spring
EE 100, EE Principles	4	
CE 140, Transportation	3	
CE 180, Soil Mechanics	4	
Professional Elective ²	3	
CE 172, Steel Design		
or	(3)	(3)
CE 173, Reinforced Concrete		
CE 125, Enggr Econ/Planning		3
Design Electives ³		6
HSS Elective		3
CE 176, Senior Design Seminar		1
Total	14-17	13-16

¹ Required Humanities course: students must elect one from the list of approved cultural diversity courses.

² Professional Electives are all Design Electives plus CE 171, 191, 192, any CE 200 level course, Natural Resource 278.

³ Design Electives are CE 141, 142, 161, 175, 181, 230, 250, 251, 253, 255, 256, 258, 260, 261, 264, 265, 280, 283.

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- College of Nursing & Health Sciences
- Rubenstein School of Environment and Natural Resources
- School of Business Administration
- Graduate College

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Colleges and Schools

College of Medicine

Contact Information:

*University of Vermont
College of Medicine
E-126 Given Building
89 Beaumont Ave.
Burlington, VT 05405-0068*

*Phone: (802) 656-2156
Fax: (802) 656-8577
E-mail: MedAdmissions@uvm.edu
Web Site: <http://www.med.uvm.edu/>*

Overview

The UVM College of Medicine is one of the oldest and most respected medical schools in the nation. Since its establishment in 1822, the College's mission has been the education of undergraduate and medical students. This has evolved to include the education of residents, graduate students, and postdoctoral fellows, as well as continuing medical education of health professionals in the state, region, and the nation. During the past 30 years the College's mission has embraced cutting-edge health research, accessible high quality patient care, and community/ public service. Physicians educated or trained at the UVM College of Medicine and its affiliated health care organization— Fletcher Allen Health Care — are a vital part of the region's health care work force, accounting for nearly half of Vermont's physicians.

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- Graduate College

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Continuing Education

Contact Information:

University of Vermont
 Continuing Education
 322 South Prospect St
 Burlington, VT 05401

Phone: (802) 656-2085 or (800) 639-3210

Fax: (802) 656-0306

E-mail: learn@uvm.edu

Web Site: <http://learn.uvm.edu> ↻

- [Continuing Education Programs](#)

Overview

Continuing Education serves UVM's commitment to lifelong learning through the development and delivery of educational courses and programs that connect the resources of the University with the needs of non-degree and summer students in Vermont and the Northeast. Through innovative courses and programs, available on campus, in the workplace, or around the state, CE delivers a variety of educational opportunities for pre-college, college, and post-graduate students and professionals.

Advising

Advising services are available to anyone enrolled in Continuing Education or who may be interested in enrolling in the future. Advisors are well versed in non-traditional student issues, available to answer questions about educational opportunities at the University, and can refer potential students to the appropriate offices when necessary. In addition to discussing admission and academic requirements, advisors also help resolve administrative problems and answer questions about University policy. Call (802) 656-2085 or toll free (800) 639-3210 for an appointment. E-mail: learn@uvm.edu.

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Continuing Education Programs

College: [Continuing Education](#)

Evening Programs

Hundreds of credit courses are offered at non-traditional hours (evening, weekends, etc.) on- and off-campus or on-line during the fall and spring semesters. Registration occurs before the beginning of each semester. Courses are announced in the Continuing Education catalogue, FOCUS, which is available at the CE office and other UVM offices, and [online](#).

Guaranteed Admission Program (GAP)

This program provides an avenue of entry to the University of Vermont for students who are not prepared to enter under standard admission criteria. In the Guaranteed Admission Program, academic advisors work with students to design sequences of courses that will prepare them for matriculation. Admission to UVM is guaranteed upon successful completion of a contract of approved academic credit courses taken through Continuing Education. The program is administered cooperatively by Continuing Education, Undergraduate Admissions, and the deans' offices of the colleges and schools within UVM.

Evening Degrees

Opportunities to complete undergraduate degrees through courses offered after 4:00 p.m. are available in English, Sociology, Mathematics, Psychology, and Studio Art. A minor in Women's Studies is also available.

Certificate Program in Gerontology

A Certificate in Gerontology is offered for professionals currently working in fields relating to aging and others interested in such fields. The 18-credit certificate focuses on the sociological, psychological, and biological changes in the aging population and presents courses from a number of academic disciplines.

Certificate in Healthcare Management


A cohesive series of courses focus on the education needs of healthcare professionals with management responsibilities. Program content crosses healthcare disciplines and offers training necessary to make critical management decisions. Students enrolled in this advanced-level certificate have access to a broader array of faculty and academic disciplines than if they enrolled in a more disciplined specific management training program.

Postbaccalaureate Pre-Medical Preparation Program

A sequence of courses gives individuals with a bachelor's degree in a non-science area the preparation they need for admission to medical and other health professional schools. Those interested in applying should pay careful attention to the specific requirements of the schools of medicine, dentistry, veterinary, or other health science programs to which they intend to apply. The required courses in laboratory sciences and mathematics are accessible through a combination of day and evening courses. Prospective medical school applicants receive individual advisement through all phases of the medical school application process.


Summer Programs

During May through mid-August, hundreds of credit courses are offered. Summer University courses provide opportunities to get ahead, catch up, focus on pre-med requirements, participate in an internship, study abroad, and explore new topics. In addition, Summer University meets the professional education needs of teachers and school administrators, engineers, business managers, human services professionals, nurses, and school librarians.

Special attention is given to providing undergraduate courses that are in high demand during the academic year. In addition, there are field courses, on-line courses, special seminars, and intensive workshops. Summer University provides a financial advantage through lower tuition. A FOCUS catalogue of courses is available in March in print as well as [online](#) .

Note: Undergraduate students should verify with their advisor and dean that any CE course would be applicable to their degree program. Students not officially admitted to the Graduate College who wish to enroll for more than six graduate credits in one semester must receive permission from the Graduate Dean.

Courses and Programs Available Statewide

Through the use of distance technologies, many graduate and professional courses and programs are available statewide. Courses are available on-site, online, or are taught live on campus and are delivered by interactive television to various sites around Vermont. For more information, call 800-639-3210 or 802-656-2085 or visit [online](#) .

Non-Credit Courses and Programs

Continuing Education offers a variety of non-credit learning opportunities including:

- The George Bishop Lane Series which provides concerts and programs that help promote education through the performing arts.
- The Aiken Lecture Series which discusses relevant and pertinent topics.
- The Legal Issues in Higher Education Conference which attracts over 400 participants from diverse areas of higher education.

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Board of Trustees The University of Vermont

Daniel M. Fogel, B.A., M.F.A., Ph.D., President, *ex officio*

James H. Douglas, Governor, A.B., *ex officio*

Term Ending March 2004

- Milton E. Goggans, B.S., Skillman, New Jersey
- Dean Maglaris, B.A., M.B.A., New Canaan, Connecticut
- Pamela G. McDermott, B.S., M.P.A., Milton, Massachusetts
- Seth Reuben Podolsky, B.A., M.S., **Ph.D.**, Burlington, Vermont

Term Ending March 2005

- Marget C. Brue, Burlington, Vermont
- Frank J. Cioffi, B.A., St. Albans, Vermont
- Margaret P. Hummel, B.A., M.A., Underhill, Vermont
- Alysia D. Krasnow, B.A., Charlotte, Vermont
- Malcolm F. Severance, B.S., Ph.D., Colchester, Vermont
- David S. Wolk, B.A., M.Ed., Mendon, Vermont

Term Ending March 2006

- Bruce Lisman, B.A., New York, New York
- James Pizzagalli, B.S., J.D., Shelburne, Vermont
- Helen B. Spaulding, Boston, Massachusetts

Term Ending March 2007


- Kathleen C. Hoyt, B.A., Norwich, Vermont
- Richard W. Hube, B.A., South Londonderry, Vermont
- Thomas A. Little, A.B., J.D., Shelburne, Vermont
- Mark S. Young, Orwell, Vermont

Term Ending March 2008

- Robert F. Cioffi, B.A., M.B.A., Rowayton, Connecticut
- Carl H. Lisman, A.B., J.D., Charlotte, Vermont
- Raymond C. Pecor, A.B.A., Shelburne, Vermont

Term Ending March 2009

- Edwin H. Amidon, Jr., B.A., LL.B. Charlotte, Vermont
- Martha P. Heath, B.S., Westford, Vermont
- James P. Leddy, B.A., M.S.W. South Burlington, Vermont
- Robert H. Young, B.A., M.B.A., Rutland, Vermont

See also, [the Board of Trustees Web site](#) .

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Administration The University of Vermont

- Fogel, Daniel Mark, Ph.D. (2002), President
- Bramley, A. John, Ph.D. (1990), Senior Vice President & Provost
- Parke, E. Lauck, Ph.D. (1977), Vice President for Undergraduate Education
- Frances E. Carr, Ph.D. (2003), Vice President for Research & Dean of Graduate Studies
- DeHayes, Donald H., Ph.D. (1977), Dean, School of Natural Resources
- DeWitt, Rocki-Lee, Ph.D. (2002), Dean, School of Business Administration
- Evans, John N., Ph.D. (1976), Acting Dean, College of Medicine
- Jenkins, Robert G., Ph.D. (1999), Dean, College of Engineering and Mathematics
- Johnson, Rachel N., Ph.D. (1991), Dean, College of Agriculture and Life Sciences
- Rambur, Betty, DNS (2000), Dean, College of Nursing and Health Sciences
- Saule, Mara R., M.L.S. (1985), Dean, Libraries & Information Technologies
- Smith, Joan M., Ph.D. (1990), Dean, College of Arts and Sciences
- Tarule, Jill M., Ed.D. (1992), Dean, College of Education and Social Services
- Taylor, Robert, Ph.D. (1986), Dean, Honors College
- Belliveau, C. (2000) and Vallett, C. (1999), Co-Directors, Continuing Education
- Lantagne, Douglas O., Ph.D. (1977), Interim Director, Extension System
- Bazluke, Francine T., J.D. (1985), Vice President for Legal Affairs & General Counsel
- Gower, J. Michael (2003), Vice President for Finance and Administration
- Gustafson, Thomas J., Ed.D. (1978), Vice President for Student & Campus Life
- Nestor, David A., Ed.D. (1994), Associate Vice President for Campus Life & Student Affairs
- deGroot, Ian W., B.S. (1984), Vice President for University Development & Alumni Relations
- Meyer, Karen N. (2002), Vice President for State and Federal Relations

[UVM organizational chart.](#) ↗

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University Professorships

The Williams Professorship of Mathematics, 1853, honors Azarias Williams of Concord, Vermont, merchant and judge, native of Sheffield, England, who in 1839 deeded to the University extensive land holdings.

The Marsh Professorship of Intellectual and Moral Philosophy was established in 1867 to honor James Marsh, distinguished UVM president and philosopher of the 1830's. William E. Mann is the Marsh Professor.

The Pomeroy Professorship of Chemistry was established in 1878 by John N. Pomeroy, A.B., 1809, who lectured on chemistry and served as trustee of the University. William E. Geiger is the Pomeroy Professor.

The Howard Professorship of Natural History and Zoology was established in 1881 by John Purple Howard, a generous benefactor of the University. William Kilpatrick is the Howard Professor.

The Flint Professorship of Mathematics, Natural or Technic Science was established in 1895 by a bequest from Edwin Flint.

The Converse Professorship in Commerce and Economics was established in 1899 by John H. Converse, A.B., 1861, LL.D., 1897, who as a trustee of the University proposed the teaching of Latin, modern languages, history, and other subjects. William Gibson is the Converse Professor.

The Thayer Professorship of Anatomy was established in 1910 to honor Dr. Samuel White Thayer, Dean of the College of Medicine from 1854-71 and 1880-82, from contributions made by alumni of the College of Medicine. Professor of Anatomy Rodney L. Parsons is the Thayer Professor.

The McCullough Professorship of Political Science was established in 1926 through grants made by Gov. and Mrs. John G. McCullough. Alan P. Wertheimer, Professor of Political Science, is the McCullough Professor.

The Perkins Professorship of Zoology was established in 1931 to honor George H. Perkins, a teacher of science and dean of the College of Arts and Sciences. Judith L. Van Houten, Professor of Biology, is the Perkins Professor.

The Shipman Professorship of Ophthalmology was established in 1934 by a bequest from Dr. Elliot W. Shipman, M.D., 1885 and is held by Robert Millay, M.D..

The Lyman-Roberts Professorship of Classical Languages and Literature was established in 1941 to honor Robert Roberts, mayor of Burlington in the 1890's and a University trustee from 1895-1939. Z. Philip Ambrose, Professor of Classics, is the Lyman-Roberts Professor.

The Corse Professorship of English Language and Literature was established in 1952 by Frederick M. and Fannie C.P. Corse. Anthony G. Bradley, Professor of English, is the Frederick M. and Fannie C.P. Corse Professor.

The Lawrence Forensic Professorship of Speech was established in 1965 by Edwin W. Lawrence, lawyer and financier of Rutland, Vermont, A.B., 1901. Alfred C. Snider, Associate Professor of Theatre, is the Lawrence Professor.

The Sanders Professorship was established in 1968 by UVM alumni, honoring the Rev. Daniel Clarke Sanders, first president of the University.

The John L. Beckley Professorship in American Business was established in 1983 by John L. Beckley, 1934 graduate of UVM a trustee from 1966 to 1970, to encourage economic education. James M. Sinkula, Professor of Business Administration, is the Beckley Professor.

The Bishop Robert F. Joyce Distinguished University Professorship of Gerontology was established in 1983 by alumni and friends, honoring Robert F. Joyce, 1917 graduate, a trustee from 1948 to 1954, and Bishop of the R. C. Diocese of Burlington for 15 years. Stephen J. Cutler is the Joyce Professor.

The Buttles Professorship in Pathology was established in 1984 to honor Ernest Hiram Buttles, Professor of Pathology and Bacteriology, 1921 to 1946. Bruce R. MacPherson is the Buttles Professor.

The McClure Professorship in Musculoskeletal Research was established in 1988 by J. Warren and Lois H. McClure. Robert J. Johnson is the McClure Professor.

The E. L. Amidon Professorship in Medicine was established in 1989 to honor Dr. E.L. Amidon, a revered teacher and former chair of the Department of Medicine. Dr. Burton E. Sobel is the Amidon Professor.

The Roger H. Allbee Endowed Research Fellowship in Surgery was created in 1992 by Roger Allbee, M.D., '31, to provide support for a research fellow in the Department of Surgery. Michael A. Ricci is the Allbee Fellow in Surgery.

The Robert F. and Genevieve B. Patrick Endowed Professorship was created in 1999 through a generous bequest from the estate of Genevieve Patrick. The endowment is intended to support the study or specialty of nephrology. Dr. F. John Gennari is the Patrick Professor.

Established in 1995 by Gordon and Lulie Gund, *The Gund Chair in Liberal Arts* provides the College of Arts and Sciences with the opportunity to attract a leading teacher-scholar to one of the liberal arts disciplines. Phillip J. Cooper, Professor of Political Science, is the first Gund professor.

The Wallace Professorship in the Department of Pediatrics was established in 1995 by the family of Harry W. Wallace to represent Mr. Wallace's philanthropic interests. Jerold F. Lucey is the Wallace Professor of Neonatology.

The Dorothean Professorship was established in 1996 by Dr. Stuart Martin in memory of his wife, Dorothy Webster Martin, to support an outstanding individual in the field of engineering or a related science.

The Henry and Carleen Tufo Chair in General Internal Medicine was created in 1999 by Henry M. and Carleen Ann Tufo to support continued excellence in teaching, research and patient care in General Internal Medicine. The Tufo Chair is held by Benjamin Littenberg, M.D.

The S.D. Ireland Family Professorship in Surgical Oncology was established in 1999 in recognition of the cancer research being conducted at the University of Vermont by David N. Krag, M.D., who serves as the S.D. Ireland Family Professor.

The Patrick Chair in Watershed Planning and Science was established in 2000 from a \$1.5 million gift from the estate of Genevieve Patrick, part of a \$9 million bequest to the University. W. "Breck" Bowden is the first Patrick chair.

The John Van Sicklen Maeck, M.D. Chair in Obstetrics and Gynecology was established in 2000. It is the expressed wish of the Maeck family that the chair of the Department of Obstetrics and Gynecology hold this endowed faculty position. This position is currently held by Mark Phillippe, M.D., Chair and Professor of Obstetrics and Gynecology, he is the second person to hold the Maeck chair.

The Gund Professorship of Ecological Economics was established in 2001 from part of a \$7.5 million gift from Gordon and Lulie Gund and their sons, Grant and Zachary. The first Gund professor is Robert Costanza, who also directs the Gund Institute of Ecological Economics.

The Stanley S. Fieber, M.D.'48 Chair in Surgery was created in 2002 by Stanley S. Fieber, M.D. to enhance the research and educational activities of the Department of Surgery. Steven R. Shackford, M.D. is the Fieber Chair in Surgery.

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Faculty

As of October 2018, this is the list of Faculty that we were able to recover. When the catalogue was published, the Faculty list was complete.

A B C D E F G H I J K L M N O P
R S T U V W X Y Z

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- [Caldwell, Martha M.](#) - Associate Professor of Textiles, Merchandising, and Consumer Studies Emerita
- [Campagna, Anthony](#) - Professor of Economics Emeritus
- [Capen, David Edward](#) - Research Professor of Natural Resources Emeritus
- [Capone, Angela Marie](#) - Associate Professor of Integrated Professional Studies Emerita
- [Carlson, Robert Verner](#) - Professor of Education Emeritus
- [Carpenter, Howard J.](#) - Associate Professor of Mechanical Engineering Emeritus
- [Carrard, Philippe](#) - Professor of Romance Languages Emeritus
- [Cassell, Eugene Alan](#) - Professor of The Rubenstein School of Environment and Natural Resources Emeritus
- [Chamberlain, Erling W.](#) - Professor of Mathematics Emeritus
- [Chamberlain, Valerie M.](#) - Professor of Nutrition and Food Sciences Emerita
- [Chapman, James Gliem](#) - Professor Emeritus of Music Emeritus

- Chase, Marilyn - Assistant Professor of Human Development Emerita
- Chase, Richard X. - Professor of Economics Emeritus
- Cheney, Arthur H. - Assistant Professor of Organizational, Counseling, and Foundational Studies Emeritus
- Chiu, Jen-fu - Professor of Biochemistry Emeritus
- Christie, Lu S. - Lecturer in Special Education Emerita
- Clark, Virginia - Professor of English Emerita
- Clarke, John H. - Professor of Education Emeritus
- Clemmons, Jackson J. - Professor of Pathology Emeritus
- Cochran, Robert W. - Professor of English Emeritus
- Coffin Jr., Laurence H. - Professor of Surgery Emeritus
- Cohen, Julius G. - Professor of Psychiatry Emeritus
- Conrad, David - Professor of Education Emeritus
- Cook, Philip W. - Associate Professor of Botany Emeritus
- Corey, William M. - Extension Professor Emeritus
- Cořtante, Joseph - Professor of Plant and Soil Science Emeritus
- Craighead, John - Professor of Pathology Emeritus
- Cronin, Mary Julia - Associate Professor of Nursing Emerita
- Crouch, Milton H - Library Professor Emeritus
- Cutler, Stephen Joel - Professor of Sociology Emeritus

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- [Danforth Jr., Elliot](#) - Professor of Medicine Emeritus
- [Daniels, Robert V.](#) - Professor of History Emeritus
- [Davis, John H](#) - Professor of Surgery Emeritus
- [Davison, Jean M.](#) - Lyman-Roberts Professor of Classical Languages and Literature Emerita
- [Deane, Robert S.](#) - Professor of Anesthesiology Emeritus
- [Deck, Edith F.](#) - Associate Professor of Professional Nursing Emerita
- [Demers, Louise Aline](#) - Associate Professor of Professional Nursing
- Emerita [Detenbeck, Robert W](#) - Professor of Physics Emeritus
- [Dickerson, Mary J](#) - Associate Professor of English Emerita
- [Dietzel, Cleason S.](#) - Clinical Associate Professor of Psychology Emeritus
- [Donnelly, John R](#) - Professor of Natural Resources Emeritus

- [Doremus, Henry M.](#) - Associate Professor of Animal Pathology Emeritus
- [Dowe, Thomas W.](#) - Professor of Animal Science Emeritus
- [Downer, Richard N.](#) - Associate Professor of Civil Engineering Emeritus
- [Ducharme, Edward R.](#) - Professor of Organizational, Counseling, and Foundational Studies Emeritus
- [Dumville, Robert Whitney](#) - Extension Assistant Professor Emeritus
- [Dunkley, Thomas C.](#) - Assistant Professor of Human Development Studies Emeritus
- [Durfee, Herbert A.](#) - Professor of Obstetrics and Gynecology Emeritus
- [Duthie, Alexander](#) - Professor of Animal Science Emeritus
- [Dwork, Julius S.](#) - Associate Professor of Mathematics Emeritus

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- [Eddy, Dwight K.](#) - Extension Professor of Agricultural and Resource Economics Emeritus
- [Edgerton, James A.](#) - Extension Professor Emeritus
- [Edwards, Margaret F.](#) - Associate Professor of English Emerita
- [Elkins, Alan M.](#) - Professor of Psychiatry Emeritus
- [Elliott, Norris A.](#) - Extension Associate Professor Emeritus
- [Emerson, Faith G.](#) - Associate Professor of Professional Nursing Emerita
- [Erb, Clinton A.](#) - Associate Professor of Education Emeritus
- [Etherton, Bud](#) - Professor of Botany Emeritus
- [Evering, Frederick C.](#) - Professor of Electrical and Computer Engineering Emeritus

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- [Farnham, John](#) - Clinical Professor of Surgery Emeritus
- [Farr, Gordon V.](#) - Extension Associate Professor Emeritus
- [Feidner, Edward J.](#) - Professor of Theatre Emeritus
- [Feitelberg, Samuel](#) - Professor of Physical Therapy Emeritus
- [Felt, Jeremy P.](#) - Professor of History Emeritus
- [Fengler-Stephany, Christie](#) - Associate Professor of Art Emerita
- [Fenton, Ardith](#) - Instructor in Extension System Emerita
- [Fife, C. Lynn](#) - Associate Professor of Community Development and Applied Economics Emerita
- [Finney, Henry C.](#) - Associate Professor of Sociology Emeritus
- [Fishman, Laura T.](#) - Associate Professor of Sociology Emerita
- [Fitzgerald, Martha D.](#) - Research Professor of Education Emerita

- Flanagan, Theodore R. - Extension Associate Professor of Plant and Soil Science Emeritus
- Foote, Murray W. - Associate Professor of Microbiology and Biochemistry Emeritus
- Forgione, Rose J. - Associate Professor of Nursing Emerita
- Forsyth, Ben R. - Professor of Medicine Emeritus
- Foss, Donald C - Professor of Agriculture and Life Science Emeritus
- Francis, Gerald P. - Professor of Mechanical Engineering Emeritus
- Freedman, Steven - Associate Professor of Anatomy and Neurobiology Emeritus
- Friedman, Edward E. - Professor of Family Practice Emeritus
- Frymoyer, John W - Professor of Orthopaedics and Rehabilitation Emeritus
- Fuller, Gerald R. - Professor of Vocational Education and Technology Emeritus
- Fuller, Robert W. - Assistant Professor of Environment and Natural Resources Emeritus
- Fulwiler, Laura - Senior Lecturer of Elementary Education Emerita
- Fulwiler, Toby Edward - Professor of English Emeritus

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- [Gade, Daniel W.](#) - Professor of Geography Emeritus
- [Gans, Joseph H.](#) - Professor of Pharmacology Emeritus
- [Gay, Barbara T.](#) - Library Associate Professor Emerita
- [Geno, Marie](#) - Lecturer in Romance Languages Emerita
- [Geno, Thomas H.](#) - Associate Professor of Romance Languages Emeritus
- [Gibson, Kenneth S.](#) - Extension Professor in Animal and Food Sciences Emeritus
- [Gibson, Thomas C.](#) - Professor of Medicine Emeritus
- [Gilbert, Alphonse H.](#) - Associate Professor of The Rubenstein School of Environment and Natural Resources Emeritus
- [Gillies, Ellen M.](#) - Library Professor of the Medical Library Emerita
- [Gobin, Robert J.](#) - Professor of Human Development Studies Emeritus
- [Gomez, Antonio J.](#) - Associate Professor of Neurology Emeritus
- [Goodhouse, Edward W.](#) - Extension Associate Professor Emeritus

- Gora, Irene T. - Lecturer of Merchandising, Consumer Studies and Design Emerita
- Gould, Nathaniel - Associate Professor of Orthopaedics and Rehabilitation Emeritus
- Graham, William G. - Professor of Medicine Emeritus
- Greig, Harold A. - Assistant Professor of Human Development Emeritus
- Gribbons, Jackie Marie - Assistant Professor of Integrated Professional Studies Emerita
- Grime, Philip K. - Extension Professor Emeritus
- Grinnell, Dale Jacques - Professor of Business Administration Emeritus
- Gump, Dieter W - Professor of Medicine Emeritus
- Gussner, Robert E. - Associate Professor of Religion Emeritus

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- [Haines, Carleton R.](#) - Associate Professor of Surgery Emeritus
- [Hall, Mary](#) - Associate Professor of English Emerita
- [Hall, Robert](#) - James Marsh Professor of Philosophy Emeritus
- [Halpern, William](#) - Professor of Physiology and Biophysics Emeritus
- [Hamrell, Burt Benjamin](#) - Professor of Medicine Emeritus, Professor of Molecular Physiology and Biophysics Emeritus
- [Hand, Samuel B.](#) - Professor of History Emeritus
- [Handelsman, Morris](#) - Professor of Electrical Engineering Emeritus
- [Hanley, Edward M.](#) - Professor of Professional Education and Curriculum Development Emeritus
- [Hannah, Peter R.](#) - Professor of The Rubenstein School of Environment and Natural Resources Emeritus

- Hanson, John S. - Professor of Medicine Emeritus
- Happ, George - Professor of Biology Emeritus
- Harris, Everett W. - Associate Professor of Community Development and Applied Economics Emeritus
- Hasazi, Joseph E. - Associate Professor of Psychology Emeritus
- Haviland, William A. - Professor of Anthropology Emeritus
- Helzer, John Earl - Professor of Psychiatry Emeritus
- Hendley, Edith D. - Professor of Molecular Physiology and Biophysics Emerita
- Hermance, Clarke E - Professor of Mechanical Engineering Emeritus
- Higgins, Daniel W - Professor of Art Emeritus
- Hilberg, Raul - Professor of Political Science Emeritus
- Hill, H. Charles - Associate Professor of Dental Hygiene Emeritus
- Hirth, David Hammond - Associate Professor of Wildlife and Fisheries Biology Emeritus
- Hochheiser, Louis I - Professor of Family Practice Emeritus
- Hong, Richard - Clinical Professor of Pediatrics Emeritus
- Honnold, Robert E. - Extension Professor Emeritus
- Hood, Kenneth W. - Assistant Professor of Education Emeritus
- Hopp, Susan M. - Research Associate Professor of Agriculture Emerita
- Horton, Chesley P. - Extension Assistant Professor Emeritus
- Horton, Edward S. - Professor of Medicine Emeritus
- Houghaboom, Verle R. - Extension Professor of Agricultural and Resource Economics Emeritus
- Houston, Charles S. - Professor of Epidemiology and Environmental Health Emeritus
- Howard, Phillip - Professor of Pathology Emeritus
- Howe IV, James Robinson - Professor of English Emeritus
- Howell, David C. - Professor of Psychology Emeritus
- Huddle, David Ross - Professor of English Emeritus
- Huessy, Hans Rosenstock - Professor of Psychiatry Emeritus
- Hundal, Mahendra S. - Professor of Mechanical Engineering Emeritus
- Hunt, Allen - Professor of Geology Emeritus
- Hyde, Beal B. - Professor of Botany Emeritus

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- [Irwin, Alan Emory](#) - Professor of Surgery Emeritus
- [Irwin, Edward Suter](#) - Clinical Professor of Surgery Emeritus
- [Ives, John O.](#) - Associate Professor of Psychiatry Emeritus
- [Izzo, Joseph A.](#) - Professor of Mathematics Emeritus
- [Izzo, Louis Mario](#) - Associate Professor of Medical Laboratory and Radiation Sciences Emeritus

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- [Jaffe, Julian J.](#) - Professor of Pharmacology Emeritus
- [Jameson, DeeDee M.](#) - Assistant Professor of Human Development Emeritus
- [Janson, Richard H.](#) - Professor of Art Emeritus
- [Jarvis, Lynville W.](#) - Extension Professor Emeritus
- [Joffe, Justin Manfred](#) - Professor of Psychology Emeritus
- [Johnstone, Donald B.](#) - Professor of Microbiology and Biochemistry Emeritus
- [Jones, Leonidas M.](#) - Frederick and Fanny Corse Professor Emeritus
- [Julow, Roy G.](#) - Associate Professor of Romance Languages Emeritus

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- [Kapp, Bruce S](#) - Professor of Psychology Emeritus
- [Kasprisin, Christina Algiere](#) - Clinical Assistant Professor of Nursing Emerita
- [Kebabian, Paul](#) - Library Professor Emeritus
- [Keller, Jay E.](#) - Associate Professor of Surgery Emeritus
- [Kelly, William H.](#) - Associate Professor of Community Development and Applied Economics Emeritus
- [Kinnard, Douglas](#) - Professor of Political Science Emeritus
- [Kinsey, David L.](#) - Associate Professor of Music Emeritus
- [Koplewitz, Martin J.](#) - Associate Professor of Surgery Emeritus
- [Korson, Roy](#) - Professor of Pathology Emeritus
- [Krapchow, A. Paul](#) - Professor of Chemistry Emeritus
- [Kristiansson, Karin](#) - Extension Professor Emerita
- [Kuehne, Martin E](#) - Professor of Chemistry Emeritus
- [Kuhlmann, Raymond Frank](#) - Clinical Professor of Orthopedics and Rehabilitation Emeritus

- [Kunin, Arthur S.](#) - Professor of Medicine Emeritus
- [Kunkel, John R.](#) - Extension Associate Professor of Plant and Soil Science Emeritus

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- [Laber, Gene](#) - Professor of Business Administration Emeritus
- [Laferriere, Mary E.](#) - Lecturer in Professional Nursing Emerita
- [Laing, Frederick M.](#) - Research Associate Professor of Botany Emeritus
- [Lambert, Denis E.](#) - Assistant Professor of Human Development Emeritus
- [Lambert, Lloyd](#) - Professor of Physics Emeritus
- [Lamden, Merton P.](#) - Professor of Biochemistry Emeritus
- [Lamoray, A. Rosemary](#) - Lecturer of Dental Hygiene Emerita
- [Landesman, Richard H.](#) - Associate Professor of Biology Emeritus
- [Lang, Helene Wanda](#) - Associate Professor of Education Emeritus, Lecturer of Leadership and Developmental Sciences
- [Larson, Karin](#) - Lecturer of Mathematics and Statistics Emerita
- [Larson, Robert L.](#) - Professor of Education Emeritus
- [Leamy, William P.](#) - Extension Associate Professor of Animal Science Emeritus

- [Leggett, Leslie](#) - Professor of Human Development Studies Emerita
- [Leitenberg, Harold](#) - Professor of Psychology Emeritus
- [Letteri, Charles A](#) - Associate Professor of Education Emeritus
- [Lewin, Carroll](#) - Associate Professor of Anthropology Emerita
- [Lewis, Gordon F.](#) - Professor of Sociology Emeritus
- [Lewis, John D.](#) - Associate Professor of Obstetrics and Gynecology Emeritus
- [Lewis, William J.](#) - Professor of Sociology Emeritus
- [Lidral, Frank Wayne](#) - Professor of Music Emeritus
- [Liebs, Chester](#) - Professor of History Emeritus
- [Lind, Aulis](#) - Associate Professor of Geography Emeritus
- [Lindsay, John](#) - Associate Professor of The Rubenstein School of Environment and Natural Resources Emeritus
- [Linton, Peter C.](#) - Associate Professor of Surgery Emeritus
- [Lipke, William Charles](#) - Professor of Art Emeritus
- [Lipson, Marjorie Youmans](#) - Professor of Education Emerita, Professor of Literacy and Elementary Education Emerita
- [Little, George T.](#) - Professor of Political Science Emeritus
- [Livak, Joyce K.](#) - Associate Professor of Nutritional Sciences Emerita
- [Lochhead, John H.](#) - Professor of Zoology Emeritus
- [Loewen, James William](#) - Professor of Sociology Emeritus
- [Long, Littleton](#) - Professor of English Emeritus
- [Lubker, James](#) - Professor of Communication Sciences Emeritus
- [Luginbuhl, William H.](#) - Professor of Pathology Emeritus

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- [Maccollom, George B.](#) - Professor of Plant and Soil Science Emeritus
- [MacPherson, Brian Verne](#) - Lecturer of Mathematics and Statistics Emeritus
- [Magee, Francis E.](#) - Assistant Professor of Nursing Emerita
- [Manchel, Frank](#) - Professor of English Emeritus
- [Marshall, Gilbert A.](#) - Professor of Mechanical Engineering Emeritus
- [Martin, Hebert L.](#) - Professor of Neurology Emeritus
- [Massonneau, Suzanne](#) - Library Professor Emerita
- [Maughan, David Wayne](#) - Research Professor of Molecular Physiology and Biophysics Emeritus
- [Mazuzan, John E.](#) - Professor of Anesthesiology Emeritus
- [Mc Grath, Helen](#) - Professor of Nursing Emerita
- [McAree, Christopher](#) - Associate Professor of Psychiatry Emeritus

- McConaughy, Stephanie Hooker - Research Professor of Psychiatry Emeritus
- McCormack, John Joseph - Professor of Pharmacology Emeritus
- McCormick, Thomas J. - Extension Professor Emeritus
- McCrorey, H. Lawrence - Professor of Molecular Physiology and Biophysics Emeritus
- McEntee, Harry J. - Assistant Professor of Education Emeritus
- McFeeters, Donald J. - Extension Professor Emeritus
- McGill, J. Bishop - Associate Professor of Surgery Emeritus
- McKay Jr., Robert J. - Professor of Pediatrics Emeritus
- McLean, Donald L. - Professor of Plant and Soil Science Emeritus
- McSweeney, Douglas E. - Assistant Professor of Surgery Emeritus
- Mead, Philip Bartlett - Clinical Professor of Obstetrics and Gynecology Emeritus
- Melville, Donald B. - Professor of Biochemistry Emeritus
- Mercia, Leonard S. - Extension Professor Emeritus
- Meserve, Bruce E. - Professor of Mathematics Emeritus
- Metcalfe, Marion E. - Lecturer in Music Emerita
- Metcalfe, William - Professor of History Emeritus
- Meyer, Diane H. - Research Assistant Professor of Microbiology and Molecular Genetics Emerita
- Meyer, William L. - Professor of Biochemistry Emeritus
- Milhous, Raymond Lee - Professor of Orthopaedics and Rehabilitation Emeritus
- Miller, Donald B. - Associate Professor of Surgery Emeritus
- Milligan, Jean B. - Professor of Professional Nursing Emerita
- Mitchell, William - Professor of Anthropology Emeritus
- Moehring, Joan M. - Research Professor of Microbiology and Molecular Genetics Emerita
- Moehring, Thomas - Professor of Microbiology and Molecular Genetics Emeritus
- Moffroid, Mary T. - Professor of Physical Therapy Emerita
- Moore, Molly - Lecturer of English Emerita
- Morency, David Charles - Lecturer of Mathematics and Statistics Emeritus
- Morselli, Maria-Franca C. - Research Professor of Botany Emerita
- Moser, Donald E. - Professor of Mathematics Emeritus
- Mulieri, Louis Anthony - Research Associate Professor of Molecular Physiology and Biophysics Emeritus
- Munger, Bethia N. - Extension Associate Professor Emerita
- Murray, Barbara Lee - Associate Professor of Nursing Emerita
- Murray, Roger - Research Associate Professor of Animal and Food Sciences Emeritus

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- [Nadworny, Milton J.](#) - Professor of Economics Emeritus
- [Newton, David P.](#) - Extension Professor Emeritus
- [Nichols, Beverly A.](#) - Associate Professor of Education Emerita
- [Nielsen, Gordon R.](#) - Extension Assistant Professor of Plant and Soil Science Emeritus
- [Novotny, Charles P.](#) - Professor of Microbiology and Molecular Genetics Emeritus
- [Nyborg, Wesley L.](#) - Professor of Physics Emeritus

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- [Oppenlander, Joseph C.](#) - Professor of Civil and Environmental Engineering Emeritus
- [Orth, Ghita](#) - Lecturer of English Emerita
- [Orth, Ralph](#) - Professor of English Emeritus
- [Outwater, John O.](#) - Professor of Mechanical Engineering Emeritus

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- [Pacy, James S.](#) - Professor of Political Science Emeritus
- [Paden, William Edward](#) - Professor of Religion Emeritus
- [Page, Dorothy](#) - Associate Professor of Physical Therapy Emerita
- [Page, H. Gordon](#) - Professor of Surgery Emeritus
- [Page, John C.](#) - Extension Professor Emeritus
- [Palmer, Mary Ellen](#) - Associate Professor of Nursing Emerita
- [Paolucci-Whitcomb, Phyllis E.](#) - Professor of Social Work Emerita
- [Paquette, Lucien D.](#) - Extension Professor Emeritus
- [Parks, Donald R.](#) - Assistant Professor of Education Emeritus
- [Pellett, Norman](#) - Professor of Plant and Soil Science Emeritus
- [Peterson, James A.](#) - Professor of Integrated Professional Studies Emeritus
- [Petrusich, Mary M.](#) - Professor of Human Development Studies Emerita

- [Phillips, Carol F](#) - Professor of Pediatrics Emerita
- [Poger, Sidney B.](#) - Professor of English Emeritus
- [Porter, Monica B.](#) - Extension Associate Professor Emerita
- [Potash, Milton](#) - Professor of Zoology Emeritus
- [Powell, Agnes T.](#) - Associate Professor of Human Nutrition and Foods Emerita
- [Power, Marjory W.](#) - Associate Professor of Anthropology Emerita
- [Powers, Patricia](#) - Associate Professor of Anatomy and Neurobiology Emerita
- [Price, John R.](#) - Extension Assistant Professor Emeritus

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- [Racusen, David](#) - Professor of Agricultural Biochemistry Emeritus
- [Raper, Carlene Allen](#) - Research Associate Professor of Microbiology and Molecular Genetics Emerita
- [Rathbone, Charles](#) - Associate Professor of Education Emeritus
- [Razza, Mary Lou](#) - Research Associate Professor of Education Emeritus
- [Reagin, Dolores M.](#) - Assistant Professor of Organizational, Counseling, and Foundational Studies Emerita
- [Reidel, Carl H.](#) - Professor of Environmental Studies Emeritus
- [Reinhardt, John E.](#) - Professor of Political Science Emeritus
- [Reit, Ernest](#) - Associate Professor of Pharmacology Emeritus
- [Richardson, Jean](#) - Professor of Natural Resources Emerita

- Richel, Veronica C. - Associate Professor of German Emerita
- Riggs, Heath K. - Professor of Mathematics Emeritus
- Rippa, Alexander S. - Professor of Organizational, Counseling, and Foundational Studies Emeritus
- Roland, Margaret - Associate Professor of Art Emerita
- Roth, Wilfred - Professor of Electrical Engineering Emeritus
- Rothwell, Kenneth - Professor of English Emeritus
- Royce, Blanche E. - Lecturer of Education Emerita
- Ruess, Johanna - Assistant Professor of Orthopaedics and Rehabilitation Emerita
- Runge, Carl F. - Associate Professor of Medicine Emeritus
- Russo, Joseph N. - Clinical Assistant Professor of Obstetrics and Gynecology Emeritus

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- [Sachs, Thomas D.](#) - Associate Professor of Physics Emeritus
- [Sampson, Samuel F.](#) - Professor of Sociology Emeritus
- [Sandoval, Dolores](#) - Associate Professor of Education Emerita
- [Sargent, Frederic O.](#) - Professor of Agricultural and Resource Economics Emeritus
- [Sawyer, Janet R.](#) - Professor of Professional Nursing Emerita
- [Scarfone, Leonard M.](#) - Professor of Physics Emeritus
- [Schlunk, Robin R.](#) - Professor of Classics Emerita
- [Schmidt, Frederick Eberhard](#) - Associate Professor of Community Development and Applied Economics Emeritus
- [Schmokel, Wolfe W.](#) - Professor of History Emeritus

- Schoonmaker, N. James - Professor of Mathematics Emeritus
- Schultz, Harold S. - Professor of History Emeritus
- Schultz, Herbert L. - Associate Professor of Music Emeritus
- Schumacher, George A. - Professor of Neurology Emeritus
- Schwalb, Roberta B. - Associate Professor of Professional Nursing Emerita
- Scrase, David Anthony - Professor of German Emeritus
- Secker-Walker, Roger - Professor of Medicine Emeritus
- Sekerak, Robert John - Library Associate Professor Emeritus
- Senghas, Dorothy C. - Library Assistant Professor in Dana Medical Library Emerita
- Severance, Malcolm F. - Professor of Business Administration Emeritus
- Seybolt, Peter Jordan - Professor Emeritus of Asian Languages & Literatures
- Shea, William I. - Associate Professor of Surgery Emeritus
- Shepherd, Allen G. - Professor of English Emeritus
- Shinozaki, Tamotsu - Professor of Anesthesiology Emeritus
- Simmons, K. Rogers - Associate Professor of Animal Science Emeritus
- Simon, Morris L. - Associate Professor of Political Science Emeritus
- Sims, Ethan Allen - Professor of Medicine Emeritus
- Sinclair, Robert O. - Professor of Agricultural and Resource Economics Emeritus
- Sjogren, Robert - Associate Professor of Microbiology and Molecular Genetics Emeritus
- Smith, Albert M. - Professor of Animal and Food Sciences Emeritus
- Smith, David Young - Professor of Physics Emeritus
- Soule, Phyllis M. - Assistant Professor of Nutritional Sciences Emerita
- Spinner Jr., Thomas J. - Professor of History Emeritus
- Squire, Horace - Associate Professor of Business Administration
- Stanfield, Robert E. - Professor of Sociology Emeritus
- Stanton, Michael Neill - Associate Professor of English Emeritus
- Staron, Stanislaw J. - Professor of Political Science Emeritus
- Steele, Doris H. - Extension Professor Emerita
- Steen, M. Dale - Extension Associate Professor Emerita
- Steffenhagen, Ronald A. - Professor of Sociology Emeritus
- Stephenson, John F. - Extension Professor Emeritus
- Stevens, Dean F. - Associate Professor of Zoology Emeritus
- Stevenson, S. Christopher - Professor of Education Emeritus
- Stinebring, Warren R. - Professor of Microbiology Emeritus
- Stirewalt, William S. - Associate Professor of Obstetrics and Gynecology Emeritus

- [Stout, Neil R.](#) - Professor of History Emeritus
- [Strassburg, Kathleen](#) - Extension Professor of Textiles, Merchandising and Consumer Studies Emerita
- [Stryker III, Barent W.](#) - Extension Professor Emeritus
- [Sullivan, Anne Marie](#) - Associate Professor of Biomedical Technologies Emerita
- [Sumner, J Williams](#) - Extension Assistant Professor Emeritus

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- [Tabakin, Burton S.](#) - Professor of Medicine Emeritus
- [Tashman, Leonard Jay](#) - Associate Professor of Business Administration Emeritus
- [Taylor, Fred](#) - Professor of Botany Emeritus
- [Thanassi, John W.](#) - Professor of Biochemistry Emeritus
- [Thibault, Marlene](#) - Extension Professor of Community Development and Applied Economics Emerita
- [Thimm, Alfred L.](#) - Professor of Business Administration Emeritus
- [Thompson, Harry L.](#) - Associate Professor of Social Work Emeritus
- [Thompson, Noah C.](#) - Extension Professor Emeritus
- [Tisdale, William A.](#) - Professor of Medicine Emeritus
- [Tormey, David M.](#) - Professor of Family Practice Emeritus
- [Townsend, Robert L.](#) - Extension Professor Emeritus
- [Trainer, Thomas D.](#) - Professor of Pathology Emeritus

- Tremblay, Raymond H. - Professor of Agricultural and Resource Economics Emeritus
- True., Marshall M. - Associate Professor of History Emeritus
- Tufo, Henry M. - Professor of Medicine Emeritus
- Tuthill, Arthur F. - Professor of Mechanical Engineering Emeritus
- Tuxbury, Vernon - Extension Associate Professor of Community Development and Applied Economics Emeritus

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- [Ugalde, Louis Maldonado](#) - Professor of Romance Languages Emeritus
- [Ullrich, Robert C.](#) - Professor of Botany and Agricultural Biochemistry Emeritus
- [Ure, Helena A.](#) - Associate Professor of Professional Nursing Emerita

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- [Van Buren, H. Carmer](#) - Associate Professor of Medicine Emeritus
- [Van Buskirk, David](#) - Associate Professor of Psychiatry Emeritus
- [Vander Meer, Canute](#) - Professor of Geography Emeritus
- [Vane, Dennis William](#) - Professor of Surgery and Pediatrics Emeritus
- [Vogelmann, Hubert W.](#) - Professor of Botany Emeritus

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- [Waller, Julian A.](#) - Professor of Medicine Emerita
- [Wallman, Lester J.](#) - Professor of Neurosurgery Emeritus
- [Wang, Jue-Fei](#) - Research Professor of Educational Leadership and Policy Studies Emeritus
- [Watson, Frank](#) - Lecturer in Education Emeritus
- [Way, Winston A.](#) - Extension Professor of Plant and Soil Science Emeritus
- [Weaver, Lelon Jr. A.](#) - Associate Professor of Psychology Emeritus
- [Webb, George](#) - Associate Professor of Molecular Physiology and Biophysics Emeritus
- [Webster, Fred C.](#) - Professor of Agricultural and Resource Economics Emeritus
- [Webster, Selina M.](#) - Professor of Clothing, Textiles, and Design Emerita
- [Weed, Lawrence L.](#) - Professor of Medicine Emeritus
- [Weiger, John G.](#) - Professor of Romance Languages Emeritus
- [Weiner, Sheldon](#) - Professor of Psychiatry Emeritus
- [Weinrich, Francis A.](#) - Assistant Professor of Music Emeritus

- [Welch, James](#) - Professor of Animal and Food Sciences Emeritus
- [Welch, Lorraine M](#) - Associate Professor of Nursing Emerita
- [Weller, David L](#) - Professor of Botany and Agricultural Biochemistry Emeritus
- [Wells, Joseph](#) - Professor of Anatomy and Neurobiology Emeritus
- [Welsh, George William](#) - Associate Professor of Medicine Emeritus
- [Weltin, Eugen E.](#) - Associate Professor of Chemistry Emeritus
- [Wesseling, Pieter](#) - Associate Professor of Romance Languages Emeritus
- [Wessinger, Nancy B](#) - Associate Professor of Education Emerita
- [Whaples, Donald R.](#) - Extension Professor Emeritus
- [White, Robert E.](#) - Extension Assistant Professor Emeritus
- [White, William N.](#) - Professor of Chemistry Emeritus
- [Whitebook, Susan M.](#) - Assistant Professor of Romance Languages Emerita
- [Whitmore Jr., Roy A.](#) - Professor of The Rubenstein School of Environment and Natural Resources Emeritus
- [Whittlesey, Margaret B.](#) - Associate Professor of Special Education Emerita
- [Wiggans, Samuel C.](#) - Professor of Plant and Soil Science Emeritus
- [Wigness, Robert C.](#) - Professor of Music Emeritus
- [Williams, Blair](#) - Professor of Human Nutrition and Foods Emeritus
- [Willmuth, Lewis R.](#) - Associate Professor of Psychiatry Emeritus
- [Wilson, Mary S.](#) - Professor of Communication Sciences Emerita
- [Winstead-fry, Patricia](#) - Professor of Nursing Emerita
- [Wood, Glen M.](#) - Professor of Plant and Soil Science Emeritus
- [Wood, Hazen F.](#) - Coordinator of the Professional Laboratory Experiences Emeritus
- [Woodruff, William A.](#) - Associate Professor of Psychiatry Emeritus
- [Woodworth, Robert C.](#) - Professor of Biochemistry Emeritus
- [Woolfson, Peter](#) - Professor of Anthropology Emeritus
- [Wootton, Dorothy](#) - Associate Professor of Dental Hygiene Emerita
- [Worley, Ian Almer](#) - Professor Emeritus in the Rubenstein School of Environment and Natural Resources

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- [Young, William J.](#) - Professor of Anatomy and Neurobiology Emeritus

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- [Zarate, Armando](#) - Professor of Spanish Emeritus
- [Zucker, Barbara M](#) - Professor of Art Emerita

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[2008-2009](#) | [2009-2010](#) | [2010-2011](#) | [2011-2012](#) | [2012-2013](#) | [2013-2014](#) | [2014-2015](#) | [2015-2016](#) | [2016-2017](#)
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Fall 2003

Events	Dates	Days of Week
Labor Day Holiday	September 1	Monday
First Day of Classes	September 2	Tuesday
Add/Drop, Pass/No Pass, Audit Deadline	September 15	Monday
Withdrawal Period Begins	September 16	Tuesday
Fall Recess	October 10	Friday
Last Day to Withdraw	October 31	Friday
Thanksgiving Recess	November 26-28	Wednesday-Friday
Last Day of Classes	December 10	Wednesday
Reading and Exam Period	December 11-19	Thursday-Thursday, Friday
Reading Days	December 11, 13-14, 17	Thursday, Saturday- Sunday, Wednesday
Exam Days	December 12, 15-16, 18-19	Friday, Monday-Tuesday, Thursday-Friday
Reception for December Graduates	December 19	Friday

Spring 2004

Martin Luther King Holiday	January 19	Monday
First Day of Classes	January 20	Tuesday
Add/Drop, Pass/No Pass, Audit Deadline	February 2	Monday
Withdrawal Period Begins	February 3	Tuesday
Presidents' Day Holiday	February 16	Monday
Town Meeting Day Recess	March 2	Tuesday
Spring Recess	March 15-19	Monday-Friday
Last Day to Withdraw	March 26	Friday
Early Registration (for Fall 2004)	Begins Early April	
Honors Day	April 16	Friday
Last Day of Classes	May 5	Wednesday
Reading and Exam Period	May 6-14	Thursday-Thursday, Friday
Reading Days	May 6, 8-9, 12	Thursday, Saturday-Sunday, Wednesday
Exam Days	May 7, 10-11, 13-14	Friday, Monday-Tuesday,

Commencement

May 23

Thursday-Friday
Sunday

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Academic Reprieve Policy

The Academic Reprieve Policy is designed to make it possible for former UVM students, whose academic performance when first enrolled was below standard, to resume their studies without the encumbrance of the grades previously earned.

The Academic Reprieve Policy is available to returning students who have not been enrolled at UVM or any other accredited institution of higher education for a period of at least three calendar years.

Former students returning to the University may request the application of the Academic Reprieve Policy only once in their career at UVM. The established procedures and criteria for admission or readmission apply to students applying for an Academic Reprieve.

The dean of the college/school in which the student is enrolled at the time of initial eligibility for the application of the Academic Reprieve Policy shall determine eligibility for, and application of, the policy. Eligible former students must file a petition with the appropriate dean requesting reprieve of all prior course work at the University, either at time of admission or readmission or before the close of the first semester of re-enrollment. The Reprieve Policy includes all previous UVM work and does not allow the students to pick and choose individual courses for reprieve. All courses with grades below passing are ignored, credit hours for courses passed are carried forward, but the grades are not figured in the new grade-point average, which begins again at zero.

Any person electing the reprieve option is required to complete a minimum of 30 additional regularly graded credits at UVM before a degree may be awarded (15 regularly graded credits for the associate degree); these credits are not open to the pass/fail option. Those electing the reprieve option may qualify for honors at graduation only on the same basis as any transfer student, i.e. completion of 60 or more regularly graded credits at UVM (30 or more regularly graded credits for the associate degree programs).

Persons electing the reprieve option will be required to meet degree requirements of the catalogue in effect on the date of the student's application for readmission.

The Reprieve Policy applies solely to regular undergraduate degree programs. Graduate programs are specifically excluded.

Low Scholarship

Following are the general University regulations relating to low scholarship. The Studies Committee of each college/school may determine more stringent requirements. Students with questions regarding their academic standing should consult their college/school dean.

"On Trial": This is an intermediate status between good standing and dismissal in which students remain enrolled according to stated academic conditions of their college/school.

Students are placed "on trial" by their dean or designated committee of their college/school. Special academic conditions may be set in each case. Normally the period of "trial" status is one semester.

This policy applies in the following instances:

1. Students, having been dismissed for low scholarship, are placed "on trial" upon readmission.
2. Students may be placed "on trial" if in any semester they have failed one-half or more of their semester hours, but have been permitted to continue in college/school.
3. Students whose records have been consistently below the graduating average or generally unsatisfactory in any semester may be placed "on trial" or continued "on trial" even though they do not come within the provisions that apply to "Separation."

Separation: Students are dismissed from UVM if they receive grades below passing in one-half or more of their semester hours in any semester, unless they are allowed to continue by action of the designated committee.

Students who fail to meet the condition of their trial or whose record has been unsatisfactory and consistently below the graduation average may be dismissed for low scholarship even though they do not come within the "On Trial" provisions.

Students dismissed for low scholarship must address their application for readmission to their college/school and receive written approval from their dean before enrolling in any University course.

Student dismissed for disciplinary reasons must receive written approval from the Vice President for Student Affairs before enrolling in any University course.

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Accreditations

The University of Vermont is accredited by the New England Association of Schools and Colleges, Inc., a nongovernmental, nationally-recognized organization whose affiliated institutes include elementary schools through collegiate institutions offering postgraduate instruction.

Accreditations of an institution by the New England Association indicates that it meets or exceeds criteria for the assessment of institutional quality periodically applied through a peer group review process. An accredited school or college is one which has available the necessary resources to achieve its stated purposes through appropriate educational programs, is substantially doing so, and gives reasonable evidence that it will continue to do so in the foreseeable future. Institutional integrity is also addressed through accreditation.

Accreditation by the New England Association is not partial but applied to the institution as a whole. As such, it is not a guarantee of quality of every course or program offered or the competence of individual graduates. Rather, it provides reasonable assurance about the quality of opportunities available to students who attend the institution.

Inquiries regarding the status of an institution's accreditation by the New England Association should be directed to the administrative staff of the University. Individuals may also contact the [New England Association of Schools and Colleges](#), 209 Burlington Road, Bedford, MA 01730-1433, (781) 271-0022.

Specific program accreditations include:

- Agriculture and Life Sciences
 - Dietetics — Commission on Accreditation for Dietetics Education
- Arts and Sciences
 - Chemistry — American Chemical Society
 - Speech-Language Pathology — American Speech-Language-Hearing Association
 - Clinical Psychology — American Psychological Association
- Business Administration
 - AACSB International — The Association to Advance Collegiate Schools of

Business

- Education
 - Athletic Training Education Program — Commission on Accreditation of Allied Health Programs
 - Social Work — Council on Social Work Education
 - Teacher Education — Vermont Department of Education
 - Athletic Training — Commission on Accreditation of Allied Health Education Programs
 - Counseling — Council for Accreditation of Counseling and Related Educational Programs
 - National Council for Accreditation of Teacher Education
- Engineering and Mathematics
 - Engineering Programs (Mechanical, Electrical, Civil) — Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc.
- Medicine
 - Liaison Committee on Medical Education, American Medical Association — Association of American Medical Colleges
- Nursing and Health Sciences
 - Biomedical Technologies
 - Medical Laboratory Science — National Accrediting Agency for Clinical Laboratory Science
 - Nuclear Medicine Technology — Joint Review Committee on Education Programs in Nuclear Medicine Technology
 - Dental Hygiene — American Dental Association
 - National League for Nursing Accrediting Commission, Inc.
 - Physical Therapy — American Physical Therapy Association — Commission on Accreditation in Physical Therapy Education

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Adding, Dropping, and Withdrawing from Undergraduate Courses

Area: [Undergraduate Academic and General Information](#)

Course Add/Drop

Courses may be added or dropped only during the first ten instruction days of the semester. After the first five instruction days the instructor may not allow the course to be added if material may not be made up (e.g. laboratories) and if the absence of this work would seriously affect the quality of the student's educational experience.

Drops will only be allowed after the tenth day of instruction if a student was enrolled by administrative error and did not attend the class. The disposition of such cases is handled by the Registrar's Office.

Course Withdrawal

From the eleventh day of instruction to the end of the ninth week of classes, students may withdraw from courses. To do so, students must complete a Course Withdrawal Form, consult with their advisor, and obtain the instructor's signature. The student must deliver the form to the Registrar's Office no later than 4 p.m. on Friday of the ninth week of classes. Students give a copy to their dean for information purposes. A grade of W will be assigned by the instructor(s) and recorded on the student's permanent record.

Between the end of the ninth week and the last day of classes, students may withdraw from one or more courses only by demonstrating to their college/school studies committee, through a written petition, that they are unable to continue in the course(s) due to circumstances beyond their control. Such petition must contain conclusive evidence, properly documented, of the illness or other situation preventing completion of the course(s). Acceptable reasons do not include dissatisfaction with performance or expected grade, with the course or instructor, or desire to change major or program. If the petition is approved, a grade of W will be assigned by the instructor(s) and recorded on the student's permanent record. If the petition is denied, the instructor(s) will assign a final grade (A-F) in accordance with the same criteria applied to all other students in the course(s).

Withdrawn courses are included in the number of credits used for billing purposes. No withdrawals will be permitted after the last day of classes. In all instances, withdrawal grades remain on the permanent academic record, but will not affect the grade-point average.

Retroactive Academic Adjustment

The University will consider requests for late withdrawal and retroactive academic adjustments when those requests are accompanied by appropriate information. To receive consideration, a student or his/her authorized representative must submit to his/her dean's office a completed Consultation Form for Medical Withdrawal and Incompletes. Forms are available in deans' offices.

Students may appeal the academic adjustment decision of their school or college to the Provost's Office. If the appeal is based upon a certified disability and recommended as an appropriate accommodation, students may appeal the academic adjustment decision of their school or college as outlined in Policies and Procedures for Students with Disabilities under the section entitled "Protocol for Dispute Resolution." All appeals must be submitted in writing. Decisions regarding adjustments to academic records are distinct and separate from refunds. Any refund, including tuition, financial aid awards, fees, room, and board, will follow federal and institutional guidelines. The effective date for any refund will be the date that the completed form was received by the academic dean's office. Questions regarding refunds should be directed to the Controller's Office.

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Admitted Undergraduate Student Information

Area: [Undergraduate Admission to the University](#)

Acceptance Fee and Advance Tuition Deposits

To reserve a space in the class or semester admitted, students should send the Admissions Office an acceptance fee and advance tuition deposit for \$300 made payable to The University of Vermont. This policy will change effective with the 2004-05 academic year.

First-time first- and second-year students are required to live in on-campus housing. Students admitted under Early Decision commit to attending UVM and must pay the tuition deposit by January 15. Transfer candidates and all candidates admitted for the spring semester will have a payment deadline printed with their acceptance materials. Housing is not guaranteed for transfer students.

A full refund of the acceptance fee and advance tuition deposit can be requested up to the payment deadline. After the payment deadline and up until the first day of classes, \$100 of the payment is refundable.

Orientation

All entering first-year students are required to attend a two-day orientation session in June. At Orientation, new UVM students meet with a faculty advisor, select first semester classes, and learn about living options in the residence halls. Information packets are mailed to incoming students' home addresses once they pay the acceptance fee and advance tuition deposit. Transfer students attend a session just prior to the beginning of the fall semester.

Transfer or first-year students entering in the spring semester receive information about a special spring orientation session once they pay the deposit.

Housing

First-time, first-year and second-year students are required to live in on-campus housing. Entering students explore living options at orientation and are allowed to list residence

hall preferences. The Department of Residential Life mails room assignments prior to the beginning of each semester.

Class Registration

The academic advisor at Orientation helps prepare the first semester class schedule. First-year students entering fall semester register for classes at June Orientation. First-year students entering in the spring and transfer students entering either semester meet with an academic advisor at an Orientation session and may need to formally register for classes at that time.

Immunization

Immunization and health history forms are sent directly to newly-admitted students and are due in the Center for Health and Well-being— Student Health/Medical Clinic by June 30 of the year of entry. Vermont state law requires proof of two doses of live measles vaccine after the student's first birthday.

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Education Abroad

The Office of International Education (OIE), located in Room B161 of the Living/Learning Center, is an advising and resource center for students interested in a year, semester, or summer study abroad experience. Study Abroad Advisors maintain extensive information about study abroad programs, institutions, and volunteer opportunities. They, in conjunction with UVM Transfer Affairs, help students identify programs appropriate to their needs and arrange credit approval from UVM. All students intending to study abroad and receive transfer credit from UVM are required to visit the OIE and to complete the Study Abroad Approval Form prior to departure. Contact the OIE for deadlines. Official approval is required for students to guarantee that their programs of study are eligible for transfer credit and that any financial aid will apply. There is a \$400 study abroad fee for semester and year-long programs and \$200 fee for summer programs.

To be approved to study abroad, students must:

1. Have a minimum cumulative GPA of 2.5, or between 2.0 and 2.5 with a minimum semester average of 2.5 for each of the last two semesters prior to studying abroad.
2. Meet the admissions criteria of a University approved study abroad program. University approved programs include those programs on the UVM Approved List.

Students with a GPA above 2.0 who do not qualify under point one above may petition their academic dean for permission to study abroad. Students seeking such permission should request an Academic Eligibility Form from their Study Abroad Advisor in the Office of International Education to be signed by their academic dean.

Students who have been dismissed or are on academic trial are generally not eligible to participate in study abroad programs. Such individuals are encouraged to consult with their individual deans' offices regarding their interpretation of this policy. Under no circumstances will a student on disciplinary suspension the semester before studying abroad, and/or the semester they are scheduled to study abroad, receive official UVM approval for overseas study.

For more information about study abroad, visit the [Office of International Education Web site](#).

UVM Exchange Programs

UVM participates in a number of exchange programs with institutions around the world. In an exchange program, all UVM participants pay UVM in-state tuition and fees (and frequently, UVM room, and board) and exchange places with a student from a foreign institution. Exchange programs are a good financial value. These programs provide direct immersion into the academics and culture of the country. Although most exchange programs require a good command of the host language, many offer programs entirely in English.

UVM/University of Western Australia Exchange Program

This program in Perth, Australia, was developed by UVM's School of Natural Resources (SNR), and SNR students will receive priority placement to pursue their studies in natural resources. Courses are also offered in business, arts and sciences, agriculture, Asian studies, and Aboriginal studies. For more information, contact Jan Spencer in SNR or the OIE.

UVM/University of Belgrano Exchange Program

This program in Buenos Aires, Argentina can accommodate various levels of non-native Spanish speakers and students can choose courses in Spanish language and literature, culture, history, economics, and politics. For more information, contact Professor Catherine Connor, Department of Romance Languages, or the OIE.

UVM/University of Lapland Exchange Program

This exchange program in Finland is designed especially for Social Work majors and offers UVM students the opportunity to study social work in English. For more information, contact Professor Stanley Witkin, Social Work Department, or the OIE.

UVM/Sussex Exchange Program

This exchange is located at the University of Sussex in Brighton, England. Sussex is well recognized for both its humanities and social science offerings as well as its science and engineering programs. Twenty percent of the Sussex student body is international. For more information, contact Professor George Moyser, Department of Political Science, or the OIE.

UVM/Augsburg Exchange Program

This exchange is with the Universität Augsburg, Bavaria, Germany. The UVM student needs to have a solid command of the German language and be pursuing German or European Studies. For more information, contact Professor Dennis Mahoney, Department of German and Russian, or the OIE.

International Student Exchange Program (ISEP)

This program enables UVM students to study in more than 100 sites in 46 different countries in Europe, Asia, Australia, Canada, Africa, and Latin America. Many sites offer instruction in English, as well as in the language of the host country. For more information, contact the Office of International Educational.

Kansai Gaidai Exchange Program

Students interested in Japanese language and culture may spend a semester or year studying at this university near Osaka, Japan. For more information, contact Mutsumi Corson, Area and International Studies, or the OIE.

UVM/Vienna Exchange Program

Students interested in international business may spend a semester or year studying at the Wirtschaftsuniversität Wien, Vienna, Austria. All courses are taught in English. For more information, contact Professor Peter Battelle, School of Business Administration, or the OIE.

UVM/Edith Cowen Exchange Program

This exchange program located in Perth, Australia was developed by UVM's School of Nursing. This provides opportunity for nursing students to take classes in their major overseas. For more information contact Associate Professor Rycki Maltby, School of Nursing, or the OIE.

UVM/Stockholm Exchange Program

This exchange program with the Stockholm Institute of Education, Stockholm, Sweden, provides opportunities for preK-3 education students to study for the spring semester. For more information, contact Associate Professor Dale Goldhaber, College of Education and Social Services, or the OIE.

UVM Faculty-led Programs Abroad

UVM offers several short-term travel study programs. Most of these UVM faculty-led programs are three-credit courses offered during the summer or January break. Previous program locations have included Mexico, England, Anguilla, Finland, Ireland, Belize, Honduras, Costa Rica, and Cuba. These programs are open to degree students and individuals who have already obtained college degrees. For a complete listing and fee information, visit the [Continuing Education Web site](#) or the [Office of International Education Web site](#).

Sponsored Programs

The Buckham Overseas Studies Program in England is a scholarship program at the University of Kent, Canterbury, administered by the College of Arts and Sciences and

funded through a generous endowment from the Buckham family. The program runs for the full academic year and is designed to provide an opportunity for up to 20 exceptional English majors to spend their junior year at a modern university in an ancient British city. Living and studying in a fully integrated way with English students, the UVM students earn up to 32 credits. Cost of participation, including tuition, transportation, room and partial board, does not normally exceed the costs incurred during a year on the UVM campus.

To apply to the program, a student must be an English major with a cumulative and an English GPA of 3.0 and have earned at least 60 credit hours (including English 85 and 86) by the time the scholarship begins. For further information, contact Professor Helen Scott, Department of English, 417 Old Mill; (802) 656-4172.

UVM-Affiliated Study Abroad Programs

Spring Semester Program in Grenoble, France, in International Business

This program provides an opportunity for students interested in international business, economics, and trade to participate in an English-speaking program while gaining exposure to France's history, language, and culture. For more information, contact Professor Peter Battelle, School of Business Administration, 209 Kalkin Hall, UVM, or the OIE.


Junior-Year-in-Salzburg Program

This academic-year program at the University of Salzburg, Austria, is open to qualified UVM undergraduates in all major fields. Basic requirements are: completion of sophomore year; a minimum of two years of college-level German with a B average; and good academic standing (a cumulative average of 2.5). For information, contact Professor Helga Schreckenberger, Department of German and Russian, UVM.

The Swedish Program

Sponsored by the University of Stockholm and a consortium of participating American colleges and universities (of which UVM is a member), this non-profit program focuses upon organizations and public policy in every social science discipline. Its curriculum is thematically specific, interdisciplinary, and relevant to the host country (Sweden). For more information, contact Professor Anthony Magistrale, English Department, 400 Old Mill, or the OIE.

Other Popular Study Abroad Programs

The following programs are just a few of those on the UVM Approved List. These programs have been especially popular among faculty, staff, and students. For a complete Approved List, contact the Office of International Education, or refer to the [Office of International Education Web site](#) .

American Institute for Foreign Study (AIFS)

A publicly owned company, AIFS Inc. is a nationwide organization that provides comprehensive overseas study and travel programs in Argentina, Australia, Austria, the Czech Republic, England, France, Holland, Ireland, Italy, Japan, the Netherlands, Russia, South Africa, and Spain.

Boston University

Boston University offers academic-year, semester, and summer study abroad opportunities in 13 countries on six continents. Several of the program sites provide students with an integrated internship component for a portion of their academic experience and credit. Other program sites feature direct enrollment options in local universities for advanced language students.

Institute for the International Education of Students

This nonprofit organization sponsors programs in Argentina, Australia, Austria, China, England, France, Germany, Ireland, Italy, Japan, and Spain. Semester, year, and summer options are available.

School for International Training (SIT)

SIT is an accredited college of World Learning Inc., which was founded in 1932 as The U.S. Experiment in International Living. More than 50 experientially-focused programs are offered in over 40 countries, including the continents of Africa, Asia, and South America. All programs include a Life and Culture Seminar, a Methods and Techniques of Field Study Seminar, an Independent Study Project, a home-stay opportunity, and, if appropriate, an intensive language study.

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Equal Employment Opportunity and Affirmative Action Policy

The University of Vermont and State Agricultural College is committed to a policy of equal employment opportunity and to a program of affirmative action in order to fulfill that policy. The University will accordingly recruit and hire into all positions the most qualified persons in light of job-related requirements, and applicants and employees shall be treated in employment matters without regard to unlawful criteria including race, color, religion, national origin, sex, sexual orientation, disability, age or status as a disabled or Vietnam-Era Veteran as these terms are defined under applicable law.

In addition, the University of Vermont recognizes that sexual harassment is a form of unlawful sex discrimination, and it is therefore the policy of the University that sexual harassment will not be tolerated.

Further, employees and applicants will not be subjected to harassment because they have engaged in or may engage in the following: filing a complaint; assisting or participating in an investigation, compliance evaluation, or any other activity related to the administration of the Vietnam Era Veterans' Readjustment Assistance Act of 1974 ("VEVRAA"), Section 503 of the Rehabilitation Act of 1973 ("Rehabilitation Act"), or the Affirmative Action provisions of federal, state or local law; opposing any act or practice made unlawful by VEVRAA, requiring equal employment opportunities for individuals with disabilities, disabled veterans, or veterans of the Vietnam Era; or exercising any rights under VEVRAA, or the Rehabilitation Act.

Questions regarding this policy statement or compliance with its provisions may be directed to Wanda Heading-Grant, Executive Director, Office of Affirmative Action and Equal Opportunity, University of Vermont, 428 Waterman Building, Burlington, VT 05405 (802-656-3368). Questions may also be directed to government agencies having oversight and enforcement authority with respect to the referenced laws. A complete listing of such agencies may be obtained from the Office of Affirmative Action and Equal Opportunity.

Sources: Titles VI and VII of the Civil Rights Act of 1964; Immigration and Reform and Control Act of 1986; Title IX of the Education Amendments of 1972; the Equal Pay Act of 1963; the Age Discrimination in Employment Act; the Age Discrimination in Employment Act of 1967; the Age Discrimination Act of 1975; Sections 503 and 504 of the

Rehabilitation Act of 1973; the Americans with Disabilities Act of 1990; Section 402 of the Vietnam-Era Veterans Readjustment Assistance Act of 1974; the Uniformed Services Employment and Reemployment rights Act of 1994; Executive Order 11246 as amended; the Vermont Fair Employment Practices Act; and such other federal, state and local non-discrimination laws as may apply.

Note: This Statement of Policy is the official University of Vermont Equal Employment Opportunity/Affirmative Action Policy Statement and supersedes all prior policy statements regarding its subject matter. It may be modified only by written statement issued by the President as Chief Executive Officer of the University or by formal action by the University of Vermont and State Agricultural College Board of Trustees. This Policy Statement is designed to express the University's intent and commitment to comply with the requirements of federal, state and local non-discrimination laws. It shall be applied co-extensively with such laws, and shall not be interpreted as creating any rights, contractual or otherwise, that are greater than exist under such non-discrimination laws. Persons seeking to participate in employment opportunities offered by the University must consult position and program descriptions to determine criteria for eligibility. All such criteria shall be established in a manner consistent with the legal requirements herein referenced.

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The University of Vermont Equal Opportunity in Educational Programs and Activities Policy

The University of Vermont and State Agricultural College is committed to a policy of equal educational opportunity. The University therefore prohibits discrimination on the basis of unlawful criteria, such as race, color, religion, national or ethnic origin, age, sex, sexual orientation, marital status or disability, as those terms are defined under applicable law, in admitting students to its programs and facilities and in administering its admissions policies, educational policies, scholarships and loan programs, athletic and other institutionally administered programs or activities made available to students at the University.

The University also prohibits unlawful harassment, defined in 16 V.S.A. section 11 (a) (26) as verbal or physical conduct based on a student's race, creed, color, national origin, sex, sexual orientation, marital status or disability and which has the purpose or effect of substantially interfering with a student's educational performance or creating an intimidating, hostile or offensive environment.

Questions regarding this policy statement or compliance with its provisions may be directed to David Nestor, Interim Vice President for Student Affairs, University of Vermont, 41-43 South Prospect Street, Burlington, VT 05405 (802-656-3380) or Wanda Heading-Grant, Executive Director, Office of Affirmative Action and Equal Opportunity, University of Vermont, 428 Waterman Building, Burlington, VT 05405 (802-656-3368). Questions may also be directed to government agencies having oversight and enforcement authority with respect to the referenced laws. A complete listing of those agencies may be obtained from the Office of Affirmative Action and Equal Opportunity.

Sources: Title VI of the Civil Rights Act of 1964; Title IX of the Higher Education Act Amendments of 1972; the Age Discrimination Act of 1975; Section 504 of the Rehabilitation Act of 1973; the Americans with Disabilities Act of 1990; the Vermont Public Accommodations Act; and such other federal, state and local non-discrimination laws as may apply.

Note: This Statement of Policy is the official University of Vermont Equal Educational Opportunity Policy Statement and supersedes all prior policy statements regarding its subject matter. It may be modified only by written statement issued by the President as

Chief Executive Officer of the University or formal action by the University of Vermont and State Agricultural College Board of Trustees. This Policy Statement is designed to express the University's intent and commitment to comply with the requirements of federal, state and local non-discrimination laws. It shall be applied co-extensively with such laws, and shall not be interpreted as creating any rights, contractual or otherwise, that are greater than exist under such non-discrimination laws. Persons seeking to participate in educational opportunities offered by the University must consult position and program descriptions to determine criteria for eligibility. All such criteria shall be established in a manner consistent with the legal requirements herein referenced.

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Continuing Education Programs

College: [Continuing Education](#)

Evening Programs

Hundreds of credit courses are offered at non-traditional hours (evening, weekends, etc.) on- and off-campus or on-line during the fall and spring semesters. Registration occurs before the beginning of each semester. Courses are announced in the Continuing Education catalogue, FOCUS, which is available at the CE office and other UVM offices, and [online](#) .

Guaranteed Admission Program (GAP)

This program provides an avenue of entry to the University of Vermont for students who are not prepared to enter under standard admission criteria. In the Guaranteed Admission Program, academic advisors work with students to design sequences of courses that will prepare them for matriculation. Admission to UVM is guaranteed upon successful completion of a contract of approved academic credit courses taken through Continuing Education. The program is administered cooperatively by Continuing Education, Undergraduate Admissions, and the deans' offices of the colleges and schools within UVM.

Evening Degrees

Opportunities to complete undergraduate degrees through courses offered after 4:00 p.m. are available in English, Sociology, Mathematics, Psychology, and Studio Art. A minor in Women's Studies is also available.

Certificate Program in Gerontology

A Certificate in Gerontology is offered for professionals currently working in fields relating to aging and others interested in such fields. The 18-credit certificate focuses on the sociological, psychological, and biological changes in the aging population and presents courses from a number of academic disciplines.

Certificate in Healthcare Management


A cohesive series of courses focus on the education needs of healthcare professionals with management responsibilities. Program content crosses healthcare disciplines and offers training necessary to make critical management decisions. Students enrolled in this advanced-level certificate have access to a broader array of faculty and academic disciplines than if they enrolled in a more disciplined specific management training program.

Postbaccalaureate Pre-Medical Preparation Program

A sequence of courses gives individuals with a bachelor's degree in a non-science area the preparation they need for admission to medical and other health professional schools. Those interested in applying should pay careful attention to the specific requirements of the schools of medicine, dentistry, veterinary, or other health science programs to which they intend to apply. The required courses in laboratory sciences and mathematics are accessible through a combination of day and evening courses. Prospective medical school applicants receive individual advisement through all phases of the medical school application process.


Summer Programs

During May through mid-August, hundreds of credit courses are offered. Summer University courses provide opportunities to get ahead, catch up, focus on pre-med requirements, participate in an internship, study abroad, and explore new topics. In addition, Summer University meets the professional education needs of teachers and school administrators, engineers, business managers, human services professionals, nurses, and school librarians.

Special attention is given to providing undergraduate courses that are in high demand during the academic year. In addition, there are field courses, on-line courses, special seminars, and intensive workshops. Summer University provides a financial advantage through lower tuition. A FOCUS catalogue of courses is available in March in print as well as [online](#) .

Note: Undergraduate students should verify with their advisor and dean that any CE course would be applicable to their degree program. Students not officially admitted to the Graduate College who wish to enroll for more than six graduate credits in one semester must receive permission from the Graduate Dean.

Courses and Programs Available Statewide

Through the use of distance technologies, many graduate and professional courses and programs are available statewide. Courses are available on-site, online, or are taught live on campus and are delivered by interactive television to various sites around Vermont. For more information, call 800-639-3210 or 802-656-2085 or visit [online](#) .

Non-Credit Courses and Programs

Continuing Education offers a variety of non-credit learning opportunities including:

- The George Bishop Lane Series which provides concerts and programs that help promote education through the performing arts.
- The Aiken Lecture Series which discusses relevant and pertinent topics.
- The Legal Issues in Higher Education Conference which attracts over 400 participants from diverse areas of higher education.

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General Undergraduate Admissions Criteria

Area: [Undergraduate Admission to the University](#)

The University of Vermont selects those students who demonstrate the greatest potential for academic success at the University based on prior academic performance.

Recognizing the University's focus on engagement with local, state, national and global communities, admission policies focus on achieving geographic balance; variety of experience and background; and cultural/economic diversity within the fabric of its student population. As a state-assisted university. The University of Vermont has a special commitment to Vermont residents, a commitment reflected by ensuring that Vermont students receive priority consideration in the admissions process. Our commitment to forging a diverse education community is manifested in a special effort to recognize and meet the educational needs of members of ALANA (African American, Latino, Asian, and Native American) populations.

Determining potential for a student to benefit from a UVM education lies at the heart of the work of the University's Office of Undergraduate Admission. This determination is based on a blending of the academic record with other attributes in a student's background. A candidate for admission must demonstrate an ability to perform at a high level scholastically. For a first-year student, this is determined by performance in high school and on standardized examinations. Transfer and non-traditional candidates will be evaluated on the results of completed college-level course work, standing at previous institutions, and/or other educational credentials appropriate to student age and educational history. At a minimum, candidates for admission are expected to complete the entrance requirements established by the UVM faculty to ensure exposure to broad fields of intellectual inquiry; some programs require further study in areas relevant to professional development. Additionally, to form a comprehensive view of a student's candidacy, University admission staff gauge the rigor of a student's program by reviewing breadth of study and course levels (e.g. Honors and AP course work); measure the student's relative standing in the graduating class through grade point average, class rank, or other indices; observe trends in the student's performance over time; and assess the competitive nature of the high school and/or college environment. Standardized test scores are viewed as one of several indicators of student academic potential and not as a single criterion for admission to the University.

Beyond academic credentials, other characteristics and experiences in a student's background are reviewed in making an admission decision — particularly when the academic record in isolation is not decisive. Required student essays, recommendations, and other evidence of the student's life experiences are examined to more fully understand the student's potential to succeed and contribute at UVM. All achievements, both academic and non-academic, will be considered in the context of the opportunities an applicant has had, hardships or unusual circumstances faced, and the response to these. Evidence of special talents, community service, imagination and tenacity are also considered indicative of promise for future contributions to the life of the University and to its mission. Admission decisions are made without regard to family financial circumstances, although University financial aid and scholarship funding is deployed on the basis of academic merit as well as financial need.

Although University Admissions staff makes final admission decisions, consultation with academic unit representatives precedes any decision for a student whose credentials may not be clear and decisive. Admission policies are made by the Department of Admissions in collaboration with the schools and colleges that constitute The University of Vermont and are subject to review by The University of Vermont Faculty Senate and the Board of Trustees.

Minimum Undergraduate Entrance Requirements

At a minimum, candidates for all majors at UVM are expected to have met the following requirements prior to entry.

- 4 years of English
- 3 years of Mathematics (Algebra I, geometry, Algebra II, or equivalent courses)
- 3 years of social science
- 2 years of natural or physical science
- 2 years of the same foreign language (American Sign Language meets this requirement.)

Course work not completed at the high school level may be fulfilled by equivalent college-level academic work.

In general, one semester of college work is considered the equivalent of one year of high school study.

Any exceptions to these requirements are made on a case-by-case basis.

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Health Services


Area: [Student Services](#)

Center for Health and Wellbeing

The Center for Health and Wellbeing offers counseling, medical and women's clinics, nutritional counseling, physical therapy and athletic medicine, a health promotion program, a drug and alcohol education program, laboratory services, and 24-hour emergency telephone advice (802) 656-3350. The comprehensive student fee covers most primary services. Pharmacy, lab, X-ray, PT, and psychiatric services are billed to the student and typically reimbursed by insurance. Visit our [Web site](#)  for more complete information.

Counseling


Over a thousand students use the services of the Counseling Center each year for improving academic success, for mental health counseling, and personal growth work. All records in the Counseling Center are confidential, the names of clients are not available without the student's permission. The staff consists of women and men of varying backgrounds, ethnicity, ages, and physical abilities. Full-time students are eligible for services. Part-time students are eligible for consultation and referrals.

The Counseling Center is accredited by the International Association of Counseling Services and adheres to the code of ethics of the American Psychological Association. [Counseling](#)  is located in Jacob's House on the corner of Main Street and South Williams, (802) 656-3340.

Student Health/Medical and Women's Health Clinics

The Clinics are available to all students (except those in the College of Medicine) for primary and preventive health care. Most of these services are covered by the comprehensive student fee. Students entering the University are required to furnish the Center with a complete immunization record, to include two valid measles (Rubeola) vaccinations, and a medical history. A physical exam is not required.

Health Insurance

The University makes available to students an optional health insurance plan that provides hospitalization and some outpatient benefits. Full-time students who do not provide proof of adequate health insurance at the time of registration will be required to purchase the University-sponsored plan. Information regarding the Student Health Insurance Plan is available [on-line](#) .

The Burlington area has a large and sophisticated medical community of which the Center for Health and Wellbeing is a part. Students requiring specialty care are referred to specialists in the area. When necessary, hospitalization is usually arranged at Fletcher Allen Health Care, a teaching hospital located on the edge of the main campus.

Note: The University Health Center (UHC) is not the UVM Center for Health and Wellbeing.

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Honorary and Recognition Societies

Honorary and recognition societies at The University of Vermont recognize student contributions to the UVM community and their leadership in campus life.

University honorary societies include [Boulder Society](#), which acknowledges outstanding senior men; and *TOWERR*, which acknowledges outstanding senior women.

National honorary societies represented on campus are as follows:

[The Phi Beta Kappa Society](#) established the Vermont Alpha Chapter at the University in 1848 and the local chapter was the first in Phi Beta Kappa to initiate women into membership. Initiates are chosen on the basis of high scholastic standing with emphasis on a broad distribution of liberal studies. This is interpreted to mean course work in all seven College of Arts and Sciences distribution categories including intermediate-level foreign language study. Membership criteria are published on the Web; interested students and advisors should consult the chapter president.

[Mortar Board](#) is a national society for senior women and men. Although membership in Mortar Board comes as a high honor for a UVM student in recognition of outstanding service, scholarship, and leadership, it is also a challenge for continued unselfish service in the best interest of the college campus.

[Golden Key National Honor Society](#) recognizes the top fifteen percent of juniors and seniors in all fields of study. The society emphasizes scholarship and community service.

The *Society of Sigma Xi*, established in 1945, initiates those who have proven their ability to do research in one of the sciences, including students who have a high scholastic standing.

The alpha chapter of *Nu Delta Epsilon* was established at UVM in 1993. It is the first national honor society to recognize non-degree students who excel academically and exhibit a strong commitment to higher education and personal achievement.

Other national honorary societies include: Alpha Omega Alpha, medicine; Alpha Zeta, agriculture; Beta Gamma Sigma, business administration; Kappa Delta Pi, education; Sigmae Theta Tau, professional nursing; Tau Beta Pi, engineering; Omicron Nu, home economics; Delta Sigma Rho-Tau Kappa Alpha, debating; Phi Alpha Theta, history; Psi

Chi, psychology; Eta Sigma Phi (Iota Chapter), classical studies; Alpha Kappa Delta, sociology; Sigma Phi Alpha, dental hygiene; Lambda Alpha, anthropology; Chi Epsilon, civil engineering; Xi Sigma Pi, forest resources; Ethan Allen Rifles, outstanding students in Reserve Officers' Training Corps; Champlain Sabres, a military fraternity; and Phi Eta Sigma, outstanding first-year students.

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Housing

Area: [Student Services](#)

All students are encouraged to reside in one of a variety of housing options, ranging from theme-based suites in our Living/Learning Center to substance-free living in Redstone Hall.

Undergraduate Housing

All first-year and second-year students are required to live on campus. Over 200 staff members in Residential Life are committed to making on-campus living experiences as productive and rewarding as possible.

Exceptions to living off campus will be heard prior to June 1 for students residing at home with parents or legal guardians in Chittenden County, or for first-year or second-year students who claim independent financial status in accordance with the guidelines provided by the UVM Financial Aid Office, or married, with a partner, or with dependent children. Housing for returning students is determined by a lottery held each spring. Second-year students who are members of a sorority or fraternity and want to live in their sorority or fraternity house must submit their request through their President and Chapter Advisor to the Department of Residential Life by early March.

Students living in the residence halls must have room and meal plan contracts. Contracts are binding for the full academic year unless canceled for due cause with the approval of the Department of Residential Life. In August, new students will receive notification of their housing assignments. Rooms may not be occupied until the date specified.

Students are expected to leave the residence halls no later than 24 hours after their last examination or by 8:00 p.m. on the last day of final examinations.

The Department of Residential Life is located in Robinson Hall, Redstone Campus, (802) 656-3434, or visit Residential Life [on-line](#) ↗.

Upper Division and Graduate Housing

Single Rooms

One of the five residence halls on UVM's Trinity Campus is a designated housing option for upper division, graduate, medical, and non-traditional students and is designed to respond to the various and special needs of this student population. Although Trinity Campus is part of the main campus, it is set apart from other residence halls and classroom buildings. There are 20 single rooms, each furnished with a bed, dresser, desk, and closet. The contract is for a nine-month period, with separate options for the summer.

Cottages

There are also opportunities for graduate students, medical students, and non-traditional students to live in cottages also located on UVM's Trinity Campus. The cottages are small houses with single and double bedrooms. Each cottage can house between four and eight students. Amenities in each cottage include furnished living room space, bathrooms, and a full kitchen with adjacent parking. The contract is for a 12-month lease period.

Student Family Housing

There are 115 University-owned apartments designated for student families located just outside Winooski at Fort Ethan Allen. About five miles from campus on Route 15, the apartments are close to shopping centers, hospital, and educational institutions. These apartments have several amenities.

Detailed rental information may be obtained from the Ethan Allen Housing Office, 14 Ethan Allen Avenue, Fort Ethan Allen, Colchester, Vermont 05446, (802) 654-1735.

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Name and Address Exclusion

Areas: [Undergraduate Academic and General Information](#), [Policies of the Graduate College](#)

The Family Educational Rights and Privacy Act of 1974 grants to all students the right not to have personal information contained in the records of the University released to any individual, agency, or organization. UVM feels that the following constitutes such personal information.

Name

Address (including e-mail address)

Telephone number

Dates of attendance

Class

Previous institution(s) attended

Major field of study

Enrollment status

Awards

Honors (including Dean's list)

Degree(s) conferred (including dates)

Past and present participation in officially recognized sports and activities

Physical factors (height, weight of athletes)

Date and place of birth

Students who do not wish to have the above information released should fill out an information exclusion card at the Registrar's Office.

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Notification of Rights Under FERPA for Postsecondary Institutions

Areas: [Undergraduate Academic and General Information](#), [Policies of the Graduate College](#)

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. These rights include:

1. The right to inspect and review the student's education records within 45 days of the day the University receives a request for access. Students should submit to the registrar, dean, head of the academic department, or other appropriate official, written requests that identify the record(s) they wish to inspect. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.
2. The right to request the amendment of the student's education records that the student believes are inaccurate or misleading. Students may ask the University to amend a record that they believe is inaccurate or misleading. They should write the University official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading. If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.
3. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent. One exception which permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the University in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the University has contracted (such as an attorney, auditor, or collection agent); a

person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by The University of Vermont to comply with the requirements of FERPA. The name and address of the office that administers FERPA:

*Family Policy Compliance Office
U.S. Department of Education
600 Independence Avenue, SW
Washington, DC 20202-4605*

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Payment Obligations

Area: [Undergraduate Tuition and Fees](#)

Payment of Obligations

The Touchtone registration system will generate charges based on enrolled credit hours. All tuition, fees, and room and board charges are payable in full upon notification. Degree students who enroll in advance for courses will receive itemized statements of applicable semester charges at their permanent address about a month prior to the commencement of classes, with instructions to settle in full by a specific date (generally three weeks before classes begin). Advance payments are accepted; checks should be made payable to The University of Vermont. Any checks or payments received by the University may be applied to outstanding balances.


Students who cannot meet their financial obligations because of unusual circumstances should contact the Office of Student Financial Services as soon as possible before the payment due date. Students who are allowed a Monthly Payment Plan or a postponement of all or a portion of their financial obligations will be charged a \$75 Monthly Payment Plan service charge per semester or \$130 for a year plan.

Students who have not satisfactorily completed financial arrangements by the announced due date may have their enrollment cancelled. Disenrollment will automatically place a registration hold on a student's account that will prevent re-enrolling until the student has contacted Student Accounting to discuss the account. A \$50 fee must be paid to allow reregistration.

The University reserves the right to withhold registration material, the diploma, degree, and all information regarding the record, including transcript, of any student who is in arrears in the payment of tuition, fees, or other charges, including, but not limited to, student loans, dining and housing charges, telephone toll charges, and parking fines.

If a student leaves the University for any reason with an outstanding balance and this balance is not settled in a timely manner, the University may turn the account over for collection. If this is done, any additional collection fees, legal fees, and other costs and charges necessary for the collection of this debt will be added to the outstanding balance.

Late Payment Service Charge

Students who do not settle their accounts by the due date will be charged a late payment service charge. Please refer to the Payment Information and Financial Policies information on the [Web page](#) .

Budgeted Payment

The University offers a Monthly Payment Plan to parents who desire to budget annual costs in monthly installments. Specific information is mailed to parents of incoming and returning students in the spring by the Office of Student Financial Services.

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Preprofessional Options

Pre-Medical and Pre-Dental Options

Pre-Medical and Pre-Dental options are available to all students, regardless of major. Advising is coordinated through UVM Career Services, and students are strongly encouraged to consult the Pre-Medical/Pre-Dental advisor early on and throughout their college career. See [the Web site](#).

Pre-Law Option

Pre-Law advising is available at both UVM Career Services and through several department faculty and staff in the College of Arts and Sciences. See [the Web site](#).

Pre-Veterinary Option

The pre-veterinary studies option, within the Animal Science major, is offered through the [College of Agriculture and Life Sciences](#).

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Reapplying to the University as an Undergraduate

Area: [Undergraduate Admission to the University](#)

Applicants denied admission for a given semester may reapply for the following semester. Anyone reapplying must re-submit an application form, update any academic information, and send the appropriate application fee. Essays may be adjusted to reflect applicant's recent activities. These individuals should contact the Admissions Office to discuss academic work that would improve their chances for admission.

Under certain conditions, candidates offered admission who choose not to attend in a given semester can defer entry for up to two semesters with permission from the Admissions Office. After that period or if the admitted candidate failed to request deferred admission, another application and fee must be filed for review by the Admissions Office.

Former degree students at the University of Vermont who withdrew for any reason must see the dean of his/her former UVM college or school to request re-entry. The Admissions Office does not readmit former degree students.

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Residency Regulations, In-State Status Regulation

The Vermont Legislature has established a lower rate of tuition for students who are Vermont residents. These regulations define eligibility requirements for in-state status classification. All students at The University of Vermont and State Agricultural College (UVM) shall be assigned in-state or out-of-state status classification consistent with these regulations. A Vermont domicile must be established for a student to be eligible for in-state status.

In-State Status Classification Rules

1. Domicile shall mean a person's true, fixed, and permanent home. It is the place at which one intends to remain indefinitely and to which one intends to return when absent.
2. As one element of domicile, a student must reside in Vermont continuously for one year prior to the semester for which in-state status is sought.
3. A residence established for the purpose of attending UVM shall not by itself constitute domicile.
4. An applicant becoming a student within one year of first moving to the state shall have created a rebuttable presumption that residency in Vermont is for the purpose of attending UVM and/or acquiring in-state status for tuition purposes.
5. A domicile or residency classification assigned by a public or private authority neither qualifies nor disqualifies a student for UVM in-state status. Such classification may be taken into consideration, however, in determining the student's status at UVM.
6. It shall be presumed that a student who has not reached the age of majority (18) holds the domicile of his/her parents or legal guardian(s).
7. Receipt of financial support by a student from his/her family shall create a rebuttable presumption that the student domicile is with his/her family, regardless of whether the student has reached the age of 18.
8. A student who has not reached the age of 18 whose parents are legally separated or divorced shall be rebuttably presumed to hold the domicile of the parent with legal custody.
9. A student of parents legally separated or divorced may be granted in-state status if a noncustodial or joint custodial parent is domiciled in Vermont and has

contributed more than 50 percent of financial support for at least one year prior to the semester for which in-state status is sought.

10. The burden of proof as to eligibility for in-state status rests with the student. Eligibility must be established by clear and convincing evidence.

In-State Status Classification Documentation

11. The student must submit with the application form all relevant information.
12. The classification decision shall be based upon information furnished by the student, information requested of the student, and other relevant information available consistent with University policies and procedures and legal guidelines.
13. Testimony, written documents, affidavits, verifications, and/or other evidence may be requested.
14. The student's failure to produce information requested may adversely affect the decision for in-state status.
15. A student or others furnishing information may request the deletion from documents of irrelevant private data.

In-State Status Classification Appeals

16. The decision of the Residency Officer must be appealed in writing to the Residency Appellate Officer within thirty (30) calendar days of the date of the Residency Officer's written decision. Appeal to the Residency Appellate Officer is the final appeal at UVM.

In-State Status Reclassification

17. A student who does not qualify for in-state status classification may reapply for such classification each subsequent semester.
18. In-state status classification becomes effective the first semester following the date of successful application.

Re-Examination of Classification Status

19. Classification status may be re-examined upon the initiative of the Residency Officer in the exercise of sound discretion. Circumstances such as periodic enrollment may be cause for reexamination.

Adopted by the Board of Trustees, December 14, 1974; amended June 13, 1981, and May 2, 1987. These regulations took effect with the 1987-88 academic year.

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Residential Life

Area: [Student Services](#)

The mission of the Department of Residential Life is to create an atmosphere within the University of Vermont residential system that facilitates the growth and development of all students. This includes providing a safe and secure environment that fosters healthy, inclusive community building among all residents supporting and emphasizing academic success. We are committed to, and intentional about, providing students a range of experiences within their living environment. Desired outcomes of these experiences include:

- The development of a sense of belonging
- The acquisition of knowledge and skills
- The development of critical thinking skills
- The ability to make ethical choices
- The acceptance of self-responsibility

Community councils complement the department's mission, represent student opinions, and provide educational and social programs for their constituents.

Student Rooms

The campus is divided into seven complexes. Each student room is equipped for comfortable residence hall living. Double rooms have two beds, two desks and chairs, bureau space for each student, two closets, and blinds or shades on the windows. Bookshelves are provided in some rooms. Students provide their own bedding, towels, pillows, wastebaskets, and lamps. Laundry facilities are provided in the complexes.

Residential Technology

All residence hall rooms are wired for access to the Internet and UVM's campus cable television system. For more information please visit the [Residential Life web site](#) or call (802) 656-3808.

Housing

All students are encouraged to reside in one of a variety of housing options, ranging from theme-based suites in our Living/Learning Center to substance-free living in Redstone Hall.

Undergraduate Housing

All first-time, first-year students are required to live on-campus for four matriculated semesters. Over 200 staff members in Residential Life are committed to making on-campus living experiences as productive and rewarding as possible.

Exceptions to living on-campus will be heard prior to June 1 for First-year or Second-year students:

- Residing at home with parents or legal guardians
- Who claim independent financial status in accordance with the guidelines provided by the UVM Financial Aid Office
- Married or united by civil union
- Who have dependent children.

Housing for return students is determined by a lottery held each spring. Second-year students who are members of a sorority or fraternity and want to live in their sorority or fraternity house must submit their request through their President and Chapter Advisor to the Department of Student Life by mid-March.

Students living in the residence halls must have room and meal plan contracts. Contracts are binding for the full academic year unless canceled for due cause with the approval of the Department of Residential Life. In August, new students will receive notification of their housing assignments. Rooms may not be occupied until the date specified. Students are expected to leave the residence halls not later than 24 hours after their last examination or by 8:00 p.m. on the last day of final examinations.

The Department of Residential Life is located in Robinson Hall on Redstone Campus. Please call (802) 656-3434 with questions.

Upper Division and Graduate Housing

Housing at Trinity Campus right next to the UVM campus is a housing option for graduate, non-traditional and some transfer students and is designed to respond to the various and special needs of this student population. There are 100 single rooms; each furnished with a bed, dresser, desk and closet. The contract is for a nine-month period, with separate options for the summer. Please contact the Ethan Allen Housing Office for further information, (802) 654-1735 or email nwright@uvm.edu.

Student Family Housing

There are 115 University-owned apartments designated for student families located just outside Winooski at Fort Ethan Allen. About five miles from campus on Route 15, the apartments are close to shopping centers, hospital, and educational institutions. These

apartments have several amenities. Detailed rental information may be obtained from the Ethan Allen Housing Office, 14 Ethan Allen Avenue, Fort Ethan Allen, Colchester, Vermont 05446, (802) 654-1735.

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Student Exchange: New England State Universities

The six New England land-grant universities (Universities of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut) participate in an exchange program to enable students at the subdegree level to take advantage of a course or combination of courses not available at the home institution. In order to participate in the program, state university students must:

- Identify a course or combination of courses related to their area of academic interest and not available on the home campus.
- Receive permission from the appropriate university exchange authorities at both the sending and receiving institutions.
- Meet minimum eligibility requirements which include the following: In general, students must be in good standing and have at least a 2.50 grade-point average; must be degree candidates; and must be at least first semester sophomores (application may be made as early as the second semester of the first year). There is no upper limit in terms of class standing on participation.

Exchanges may not exceed a total period of two academic semesters, but these need not be taken consecutively. Summer sessions are not considered part of the exchange program. Course work approved by the student's host institution and completed satisfactorily is fully transferable to the home institution. Transferability of grades and inclusion in grade-point averages are subject to home institutional policy.

The student will pay normal tuition and required fees to the home institution and room and board (where applicable) to the host institution. Students on financial aid must contact their home institution's financial aid office to determine eligibility for continued scholarship assistance.

Participation in the exchange program will not affect a student's residence status either at the home or host institution, nor does participation improve or prejudice possibilities for transfer.

For information, contact the Office of the Provost, 349 Waterman Building, University of Vermont.

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Transcripts

Area: [Undergraduate Academic and General Information](#), [Policies of the Graduate College](#)

An official transcript is the reproduction of a complete, unabridged permanent academic record validated with the University seal, facsimile signature of the Registrar, and date of issue. A key to the transcript is printed on the reverse side of each page of the transcript. A rank-in-class entry is made on undergraduate records upon completion of undergraduate degree requirements. Currently enrolled as well as former students may obtain an official transcript of their permanent academic record by writing the Office of the Registrar, 360 Waterman Building. Please allow a minimum of one week for normal processing and three weeks following the end of a semester. Transcripts are not released when there is an indebtedness to the University.

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Undergraduate Admission to the University

Introduction

The University of Vermont selects those students who demonstrate the greatest potential for academic success at the University based on prior academic performance. Academic performance for all applicants will be measured based on the criteria outlines under General Admissions Criteria.

For more info, visit the [Admission Web site](#).

General Admissions Criteria

[Admission Criteria and Entrance Requirements](#)
[Requirements and Recommendations by School](#)

College of Agriculture & Life Sciences, College of Nursing and Allied Health Sciences, College of Arts & Sciences, School of Business Administration, College of Education & Social Services, College of Engineering & Mathematics, School of Natural Resources

Important Application Dates and Materials

[Application Deadlines, Notification Dates, and Enrollment Deadlines](#)

[Application and Supporting Materials](#)

Application for Admission, Application Fee, Official Transcripts, Standardized Testing, Letter of Recommendation, Essays, Music Majors

[Matriculation Status](#)

High school graduation status, Acceptable Proof of Graduation

Admissions Programs

[Admissions Programs](#)

Early Action, Early Decision, New England Regional Student Program, Guaranteed Admission Program (GAP), UVM Evening University, UVM Collage of Agriculture and Life Sciences/Tufts University School of Veterinary Medicine B. S./D.V.M. Program

Transfer, International, and Nontraditional Student Admissions

Transfer Student Admissions

Transfer Admission Requirements, Transfer Credit Policy

International Student Admissions

Academic Documents, Transfer Credit for International Students, Standardized Tests, English as a Second Language, Financial Support for International Students, Form I-20, Graduate Study at the University of Vermont

Nontraditional Student Admissions

Admission Policies, Regulations, and Articulation Agreements

Reapplying to the University

Residency Regulations

In-State Status Regulation

Articulation Agreements

Community College of Vermont, New Hampshire Community Technical College of Claremont/Nashua, St. Michael's College, Union County Community College, Vermont Technical College

Admitted Student Information

Admitted Student Information

Acceptance Fee and Advance Tuition Deposits, Orientation, Housing, Class Registration, Immunization and Health History Forms

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Undergraduate Admission Programs

Area: [Undergraduate Admission to the University](#)

Early Decision

Early Decision is a program open to first-year candidates who have identified UVM as their first choice. Applications for the fall are due in the Admissions Office by November 1 and notification is in late December. Candidates admitted under Early Decision commit themselves to attending the University and are required to pay the Acceptance Fee and Advance Tuition Deposit by January 15. Withdrawal from the Early Decision contract is possible only if a proposed financial aid award is inadequate.

Candidates denied under Early Decision may not reapply for the fall semester.

Early Action

Early Action Students applying for first-year status who wish to learn of their admission decision by late December may apply by November 1 under the Early Action program. Candidates admitted under Early Action have until May 1 to pay an Acceptance Fee and Advance Tuition Deposit and are not making a commitment to attend the University.

Early Action applicants are offered admission if their academic records are very strong. Some Early Action candidates will be deferred until the Admissions Office has reviewed all first-year applicants for fall admission. A small number of candidates will learn in late December that they have been denied admission.

For new students, some scholarship preference will be given to those students applying under Early Decision or Early Action programs.


New England Regional Student Program

The University of Vermont participates with the other public two-and four-year institutions of higher education in the six New England states in the New England Regional Student Program, an option aimed at increasing educational opportunities for the region's students.

New England residents who enroll in UVM programs open to them under the New England Regional Student program are charged 150 percent of in-state tuition.

UVM Bachelor's degree programs offered for the 2003-04 academic year are:

- Botany to residents of MA
- Canadian Studies to residents of CT, MA, NH, and RI
- Classical Languages (Greek and Latin) to residents of CT and RI
- Forestry to residents of CT and RI
- Latin to residents of CT and RI
- Russian to residents of CT, ME, and RI

For a full listing of programs and policies, contact the [New England Board of Higher Education](#) , 45 Temple Place, Boston, MA 02111, (617) 357-9620.

Guaranteed Admission Program (GAP)

The Guaranteed Admission Program (GAP) provides an avenue of entry to the University of Vermont for students who are not yet ready to enter an undergraduate degree program. GAP provides advising services and guarantees admission after successful completion of approved academic credit courses taken through Continuing Education. The program is administered cooperatively by Continuing Education, Undergraduate Admissions, and the deans' offices of the colleges and schools within UVM.

To qualify for the Guaranteed Admission Program students must have a high school diploma or GED. Students will complete a minimum of 18 semester credits in approved courses as well as courses for the proposed major and general education requirements. Any admissions requirements lacking from high school must also be completed. A grade point average of 3.0 must be maintained. Students in the program have the option of applying for admission at any time as regular applicants. Admission is only guaranteed, however, to those students who have successfully completed their contract course work. Please refer to admission deadlines.

A few majors may have additional restrictions or may not be accessible through the Guaranteed Admission Program. Please contact [Continuing Education](#) for a list of these programs.

Students should call the [Continuing Education Office](#) at (802) 656-2085 or (800) 639-3210 to schedule an appointment with an advisor. A high school transcript as well as a transcript for any previous college work should be provided at the appointment.

The advisor will discuss the program and begin the process of determining the courses needed to complete the contract. If a student has earned previous credits, a copy of his/her transcripts will be forwarded to the Office of Transfer Affairs to determine which courses will transfer to UVM upon admission.

UVM Evening University

Students can enter a baccalaureate program in any of six majors by taking classes which

start after 4:00 p.m.

Students may earn a degree in Art (Studio Concentration), English, Psychology, Mathematics, and Sociology. A minor in Women's Studies is also available. An Evening University student earns the same degree as any other baccalaureate candidate who attends UVM.

The UVM Evening University is backed by evening support services for students, including advising, registration, information about financial aid, and other administrative services. Evening University students can access these services through the Continuing Education Student Services Office from 8:00 a.m. until 7:30 p.m. Monday through Thursday, and from 8:00 a.m. to 4:30 p.m. on Friday.

The application deadline for the fall semester is April 1. For the spring semester the deadline is November 1.

Preveterinary Programs

UVM/Tufts B.S./D.V.M. Guaranteed Admission Program

This program allows students to apply for admission to [Tufts University School of Veterinary Medicine](#) toward the end of their sophomore year at UVM. Accepted students will be guaranteed admission to Tufts after completing a four year B.S. program at UVM. Students will receive their D.V.M. degree from Tufts after successful completion of the Tufts Veterinary School requirements.

UVM/Massey University (New Zealand) B.S./B.V.Sc. Guaranteed Admission Program

This program allows students to complete their B.S. at UVM and gain automatic admission to Massey University Veterinary School, which is accredited by the American Veterinary Medical Association. Students who have completed the basic required courses with a specific GPA, have completed a standardized test, and have had five days of experience with a veterinarian will automatically be accepted into the Massey University Program to obtain their veterinary degree. The program is limited to five students.

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Undergraduate Advising Resources

Area: [Undergraduate Academic and General Information](#)

In addition to an assigned faculty advisor, a variety of other advising resources are available to undergraduates:

The Learning Cooperative represents a collaborative effort on the part of academic and student affairs offices to improve the ability of students to benefit fully from their academic experiences. The Learning Coop supplements the academic environment by providing developmental instruction in writing, reading, and study skills, works with students to develop good learning strategies for challenging courses, and maintains a campus-wide tutoring program.

Prehealth Advising assists undergraduate students with the admissions requirements for dental and medical school. A library of resource materials is maintained which includes literature on alternative health careers, school catalogues, and premedical education journals.

Prelaw Advising is provided by the UVM Prelaw Committee and assists students by sponsoring meetings and panel discussions regarding career options in law. Advising also provides specific information on applying to law schools. A current collection of law school catalogues is maintained for interested students.

Preveterinary Advising is available to discuss plans for graduate school and employment in animal science career areas. A selection of catalogues, pamphlets, and other related literature is maintained.

International Student Advising is provided through the Office of International Education to assist international students with personal and academic problems, as well as matters relating to immigration and social and cultural adjustment. A special pre-orientation program, prior to the beginning of the fall semester, provides new international students with an introduction to the University and the Burlington community. An active campus International Club provides an opportunity for international students to contribute to campus life and to make friends outside the classroom. Other clubs with an international focus, such as the Overseas Development Network, are also available. Students planning to study abroad should also consult the Office of International Education, which

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Undergraduate Application and Supporting Materials

Area: [Undergraduate Admission to the University](#)

To review an application and render a decision, the Admissions Office must receive the following by the appropriate deadlines:

- The Application for Admission completed and signed by the student. Use of one of the electronic options, available on the web at the [admissions web site](#) , is encouraged. Candidates may also use the Common Application, available online at [Common App Online](#) , or from a local high school guidance department. If using the Common Application, please complete the [supplemental form](#)  required by UVM.
- A non-refundable \$45 application fee to the University of Vermont via check or money order or credit card (see the form bound into the Application for Admission). For candidates for whom the fee poses a financial hardship, fee waivers are available from a guidance counselor, another person familiar with the financial situation, or from the Admissions Office.
- Official transcripts from all secondary and (for transfer students) postsecondary course work. Candidates may not ignore any previous academic work and are expected to provide a full, accurate accounting of the academic record. Only transcripts forwarded from the issuing agency are considered official.
- Standardized testing results (First-Year Candidates only)
The University requires first-year candidates to submit results from either the Scholastic Assessment Test (SAT I) or ACT from the American College Testing Program. UVM's code for the SAT I is 3290 and 4322 for the ACT. For further information regarding these tests, contact a high school guidance office or go directly to the following websites: [collegeboard.com](#)  or [ACT, Inc.](#) 
- Letter of recommendation
All candidates must present at least one letter of recommendation. First-year students are encouraged to obtain a recommendation from either a guidance counselor or current teacher. Additional letters are welcome.
- Essays
UVM requires one extended essay as part of the admissions process.
- Music Majors

Candidates for the Bachelor of Music, Bachelor of Arts in Music, and Bachelor of Music Education must contact the Music Department at (802) 656-3040 to arrange for an audition or to submit an audition tape before the application deadline. Tapes become property of UVM and will not be returned.

| Burlington, VT 05405 | (802) 656-3131 | [Contact UVM](#) © 2018

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Undergraduate Application Deadlines, Notification Dates, and Enrollment Deadlines

Area: [Undergraduate Admission to the University](#)

(The deadlines noted below are postmark dates)

Spring Semester

November 1 — First-year, Transfer, and Evening University candidates. Notification is on a rolling basis no later than the end of December. Payment of a \$300 acceptance fee as proof of intention to enroll is generally due 20 days beyond the date of the letter of admission.

Fall Semester

November 1 — Early Action and Early Decision deadline for first year candidates only. Notification is in late December. Candidates admitted under Early Decision must pay a \$300 acceptance fee as proof of intention to enroll by January 15. Early Action candidates have until May 1 to pay the fee.

January 15 — Regular First-Year candidates. Notification is in late March. A \$300 acceptance fee is due May 1 as proof of intention to enroll.

April 1 — Transfer and Evening University candidates. Notification is on a rolling basis no later than the middle of May (assuming the candidate provides all supporting materials in a timely fashion).

Please contact the Admissions Office regarding submission of applications beyond the stated deadline. Requests will be considered on a case-by-case, space available basis.

International students should adhere to all application deadlines. Notification is on a rolling basis.

Candidates to the RN/BSN should contact the [College of Nursing and Health Sciences](#) to obtain an application; admission to this program is on a rolling basis.

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Undergraduate Articulation Agreements

Area: [Undergraduate Admission to the University](#)

Community College of Vermont/University of Vermont

CCV/College of Arts and Sciences

Students who have completed an associate's degree at the [Community College of Vermont](#) ↻ can be accepted to the University of Vermont's College of Arts and Sciences under the following conditions:

- Students must complete a minimum of 60 transferable academic credits pre-approved by UVM's Office of Transfer Affairs.
- Students must present a CCV grade-point average of 2.5 (on a 4.0 scale) or better.
- Candidates for the Articulation Agreement must meet UVM's minimum entrance requirements prior to CCV graduation.
- CCV students must initiate their degree program at UVM within two years of completing the CCV associate's degree.
- While at CCV interested students must sign a letter of intent to enroll at UVM.

CCV/College of Education and Social Services

Students who have completed a minimum of 30 transferable credits based on the transfer credit policy of the University of Vermont can be accepted into the College of Education and Social Services. The agreement includes the programs in Human Development and Family Studies, Social Work, Teacher Education programs in Art, Early Childhood Education, and Secondary Education.

- This agreement is in effect for students seeking admission to UVM beginning in Fall 2001.
- Students must present a CCV grade point average of 2.5 (on a 4.0 scale) or better.
- Candidates must meet UVM's minimum entrance requirements or have prior approval from the College of Education and Social Services and the office of

Admission.

- To be eligible under the terms of the Articulation Agreement, CCV students must initiate their degree program at UVM within two years of completion of their courses at CCV. Faculty at both institutions will cooperatively certify students as eligible under the terms of the agreement.
- Co-advisement by the appropriate CESS and CCV advisors is essential. Through co-advisement, CCV students may gain secure permission to enroll in beginning-level CESS courses at UVM while enrolled at CCV.
- While at CCV interested students must sign a letter of intent to enroll at UVM.

The Process Starts at CCV

Current or prospective CCV students interested in this option should meet with a CCV advisor early in their college career to develop an Articulation Plan that outlines course work and ensures completion of any UVM requirements in English, foreign language, mathematics, science, and social sciences. At this time, students will provide transcripts of all previous academic work. This allows the CCV advisor to review the record and assess UVM entrance requirements and CCV course placement.

Admissions Process at UVM


CCV Articulation candidates are encouraged to meet with a transfer counselor in the UVM Admissions Office to ensure course transferability. Candidates are asked to submit a completed Application for Admission and all financial aid forms by the stated UVM deadlines.

CCV students who have signed the Articulation Agreement do not pay UVM's application fee. Articulation candidates should include a brief statement in the UVM Application for Admission indicating they are applying under this option.

Candidates for UVM admission must submit official copies of all college course work attempted for credit, including the Community College of Vermont transcript. An official high school transcript is required only for candidates who must prove completion of all UVM entrance requirements prior to CCV entry.

UVM Admissions will review articulation student applications for the minimum GPA and entrance requirements. Offers of admission will be sent to those meeting the established criteria. To become a matriculated student at UVM, CCV articulation students must pay an acceptance fee/advance tuition deposit by a date stipulated in the admission letter.

Candidates whose G.P.A.'s fall below the minimum will be reviewed by UVM on a case-by-case basis. Those denied acceptance are encouraged to meet with a transfer counselor at UVM to review future options.

For a current list of transferable CCV courses and UVM equivalents, contact a CCV Advisor or a Transfer Advisor in UVM's Office of Admissions. You can also check [online](#) .

Recipients of a CCV associate's degree prior to 1999 may contact the UVM transfer advisors for general transfer information.

CCV graduates interested in UVM programs outside the College of Arts and Sciences and the College of Education and Social Services are encouraged to meet with a UVM transfer counselor to discuss their academic history and potential for transfer admission.

New Hampshire Community Technical College of Claremont/Nashua/University of Vermont Department of Nursing RN-BS-MS Program

Students who have completed the two-year Associate Degree in Nursing at [NHCTC](#) with a minimum of 62 semester hours of credit will be guaranteed admission to UVM's College of Nursing and Health Sciences under the following conditions:

- Students must have a 2.5 (on a 4.0 scale) cumulative grade point average or better.
- Students must meet the College of Nursing and Health Sciences entrance requirements prior to graduation from NHCTC.
- To be eligible under this agreement, students must initiate their degree at UVM within two years of graduation from NHCTC.
- Candidates applying to the University of Vermont under this agreement do not pay the application fee.
- All students who do not meet the above conditions can apply for transfer admission and be reviewed on a case-by-case basis.

For more information about this agreement and course equivalencies, please contact the UVM College of Nursing and Health Sciences at 802-656-3830.

St. Michael's College and UVM Articulation Agreement

St. Michael's College ([SMC](#)) and the University of Vermont in the fall of 1994 established an articulation agreement for a Dual Degree Program in Engineering ("the Program"). This agreement guarantees students who meet specified criteria admission to a prescribed program of study in engineering at UVM. Upon successful completion of the Program and degree requirements, students receive a Bachelor of Arts or Bachelor of Science degree from SMC and a Bachelor of Science degree in the appropriate engineering area from UVM. *Students will normally complete the Program in five years.*

The academic advising, admission, transfer of credits, enrollment, and monetary conditions in this agreement applicable to students will be carried out in accordance with the following policies and procedures.

1. Initial application to the Program will be made to SMC.
2. Students will enroll in the Program by declaring a pre-engineering major at the time of admission to SMC to permit them to complete all prerequisites in a reasonable time (see SMC catalogue for pre-engineering program).
3. Students may register for any of the options in the Civil, Environmental, Electrical, or Mechanical Engineering or Engineering Management programs.
4. Students enrolling under this Program will be considered SMC students

throughout the duration of the Program. Once admitted to UVM according to the policies of this Agreement, they also become UVM students for the remainder of the Program.

5. For the first three years the host institution for students in the Program will be SMC, and for the last two years the host institution will be UVM. Tuition and fees will be paid to the host institution according to its normal policies (including residence status, financial aid, etc.) Tuition for courses taken at the other institution will be paid by the host institution transferring funds based on an agreed upon amount per credit hour.
6. While students are enrolled at a host institution they will be independently responsible for appropriate fees at the other institution on a per use basis.
7. Students in the Program will make a formal application to UVM by April 1 in the spring semester of their third year at SMC. Interested students should contact the pre-engineering advisor at SMC by November of the third year for information about the application process.
8. Students will matriculate at UVM and will be accepted to the appropriate engineering program at UVM once they have met the following requirements: (a) completion of at least 60 credits at SMC with an overall minimum GPA of 3.0 (only grades of C or above will count towards the 60 credits); (b) completion of Part I of the required pre-engineering courses at SMC, as specified in the Agreement (see SMC catalogue); and (c) completion of 11-12 credits of UVM engineering courses, including the following table of courses, with a minimum GPA of 2.0 in these courses.
 - *Civil Engineering*: CE 1, 10/12, 11; ENGR 2; ME 12
 - *Environmental Engineering*: CE 1, 11; ENGR 2; ME 12
 - *Electrical Engineering*: EE 3, 4, 81, 82, 131; ENGR 2
 - *Mechanical Engineering*: ME 12, 14, 40, 42; ENGR 2; CE 1
 - *Engineering Management*:
 - CE Option: ENGR 2; CE 1, 10/12; ME 12, 14
 - EE Option: ENGR 2; EE 3, 4, 81, 82, 131
 - ME Option: ENGR 2; ME 82, 114; MATH 124

Union County Community College/UVM College of Arts and Sciences Articulation Agreement

Students who have completed an associate's degree at [Union County Community College](#) can be accepted into the University of Vermont's College of Arts and Sciences under an articulation agreement. Union County CC students who have completed a minimum of 60 transferable academic credits, based on the transfer credit policy of the University of Vermont, will be guaranteed admission under the following conditions.

- Students must have a grade point average of 3.0 (on a 4.0 scale) or better.
- Students must meet the minimum entrance requirements for the University of Vermont prior to Union County CC graduation.
- To be eligible under the articulation agreement, Union County CC students must initiate their degree program at UVM within two years of completing the Union County CC degree.

- Candidates applying to the University of Vermont under this agreement do not pay the application fee.
- All students who do not meet the above conditions can apply for transfer admission and be reviewed on a case-by-case basis.

For more information about this agreement and course equivalencies, please contact the Dean's Office in the College of Arts and Sciences at 802-656-3344

Vermont Technical College/University of Vermont Dairy Farm Management 2 + 2 Program Articulation Agreement

Students who have completed an associate's degree in the [Vermont Technical College](#) Dairy Farm Management program can be accepted into the University of Vermont's College of Agriculture and Life Sciences (CALS) in the Animal Sciences program, leading to a bachelor's degree. Transferable courses are limited to those directly comparable to UVM courses and meeting the requirements for both programs.

For acceptance, students must meet the following conditions:

- Students must have a 3.0 (on 4.0 scale) or better.
- Students must meet the minimum entrance requirements for the University and for the Animal Sciences program. A list of these courses can be obtained from the agreement coordinator in the College of Agriculture and Life Sciences.
- All students who do not meet the above conditions can apply for transfer admission and be reviewed on a case-by-case basis.
- Candidates applying to the University of Vermont under this agreement do not pay the application fee.

For more information about this agreement and course equivalencies, please contact the agreement coordinator in the College of Agriculture and Life Sciences at 802-656-1397.

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Undergraduate Exams and Grading

Area: [Undergraduate Academic and General Information](#)

Grades

Grades are reported and recorded as letter grades. Student grade-point averages (GPA) are calculated from quality point equivalents noted here:

	Grade Points per Credit Hour
A+ Excellent	4.00
A Excellent	4.00
A- Excellent	3.67
B+ Good	3.33
B Good	3.00
B- Good	2.67
C+ Fair	2.33
C Fair	2.00
C- Fair	1.67
D+ Poor	1.33
D Poor	1.00
D- Poor	0.67
F Failure	0.00

In certain instances, grades are assigned that will appear on the transcript, but will not be used in grade-point calculation. These grades are:

XC Extended Course. (see below)

AU Audit. (See below)

INC Incomplete. (See below)

P/NP Passed/Not Passed. (See below)

S/U Satisfactory/Unsatisfactory. (See below)

M Missing. Grade not turned in by the instructor.

W Withdrawn.

The XC grade is assigned when the nature of the course work makes it unreasonable or impossible for the student to complete the required work within the regular semester.

AU: Students wishing to regularly attend a course, but not receive credit, may register as an auditor, with the approval of the dean and the instructor. Auditors have no claim on the time or service of the instructor. Students must meet minimum levels of performance set by the instructor at the time of registration in order to receive an audit grade. Tuition is charged at the applicable rate. Under no circumstances will changes be made after the add/drop period to allow credit for courses audited.

INC grades may be assigned when course work is not completed for reasons beyond the student's control. Incompletes require the approval of the student's college/school dean. The incomplete course requirement will be satisfied at the earliest possible date, but not longer than the beginning of the corresponding semester of the next academic year. In cases of laboratory assignments, the student must complete all work the first time that the laboratory experience is offered again. Instructors will fill out an incomplete card and forward it to the student's dean and include the reason for the incomplete as well as the completion date agreed to by the student and instructor. It is the student's responsibility to learn from the dean's office whether the request has been approved, the date of completion, and, from the instructor, the nature of all outstanding requirements.

Incompletes may be approved for the following reasons: Medical, personal tragedy or academic. In all instances, students must contact the appropriate dean's office to obtain necessary applications information.

P/NP: Degree program students, not on academic trial, are permitted to take up to six courses (three courses for two-year students; or as many courses as they have semesters remaining for future transfer students) on a pass/no pass basis, beginning in their sophomore year (second semester of the first year for two-year students). Courses in the student's major department, either for the major or for the degree, and electives within the distribution requirements of a department may not be taken on a pass/no pass basis. This option may be used without condition for free electives. It also may be used for physical education (activity) courses, whether taken to fulfill a requirement or as electives, and shall not be counted as a part of the six standard courses described above.

Students must complete all work normally required in these courses to receive full credit toward graduation for passing them. The instructor will not be informed of the student's status and the Registrar will record grades of D or higher as PASS and grades of F as NO PASS. The grade submitted by the instructor will not become available to the student nor to any third party.

To apply, a PASS/NO PASS Request Form, obtained from the Registrar's Office, must be approved by the student's academic advisor and submitted to the Registrar's Office during the first two weeks of the semester. Requests to be removed from that status must be filed during the same period. Any question about a course or courses being

appropriately elected as pass/no pass for a student will be resolved by the student's college/school dean.

Note: Non-degree students may not take courses on pass/no pass basis.

S/U is used in courses where the A-F grade is inappropriate, such as in seminars, internships, practica, etc. Designations of S, satisfactory, and U, unsatisfactory, are used to indicate levels of performance for credits received in Thesis or Dissertation Research and may be used to indicate levels of performance in a Seminar. There are no quality points associated with the letter grades of S and U. The student will receive the appropriate credit hours toward graduation for the S grade, but not for the U grade. Courses using this grading system are so indicated in the catalogue description. The S/U is available only on a whole course basis and is available for courses that count towards degree requirements.

Note to graduate students: A student may be dismissed from the Graduate College if two grades or more below a B (3.00), or the designation of U in Thesis or Dissertation Research or Seminar are received.

Grade Appeals

Students who feel that they have received an unfair grade should first contact the Registrar's Office to verify that the grade submitted by the instructor is the same as that printed on the grade report. If the grade has been reported correctly, a student should next contact the instructor, department chair, and dean of the college/school in which the course is offered (in that order) to discuss the matter. A decision to change a grade can be made only by the instructor.

Grade changes must be made by the instructor and approved by the student's dean by the end of the first month of the following semester unless an extension is granted by the student's dean.

Dean's List

Dean's List status is awarded to full-time undergraduate students with a cumulative grade-point average of not less than 3.0 who stood in the top 20 percent of each class of their college/school during the preceding semester. The dean's lists are published at the beginning of each semester. Full-time enrollment in this case shall be a minimum of 12 credit hours in courses in which grades of A, B, C, D, or F can be given.

In addition, each semester a Continuing Education Honors List recognizes the top 20 percent of non-degree students who have had a long association with UVM and achieved a high cumulative grade-point average.

Repeated Courses

Students who repeat a course only receive credit once for the course. The grades for all occurrences of the course remain on the permanent academic record and all are included in computing the cumulative grade-point average.

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Undergraduate Bill Adjustment and Refund Policies

Area: [Undergraduate Tuition and Fees](#)

Acceptance fee and Advance Tuition Payment for New Students

A newly admitted undergraduate student who decides not to attend, and who notifies the University in writing prior to the first day of classes, will receive a refund of \$100 of the \$300 payment (acceptance fee of \$186 and advanced tuition payment of \$114) that was required to reserve a place in the class. This policy will change effective with the 2004-05 academic year.

Cancellation, Withdrawal, Medical Withdrawal, Suspension, Dismissal

A student who cancels, withdraws for personal or medical reasons, is suspended, or is dismissed will receive an adjustment of charges in accordance with the following schedule. Medical withdrawals require approval of the University Student Health Center.

- 100% tuition and fees credit adjustment prior to the end of the first two weeks of classes.
- 50% tuition and fees credit adjustment through the third week of the semester.
- 25% tuition and fees credit adjustment through the fourth week of the semester.
- No adjustment after the fourth week of the semester.

Due to federal requirements, financial aid recipients who withdraw during the semester will receive their refund based on current federal guidelines.

Note: The effective date of any cancellation or withdrawal is the date the student initiates the withdrawal process either in writing, in person or over the phone. In no case will an adjustment be made after the first day of classes of the following semester.

Changes in Credit Hour Load

A student who adds courses during the semester will be billed additional tuition and fees applicable to the adjusted credit hour load. A student who drops courses during the semester will receive a tuition credit based upon the effective date as described above. However, the course will remain on the student's record.

Refund of Other Charges

Room and meal plan payments will be refunded on a prorated basis.

Death

In the case of a student's death, tuition, room, and fees will be fully refunded for the semester during which the death occurs. Unused meal points will be refunded.

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Undergraduate Degree Requirements

Area: [Undergraduate Academic and General Information](#)

College and School Requirements

Undergraduate degrees are conferred on the recommendation of the colleges/schools. Specific degree requirements may be found in the catalogue sections devoted to the respective colleges/schools.

Grades

To be eligible for graduation, a student must have attained a cumulative grade-point average sufficient to meet the minimum requirements for the college/school in which the student is officially enrolled. Beginning with the class of 1984, the minimum grade-point average for graduation is 2.00. Grades in courses accepted for transfer credit are excluded in computing this average.

UVM Residency in Last 30 of 45 Credit Hours

Every degree candidate must have taken 30 of the last 45 credit hours (15 of the last 30 for two-year students) in residence at the University before being awarded their degree. An exception to this rule exists for those students who have completed three years of premedical study in the University and are awarded their degrees after successful completion of one year of study in any approved college of medicine. Other exceptions to this rule may be made only upon decision of the dean or the appropriate faculty committee of the student's college/school.

Second Bachelor's Degree

A student may earn more than one degree by satisfying all of the requirements for those degrees.

Physical Education Requirement

Two physical education credits, normally completed during the first or sophomore year,

are required of all undergraduate students in four-year programs. These credits will be included in the total number of hours required for graduation. Students may opt to take physical education on a pass/no pass basis. Medical examinations are required of all new students. Those with serious conditions may be given restricted work or may be excused by the Director of the Student Health Center.

Students pursuing two-year degree programs shall be required to complete one credit of physical education course work. Students 25 years of age or older at time of admission or readmission are exempt from physical education requirements.

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Undergraduate Degree Students

Area: [Undergraduate Academic and General Information](#)

Students who have presented appropriate credentials for admission and have been accepted as students in a degree program. The following four actions apply only to degree students.

Intercollege Transfers Degree students may transfer to another college/school within the University. To do so, a student must complete a Change of Major/College form and obtain the approval of the deans of the two units involved. Students wishing to transfer must have a cumulative GPA of 2.0. A cumulative GPA of 2.5 is required for transfer admission into teacher licensure programs in the College of Education and Social Services. Transfers will be approved only if space is available and may be conditional upon students satisfactorily completing requirements set out by the new college/school.

In the case of veterans receiving educational benefits through the Veterans Administration, the change must be brought to the attention of the Registrar's Office, 360 Waterman Building, where a Change of Program or Place of Training Form #22-1955 must be completed and submitted for approval to the Veterans Administration.

Withdrawal Degree students who wish to withdraw from the University must first notify their academic dean in person or writing.

Readmission to the University Degree students who have left the University for one semester or more must write to their dean to request readmission. Students must apply for readmission by October 31 or March 31 preceding the appropriate semester of return.

Leave of Absence A leave of absence means that a student in good standing, who is eligible for continued enrollment, ceases to be enrolled and is guaranteed readmission.

- Students submit a written application for a leave of absence to their college/school prior to the beginning of the semester that the leave will take effect. To be confirmed, leave forms must be signed by both the student and their dean.
- Leaves are granted for a finite period of time, and normally may not exceed four semesters. A leave normally may not be granted to students on academic trial or disciplinary probation.

- While on leave, the student's status is temporarily inactivated. A leave of absence guarantees an individual's readmission only if the student confirms intent to return by the closing date for a normal readmission application (October 31 and March 31 preceding the appropriate semester). A leave does not guarantee housing upon the student's return
- Unused financial aid will not be carried over. Upon readmission, students must reapply for financial aid according to Office of Financial Aid policies and procedures in effect at that time.

Class Standing

The designation of a student's class shall be determined by the number of academic credits completed. The designations are as follows:

Bachelor's degree:

Credit Hours

First-year	0-26.9
Sophomore	27.0-56.9
Junior	57.0-86.9
Senior	87.0 and over

Associate degree:

Credit Hours

First-year	0-26.9
Senior	27.0 and over

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Undergraduate Enrollment for Graduate Credit and Accelerated Master's Degree Programs

Area: [Undergraduate Academic and General Information](#)

Undergraduate Enrollment for Graduate Credit

Senior undergraduates may enroll for up to six graduate credit hours at UVM under the following circumstances: courses must be available for graduate credit; total enrollment including the graduate course must not exceed twelve credit hours in the semester in which the course is taken and the course must not be computed as part of the bachelor's degree. Permission to seek graduate credit must be obtained from the Graduate Dean in writing by the dean of the undergraduate college/school. Graduate credit can be used only at UVM if the course is judged appropriate by the student's advisor for the particular graduate program.

Accelerated Master's Degree Programs

A number of departments and programs provide opportunities for selected undergraduates to participate in Accelerated Master's Programs (AMPs). This option is available for admission to graduate programs in Animal and Food Sciences, Biology, Biomedical Technology, Biostatistics, Computer Science, Education (Curriculum and Instruction and Professional Education), History, Materials Science, Mathematics, Mechanical Engineering, Microbiology and Molecular Genetics, Nursing, Public Administration, and Statistics. The AMP allows early admission to graduate studies with up to six concurrent credits double-counted toward the bachelor's and master's degrees.

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Undergraduate Financial Aid

Affiliated Topics

- [Undergraduate Scholarships](#)

Overview

The University has many programs to help finance a UVM education. These include financial aid awards for students with a demonstrated need for financial assistance and Scholarship awards for students whose academic achievements and other accomplishments and qualities promise to enrich the University in exceptional ways.

For more information, visit the [Financial Aid Web site](#).

Financial Aid

In order to ensure that the financial aid application process is understandable and accessible, each applicant is assigned to a "service-team" within the Financial Aid Office. Whenever a student has a question about his or her financial aid status, he or she may call upon the members of the service team who will be familiar with the applicant's particular circumstances.

Student's Last Name

Phone/E-mail

A-F	(802) 656-8530 / team.a-f@uvm.edu
G-M	(802) 656-8531 / team.g-m@uvm.edu
N-Z	(802) 656-8532 / team.n-z@uvm.edu
Scholarship Coordinator	(802) 656-8574 / scholarships@uvm.edu

Eligibility

Students who wish to be considered for assistance in meeting their University expenses with student loans, grants, or employment should consider applying for federal, state, and University financial aid. To be eligible to apply for financial aid, a student must be a

U.S. citizen or a permanent resident. (Limited financial aid funding is available for international students; inquiries should be made to the Scholarship Coordinator in the Admissions Office.) To be considered for aid, a student must also be enrolled at least half-time (six credits) in a degree program. Audited credits or Credits by Examination cannot be considered as part of the credits in determining financial aid eligibility.

Application Procedures

Incoming first-year and transfer students who wish to apply for aid may do so by completing and mailing the Free Application for Federal Student Aid (FAFSA) after January 1, 2003; and providing any verification documentation requested by the UVM Office of Financial Aid. Preference is given to those students who submit their applications by March 1. Applications submitted after that date will be processed in chronological order, subject to the availability of funds. In addition to following the procedures listed above, all students should apply to their state financial aid grant agency for assistance. Vermont students should apply to the Vermont Student Assistance Corporation (VSAC), P.O. Box 2000, Champlain Mill, Winooski, VT 05404.

The Financial Aid Package

The University of Vermont participates in all federal and state financial aid programs and must adhere to their requirements. Additionally, the University makes available a variety of grant and loan opportunities from its own operating and endowment funds. While federal and state aid is based exclusively on student need, eligibility for University funds is based on student need and on the strength of the applicant's academic record. Applicants will be considered for all aid programs for which they are eligible. Aid is most often awarded in combinations or "packages" of the various types of aid. Almost all awards will include some student loan.

Student loans are available to all students regardless of need in the form of Unsubsidized Federal Stafford Loans. To be considered, however, a student must APPLY for aid. After a determination of eligibility has been made by the Financial Aid Office, students will be notified if they qualify for "need-based" aid or for an Unsubsidized Federal Stafford Loan.

In the awarding of UVM institutional financial aid funds, a student's academic record is taken into consideration. Federal and state financial aid funds are allocated solely on the basis of student and parent financial need.

Satisfactory Academic Progress Standard for Financial Aid Recipients

In order to maintain eligibility for federal Title IV financial aid, matriculated undergraduate and graduate students must progress at a rate that ensures completion of their degree programs within a reasonable time frame. Beginning with the first semester of study in a degree program at The University of Vermont, a federal financial aid recipient is required to accumulate earned hours totaling at least 75 percent of the number of hours attempted. Each student's progress will be measured at the end of each year of attendance to ensure adherence to this standard.

Beginning with the third academic year (after the achievement of 60 credit hours), all students must have attained at least a 2.0 overall cumulative grade-point average in order to continue to qualify for assistance.

Any student not meeting the standard described above will be placed on Financial Aid Probationary Status for a one-year period (during which aid eligibility will be maintained). Should the student not meet the required credit standard or cumulative grade-point average standard by the end of that probationary year, the student's eligibility for additional federal financial aid will be withdrawn until the required standard has been met. Institutional aid will be suspended until eligibility for federal aid has been restored. Following federal guidelines transfer credits are not part of this calculation.

Students whose aid is withdrawn for not maintaining academic progress according to the standard outlined above may appeal their loss of aid by writing to their financial aid service team. The decision to withhold aid eligibility may be overridden by the Director in conjunction with the Financial Aid Appeals Committee in circumstances which warrant special consideration. Such circumstances may include medical emergencies or family crises which resulted in the student's not meeting the stated requirements.

UVM Refund Policy

A student who cancels, withdraws for personal or medical reasons, is suspended or is dismissed will receive an adjustment of charges in accordance with the following schedule. Room and meal plan payments will be refunded on a prorated basis. Medical withdrawals require approval of the University Student Health Center.

- 100% tuition and fees credit adjustment prior to the end of the first two weeks of classes,
- 50% tuition and fees credit adjustment through the third week of the semester and,
- 25% tuition and fees credit adjustment through the fourth of the semester.
- No adjustment after the fourth week of the semester.

Due to federal requirements, financial aid recipients who withdraw prior to 60% completion of the semester will have their federal, state, and institutional funds adjusted according to current regulations.

Note: The effective date of any cancellation or withdrawal is the date the student's Dean receives such notification in writing. The Dean may recommend to the Registrar that an exception be made to this policy only in extenuating circumstances. In no case will an adjustment be made after the first day of classes of the following semester.

Changes in Credit Hour Load

A student who adds courses during the semester will be billed additional tuition and fees applicable to the adjusted credit hour load. A student who drops courses during the semester will receive a tuition credit based upon the effective date as described above. A student who withdraws from a course during the semester will receive a tuition credit based upon the effective date as described above. However, the course will remain on the

student's record. Financial aid will be reviewed and adjusted for any changes to the course load.

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Undergraduate Independent Study Courses

Area: [Undergraduate Academic and General Information](#)

Independent Study Courses

Independent study is a course taken for credit, which is tailored to fit the interests of a specific student, and which occurs outside the traditional "classroom/laboratory setting."

Independent study is carried out under the direct supervision of a faculty member having expertise in a particular area of investigation. Consequently the project will be done in the department primarily responsible for the field of study. Prior to enrollment in independent study, students must obtain the approval of their advisor, faculty sponsor, and the faculty sponsor's department chairperson.

Independent study may be taken for variable credit. The amount of credit to be granted should be mutually agreed upon by the student and the faculty sponsor prior to registration. When a project is to cover more than one term, the designation XC (extended course), rather than incomplete, should be used on the final grade sheet for the first term of work.

Academic units offering independent study will be responsible for administering such work. Specific guidelines, which define the responsibilities of both faculty and student for administering the independent study, are noted below. Alternative guidelines that incorporate these basic points are acceptable.

Guidelines:

- The success of an independent study project is often related to the amount of advance planning expended on the project. Consequently, planning for the project should, whenever possible, be initiated in the semester before the course is taken.
- By the end of the add/drop period, students will be required to submit to their faculty sponsor a specific plan which must include, but not be limited to, the following:
 - The project title.
 - A statement of justification, indicating why independent study is being selected and the reason for undertaking the project, its importance, and how

it relates to other work done by the student.

- A clear and complete statement of project objectives.
- A concise statement of the plans and methods to be used in order to accomplish each objective.
- During the first full week of classes the student and the faculty sponsor will meet and prepare a document which includes the following:
 - A schedule of dates when the student and faculty member will meet and discuss progress, including a time plan indicating when various parts of the work are projected for completion.
 - A list of those ways in which documentation of work can be shown.
 - A plan for evaluation, which will include the specific work to be submitted for evaluation on the project, and a statement of criteria to be used for evaluation, will also be included.
- It is the responsibility of the faculty supervisor to ensure that all the provisions outlined above have been satisfactorily accomplished. Copies of all documents and schedules mentioned must be filed with the department chairperson by the end of the add/drop period. Faculty sponsors should retain the completed projects, along with faculty evaluations, for review, if necessary, by appropriate school/college committees.

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Undergraduate International Student Admissions

Area: [Undergraduate Admission to the University](#)

The University welcomes the applications of international students.


Academic Documents

International applicants must submit official transcripts of all secondary and post-secondary education, including final examination results. If documents are not in English, certified translations are required. Information regarding certified translation services can be obtained at the applicant's embassy or through [WES](#) : World Education Services, P.O. Box 745, Old Chelsea Station, New York, NY 10113-0745, (212) 966-6311.

Transfer Credit for International Students

International students who have attended post-secondary institutions in their home country may be eligible for UVM credit under the Transfer Credit Policy guidelines. International students should submit comprehensive course descriptions and outlines, translated in English, to the Office of Transfer Affairs, 360 Waterman Building, Burlington, VT 05405, USA. Submission of these materials prior to enrollment helps the Office of Transfer Affairs prepare a full credit evaluation prior to enrollment at UVM. All translations must be certified by the school of record, or by an official government translation agency with the seal of the college over the translation. Translations must accompany all original documentation.

Standardized Tests

Students applying as first-year candidates must present scores from either the Scholastic Assessment Test (SAT I) or the American College Testing Program (ACT). If English is not the first language, the Test of English as a Foreign Language (TOEFL) is also required. Because the University does not offer an intensive English as a Second Language (ESL) program, the Admissions Office requires a minimum TOEFL test score of 550 (213 on the computer version). For information about test dates and sites for SAT and TOEFL exams, contact the [Educational Testing Service](#)  in Princeton, NJ (609) 771-7100.

English as a Second Language (ESL) Programs

The University of Vermont offers a few English-as-a-Second-Language courses intended to ease the transition to studying and living in an English-speaking environment. Interested students with TOEFL scores below the recommended minimum may want to consider transferring to the University of Vermont after studying at a U.S. college or university that offers intensive ESL preparation, although UVM will consider candidates on a case-by-case basis.

The ESL intensive program located the closest to the University of Vermont is at Saint Michael's College, an accredited institution of higher learning in nearby Winooski, Vermont. For full information about Saint Michael's College, write to the School for International Studies, Saint Michael's College, Winooski, VT 05404 (USA Telephone: 802 654-2000, extension 2300).

For further information concerning available programs, contact: [NAFSA](#): Association of International Educators, 1875 Connecticut Ave. NW, Suite 100, Washington, DC 20009-5728.

Financial Support for International Students

The University offers a few partial tuition scholarships to international students each year. Most international students pay the full cost of attending UVM; and those attending on nonimmigrant student visas are charged out-of-state tuition rates. All international students are considered; no additional application is required. These are merit-based scholarships.

Form I-20

The I-20 document is used to obtain an f-1 student visa and can only be issued when the student provides certification that sufficient financial support is available to cover educational expenses for the duration of stay in the U.S. Two pieces of information are required for financial certification:

- A letter or statement from the bank (or supporting agency) indicating an exact currency amount and its U.S. dollar equivalent that demonstrates the availability of adequate funding for at least the first year of studies.
- A signed letter from the sponsor (family member or agency) indicating that the funds in that bank account will be used to support educational expenses at the University of Vermont.

For more information, contact Sarah Strouse, International Student Advisor, [Office of International Education](#), L/L, B-161, Faculty Box 8, Burlington, VT 05405. Phone: (802) 656-4296. Fax: (802) 656-8553. E-mail: Sarah.Strouse@uvm.edu.

Graduate Study at the University of Vermont

International students interested in pursuing a graduate degree at the University of

Vermont should contact: Graduate College Admissions Office, Waterman Building,
University of Vermont, Burlington, VT 05405, (802) 656-3160.

| Burlington, VT 05405 | (802) 656-3131 | [Contact UVM](#) © 2018

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Undergraduate Matriculation Status

Area: [Undergraduate Admission to the University](#)

The Admissions Office requires proof of high school graduation or equivalent for all candidates entering degree programs at UVM.

High school graduates must submit a final high school transcript. Recipients of the General Education Development (GED) Certificate should have an official score report forwarded to the Admissions Office in addition to official transcripts of any previous high school or college-level work completed.

The University of Vermont welcomes applications from students who plan to complete high school in three years, provided all entrance requirements and other admissions criteria have been met. Three-year graduates are asked to submit written proof of support from the high school indicating that the school district has approved early graduation and is prepared to issue a diploma.

UVM welcomes applications from home-schooled students. Students are required to meet all the entrance requirements outlined in this catalogue, to submit standardized test results (First-Year candidates only), to document academic work covered by the curriculum, and provide proof of graduation. Home-schooled students must supply the Admissions Office with a copy of the information forwarded by the teacher to the state education department. If entrance requirements cannot be determined from this information, the teacher will be contacted to confirm completion. Official college transcripts are required for any college-level course work. CLEP (College Level Examination Program) results may be used to demonstrate background in required areas. An official transcript of any course work taken at a local high school is also required.

Acceptable Proof of Graduation

- High School Diploma (Some home-schooled students receive a diploma from their area secondary school.)
- General Education Development (GED) certificates and state certificates.
- A Certificate of Completion of a home-study program if the program is recognized

by the student's home state.

- For transfer students only: If a formerly home schooled student has completed two years of college course work comparable to UVM course work and has met all entrance requirements, no proof of graduation is required.

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Undergraduate Nondegree Students

Area: Undergraduate Academic and General Information

This category applies to students who have presented minimum credentials and have been permitted to undertake limited course work up to six credit hours, or two courses, per semester for a purpose other than the earning of a degree. Approval from the Dean of Continuing Education is necessary for a student to exceed the six-credit maximum. Credits earned by nondegree students who later apply and gain admission to a degree program will be evaluated and, if appropriate, will be accepted toward completion of their degree.

Nondegree students may enroll for a maximum of six credits or two courses per semester in the day program.

Selection of courses for those having long-range plans of earning a degree in the daytime program should be made on the basis of information given in this catalogue. Students interested in making a formal application for admission to the University should contact the Admissions Office.

Students presently enrolled and in good standing at another institution may take courses at UVM to transfer to their institutions. These visiting students are considered nondegree students and should contact Continuing Education for information and registration material.

Before completing 30 credits of course work through the evening program or summer session, degree-bound students should consult with an advisor at Continuing Education, submit an application for formal admission to UVM, and then should consult with the appropriate dean's office to structure further courses into a degree program.

All nondegree students who would like assistance in planning educational programs and selecting courses should contact Continuing Education, (802) 656-2085.

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Undergraduate Nontraditional Student Admissions

Area: [Undergraduate Admission to the University](#)

The Admissions Office recognizes that candidates who have been out of formal schooling for a period of five years or more have life experiences that are different from traditional-age students.

While nontraditional candidates are expected to present strong academic credentials for admission, they can write to the Admissions Office to request a waiver of the standardized test score requirement, may adjust application essays to reflect their experiences, and may substitute a letter of recommendation from an employer or friend in lieu of the guidance counselor recommendation.

As with every applicant for admission, however, nontraditional candidates are required to present official documents of all academic work, including high school transcript and/or General Education Development certificate ([GED](#)) and transcripts of all college-level work attempted. The Admissions Office looks for previous academic performance that would predict success at the University.

Nontraditional applicants who are missing one or two requirements are reviewed on a case-by-case basis; if a record is otherwise acceptable, the Admissions Office may offer admission with a clause requiring completion of missing requirements prior to enrollment or concurrent with the UVM degree program. UVM does not grant college credit through portfolio assessment. Nontraditional candidates may explore credit options through the College Level Examination Program ([CLEP](#)) or through UVM's Credit by Examination.

Nontraditional learners considering a degree program at UVM may make an appointment with an admissions counselor to discuss the chances for admission. The Admissions Office is able to advise more accurately if individuals bring all academic records with them to the appointment. These documents are used for advising only and do not need to be official.

is located at B161, Living/Learning Center.

Multicultural Student Advising at the ALANA Student Center provides broad based support aimed at ensuring the success of Multicultural students at UVM. Services include: academic advising; linking students to resources and opportunities on campus; tutoring; peer mentoring; social and cultural networking. Students may elect to take part in The Summer Enrichment Scholarship Program. A pre-first year opportunity that offers an academic experience (6 credits) and provides an introduction to campus and college life before the official start of the school year.

Career Services assists students who are exploring a variety of potential career options early while in their academic majors. A library of career information and school catalogues is maintained.

Continuing Education Advising assists nondegree students, nontraditional students, and evening degree applicants on course selection, how to apply for a degree program, general information about UVM academic resources, and career and life planning. The advisors work with individuals who are returning to school after raising a family or working outside the home, who are considering a career change, or who have recently graduated from high school. A series of free workshops on topics of interest to adult learners are also offered. Teaming up with the Learning Co-op, UVM Continuing Education helps students learn how to learn with free tutoring integrated into several evening introductory-level courses each semester.

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Undergraduate Optional and Unique Fees

Area: [Undergraduate Tuition and Fees](#)

Optional Fees

Locker-Towel Fee

All students enrolled in physical education activity courses and others who wish to have an assigned locker must pay a locker-towel fee each year or any portion thereof. This fee provides a locker and a clean towel after each use of the gymnasium facility.

Unique Fees

The School of Business Administration

All new first-year and transfer students entering programs in the college are required to purchase a microcomputer. Details on the cost and the machine specifications are provided to the student at the time of admission. Students eligible for financial aid can have the cost of the microcomputer acquisition and maintenance built into their financial aid package.

Credit by Examination

A fee of \$50 per credit hour will be charged for administration of special tests in areas for which academic credit may be received. This fee must be paid in advance.

Fees for Courses in Music Performance Study

Private applied lessons in most instruments and voice are available each semester, for academic credit, to qualified students. Private lessons meet for 14 weeks during the semester. Both one-half hour (one academic credit) or one hour (two academic credits) lessons may be taken, depending on the recommendation of the faculty.

The Private Lesson Fee for applied performance study is \$270 per academic credit for non-music majors, and \$95 per academic credit for music majors taking required

lessons. This fee, additional to normal tuition charges, will be charged each student as part of normal billing.

Any student enrolled in excess of 18 credit hours because of Private Applied Lessons will be charged only the additional Private Lesson Fee, and not the supplemental tuition charges for taking more than the permitted 18 credits. Permission from the respective Dean's Office to exceed 18 academic credits in a semester must still be obtained, however.

School of Natural Resources Summer Field Courses

Students majoring in Forestry or Wildlife Fisheries Biology are required to take summer field courses. Forestry majors must take FOR 122 and Wildlife and Fisheries majors must take WFB 131 and 150.

The tuition for the School of Natural Resources Summer Field Courses will be at the Summer Session credit hour rate. In addition, there may be charges for field expenses.

Department of Nursing

An additional fee of approximately \$28 annually will be charged each student for membership in the National Student Nurses Association and will be part of normal billing.

Additional Fees for Special Courses

Occasionally, a special fee will be charged in addition to the fee for tuition to cover long distance travel expenses, special equipment, arrangements, or skilled consultants. Students will be notified of this fee through the registration process.

Study Abroad

A \$400 administrative fee will be assessed for those students participating in Study Abroad programs/activities with the exception of the Buckham Overseas Studies Program.

International Students

A \$100 administrative fee will be assessed for all new graduate and undergraduate students, with the exception of those undergraduate students who visit UVM under the terms and conditions of a bona fide UVM undergraduate reciprocal exchange program.

Diagnostic Evaluation

In certain instances, students may be assessed a fee for diagnostic testing. Additional information can be obtained from the Office of Specialized Student Services.

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Undergraduate Registration

Area: [Undergraduate Academic and General Information](#)

Degree students must register for the next semester at the designated time, unless excused in advance by their dean. Registration instructions are on the web. Written approval of the student's dean is required to register for more than 18 credit hours.

Students with disabilities, who are in receipt of appropriate medical certification from the Director of the Student Health Center, will be approved to enroll for a course load of less than 12 credit hours (FTE). Such students will be afforded full-time status in accordance with Section 504 of the Rehabilitation Act of 1973.

Any credits earned at the University of Vermont are transferable to another institution at the discretion of the receiving school.

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Undergraduate Scholarships

Affiliated Topics

- [Undergraduate Financial Aid](#)

Overview

Thanks to the generosity of UVM alumni, parents, and friends, a number of scholarships are available to students whose experiences and backgrounds promise to enrich the larger university community. While many of these scholarships are based on a combination of need and merit, several scholarships are offered exclusively on the basis of academic achievements and potential for success at UVM. For more information, visit the [scholarship Web site](#). Examples of scholarships available to new students include:

The Vermont Scholars Program

Each year, UVM names a select group of outstanding Vermont high school students as Vermont Scholars, an academic honor that carries a four-year partial scholarship. To qualify, candidates generally rank in the top ten percent of their graduating class and present superior scores on the Scholastic Assessment Test (SAT I). Comparable ACT scores are acceptable.

A committee comprising members of the University community reviews all qualified applicants and bases final selection on such factors as secondary school record, recommendations, admissions essays, extracurricular participation, and academic potential. Scholarship recipients are notified by mid-March.

Vermont Scholars receive between \$1,500 and \$8,000 annually in scholarship and grant assistance, depending on need. The scholarship is renewable up to four years (eight semesters) provided a 3.00 cumulative grade-point average is maintained.

The Green and Gold Scholars Program

recognizes the academically strongest student at each accredited high school in Vermont with 4-year, full tuition scholarships, currently valued at over \$33,000. At the end of the

academic year, the Principal of each school submits a nominee who has completed the 11th grade at the end of the school year. The primary criteria for determining a nominee is limited to academic performance in high school, including rank in class, grade point average, rigor of course work and standardized testing. Green & Gold nominees are awarded four-year full tuition scholarships upon admission to the University. The scholarships are renewable annually providing that the recipient maintains a 3.00 overall grade point average and makes satisfactory progress toward degree completion while in attendance at the University.

UVM Community Service Award

The UVM Community Service Award is available for Vermont residents who have a demonstrated commitment to community and public service. The University Scholarship Committee selects those students that have a proven track record of community service. Community Service Scholars receive between \$1,000 and \$8,000 annually in scholarship and grant assistance, depending on need. Recipients must maintain at least a 2.50 cumulative grade-point average and continue to perform community service while at the University.

Presidential Scholarship

Out-of-state students with a superior record of scholastic achievement are eligible for consideration for the UVM Presidential Scholarship. Letters of recommendation, secondary school record, and extracurricular participation are among the criteria used in making scholarship selections. Presidential Scholars receive a merit scholarship for four years (eight semesters) providing they maintain a cumulative 3.00 grade-point average and continue to make satisfactory progress toward the completion of their degree requirements. Scholarship values vary according to the academic record of the recipients.




Patrick Scholarship

The Patrick Scholarship is awarded to academically deserving Vermonters in the amount of \$1,000 per year for four years.

How to Apply for UVM Scholarships

There is no separate application process for most UVM- based scholarships. An applicant will be considered for all UVM scholarships simply by checking the box entitled "Scholarship Consideration" in the UVM admissions application. The wealth of information provided in the Admissions application is used in matching students with available scholarships. Additionally, students must file the Free Application for Federal Student Aid (FAFSA) in order to be considered for need-based scholarships. Students will be notified if additional information is needed to apply for a specific scholarship.

Other Scholarship Resources

- [The Financial Aid Office](#) , located at 178 South Prospect Street, dedicates a scholarship resource workspace that can be utilized by any entering or returning UVM student. Resources such as scholarship and grant search books, a computer for reviewing free scholarship Web sites, and records on a small number of scholarship opportunities forwarded to UVM from outside sources are available for interested students.
- [VSAC \(The Vermont Student Assistance Corporation\)](#)  offers a guide to scholarships for Vermont students available in UVM's Financial Aid Office or contact VSAC toll-free at 1-800-642-3177.
- [The Army ROTC Program](#)  offers an opportunity for students to earn a degree of their choice and possibly qualify for an officer's commission. Two-, three- and four-year scholarships are available worth up to \$16,450 for tuition and books as well as \$206/month for up to ten months.
- Veterans are encouraged to consult the UVM Registrar's Office regarding G.I. Bill benefits in education.
- Many organizations within home communities offer a wide range of scholarships to needy and deserving students. Check with schools and communities for these opportunities.

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Undergraduate Student Responsibility

Area: [Undergraduate Academic and General Information](#)

Classroom Code of Conduct

Faculty and students will at all times conduct themselves in a manner that serves to maintain, promote, and enhance the high quality academic environment befitting the University of Vermont. To this end, it is expected that all members of the learning community will adhere to the following guidelines:

- Faculty and students will attend all regularly scheduled classes, except for those occasions warranting an excused absence under the University Attendance Policy (e.g., religious, athletic, and medical).
- Students and faculty will arrive prepared for class and on time, and they will remain in class until the class is dismissed.
- Faculty and students will treat all members of the learning community with respect. Toward this end, they will promote academic discourse and the free exchange of ideas by listening with civil attention to comments made by all individuals.
- Students and faculty will maintain an appropriate academic climate by refraining from all actions that disrupt the learning environment (e.g., making noise, ostentatiously not paying attention, and leaving and reentering the classroom inappropriately).

Attendance Policy

Students are expected to attend all regularly scheduled classes. The instructor has the final authority to excuse absences. It is the responsibility of the instructor to inform students of his or her policy for handling absences and tardiness, and the penalties that may be imposed. Notification should be done both verbally and in writing at the beginning of each semester.

It is the responsibility of the student to inform the instructor regarding the reason for absence or tardiness from class, and to discuss these with the instructor in advance whenever possible. The instructor has the right to require documentation* in support of the student's request for an excuse from class. If an out-of-class exam is scheduled

which conflicts with a regularly scheduled class, the regularly scheduled class has priority.

The instructor has the right to disenroll any student who fails to attend a scheduled course by the third instructional day of a semester or the second scheduled class session of a course, whichever comes later, unless the student has notified the instructor and has been excused. To disenroll students the instructor must notify the Registrar, who will remove the student's name from the class list and the course from the student's schedule. The student is responsible to determine whether or not she or he is enrolled in a class.

*When a student is unable to attend class for a health reason, the student may give permission for the instructor to discuss the situation with a representative from the Center for Health and Wellbeing. As with all absences, the faculty member has final authority to excuse students from classes.

Athletic-Academic Conflicts

Athletic-Academic Conflicts Students participating in inter-collegiate athletics should plan their schedules with special care, recognizing the primary importance of all of their University academic responsibilities. Each semester, members of UVM varsity and junior varsity teams are responsible for documenting in writing any conflicts between their planned athletic schedule and the class schedule to their instructors by the end of the second full week of classes. Students and instructors should then discuss potential conflicts between course requirements and intercollegiate competitions. When an unavoidable conflict exists, the student and instructor should seek a resolution which permits the student to address the course requirement and participate in the athletic competition. The instructor has final authority on this matter.

Religious Holidays Students have the right to practice the religion of their choice. Each semester students should submit in writing to their instructors by the end of the second full week of classes their documented religious holiday schedule for the semester. Faculty must permit students who miss work for the purpose of religious observance to make up this work.

Freedom of Expression and Dissent

The University of Vermont is a place to learn and to teach. It is not a cloister - it does not live in a vacuum. It is both in the world and of the world. Its mission is to educate people for leadership in society. (Board of Trustees, May 1969)

Fundamental to our entire philosophy is our firm belief that rights guaranteed by the First and Fourteenth Amendments to the Constitution of the United States must be protected on the campus as elsewhere and that local, state, and federal laws must prevail on campus. Becoming a member of the University community in no way abrogates or compromises the rights, which the Constitution of the United States guarantees to all persons.

Within the University setting as within society at large, the exercise of one's rights must

be tempered by recognition of the rights of others. For example, the exercise of free speech may unreasonably infringe upon the right to learn. The laws of society and the mission of the University establish the framework within which disagreement, dissent, demonstration, and advocacy may, indeed must, occur. For humankind to progress, the educational process must be dynamic even if fraught with controversy, for change cannot take place until the first question is raised. The discovery of new propositions or new solutions also may be followed by passionate advocacy. Such advocacy must never replace the continued pursuit of the University's essential purpose of learning and teaching.

It is within this context that the University rejects the use of, or the threat of force as a means of resolving differences. Violence is both unnecessary and inappropriate for those who have access to reasoned discourse and is unacceptable within an institution dedicated to reason. The University officer responsible for implementing the Policy Statement on Freedom of Expression and Dissent, when students are involved, is the Vice President for Student Affairs. In all cases, the designated officer shall attempt to resolve the situation through efforts of persuasion. The University must, if efforts at persuasion have failed, resort to the use of any legal remedy deemed necessary. Those engaged in unlawful disruption, consequently, may expect appropriate responses from either University or other law enforcement authorities or both.

A full statement of the policy is in [The Cat's Tale](#). Each student is responsible for knowing and observing this policy.

Academic Discipline

The University expects each student to maintain high standards of personal conduct and social responsibility at all times both on and off campus. As responsible citizens, all students are required to observe and to share in the support of University regulations. Any student who fails to uphold these standards is subject to disciplinary action.

The disciplinary authority of the University is vested in the President. In such cases as the President considers proper, this authority may be delegated to the several deans and to appropriate judicial bodies. The continuance of each student, the receipt of academic credits, graduation, and the conferring of any degree or the granting of any certificate are strictly subject to the disciplinary powers of the University. The University is free to cancel a student's registration at any time on any grounds if it considers such action to be for the welfare of the institution.

Policy on the above matters is explained in detail in [The Cat's Tale](#). Each student is held responsible for knowledge and observance of these rules and regulations, including those concerned with academic honesty.

Academic Honesty

The principal objective of the policy on academic honesty is to promote an intellectual climate and support the academic integrity of the University of Vermont. Academic dishonesty or an offense against academic honesty includes acts that may subvert or

compromise the integrity of the educational process. Such acts are serious offenses that insult the integrity of the entire academic community.

Offenses against academic honesty are any acts that would have the effect of unfairly promoting or enhancing one's academic standing within the entire community of learners which includes, but is not limited to, the faculty and students of the University of Vermont. Academic dishonesty includes knowingly permitting or assisting any person in the committing an act of academic dishonesty.

The policy distinguishes between minor and major offenses. Offenses purely technical in nature or in which the instructor does not perceive intent to achieve advantage are deemed minor and are handled by the instructor. Major offenses are those in which intent to achieve academic advantages is perceived. A full statement of the policy can be found in [The Cat's Tale](#). Each student is responsible for knowing and observing this policy.

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Undergraduate Transfer Student Admissions

Area: [Undergraduate Admission to the University](#)

The University welcomes applicants who have demonstrated success at other institutions of higher education and who have met all University-wide entrance requirements either in high school or in college. For the purpose of admission, a transfer candidate is one who has taken college-level courses for credit after completion of secondary school.

All transfer students are considered for admission on a space-available, competitive basis.

In making transfer admission decisions, the Admissions Office reviews all academic information available: official transcripts of all college-level work and the high school record (or General Education Development Certificate). Submission of standardized test scores such as the SAT I or the ACT is optional for transfer candidates. If submitted, test scores may help in making an admission decision.

Transfer candidates are subject to the minimum entrance requirements outlined for first-year candidates. Any entrance requirement not fulfilled in high school can be met by an equivalent semester-long college course.

For transfer candidates who have earned under 30 college-level credits, the quality of the high school record remains an important evaluation tool. After 30 earned credit hours, the college grade-point average and course selection are the most important factors in a decision. The Admissions Office still needs to see the high school record to determine if all University-wide entrance requirements have been met.


The minimum grade point average requirement for all transfer candidates is a 2.5 (C+) average on a four-point scale. Generally, to be competitive a 3.0 average or above is recommended.

Transfer Credit Policy

The Office of Transfer Affairs reviews each college-level course taken by transfer candidates accepted for admission. A written evaluation is sent to each transfer candidate indicating the status of each course. To receive transfer credit, a course must

have been taken at an accredited college or university for credit; it must be comparable in content, nature, and intensity to a course offered at UVM; and the grade earned must be comparable to a "C" or higher as indicated on an official transcript. The dean of the college or school determines the applicability of the transfer course(s) to the student's degree requirements at the University.

All transfer credit remains provisional until the transfer student successfully completes one semester of course work as a degree student at UVM. The UVM grade-point average reflects only course work taken here. Grades from other institutions are not calculated into the UVM GPA and will not appear on a UVM transcript.

Credit through the Advanced Placement Program (AP) of the College Board  is granted as a specific university course, or courses, with scores of 4 or 5. Scores of 3 are acceptable for some exams. Official AP score reports must be sent directly to the Office of Transfer Affairs. AP course equivalencies are determined by the faculty of the corresponding subject area and are awarded by the Office of Transfer Affairs. AP credit is assigned a UVM course equivalency and applicability to the degree program is determined by the student's dean's office.

Courses taken on a college or university campus while a student is still in high school may be eligible for transfer credit. Students should contact the Office of Transfer Affairs for assistance in determining transferability of these courses.

College-level courses taken through high school cooperatives, such as Syracuse Project Advance (SUPA), do not transfer to UVM. Students who participate in high school cooperative programs and wish to pursue credit must take a nationally-standardized examination to demonstrate college level subject mastery. Advanced Placement Examinations (AP), which can be taken while still in high school, or College Level Examination Placement (CLEP), would serve as recognized standardized examinations. A third option is the UVM Credit by Exam. Contact the Office of Transfer Affairs to see what specific subject areas are covered by these exams.

Further questions regarding transfer credit should be addressed to the Office of Transfer Affairs, 360 Waterman Building, University of Vermont, Burlington, VT 05405.

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Undergraduate Tuition and Fees

Area: [Undergraduate Tuition and Fees](#)

Application Fee

A non-refundable application of \$45 is charged each applicant for admission to a University degree program.

Acceptance Fee and Advanced Tuition Payment

All new undergraduate applicants who have been accepted by the University are required to pay \$300 in order to reserve a place in the next enrolling class. Regular first-year students accepted for the fall semester must pay the deposit by May 1. Most transfer students admitted for the fall must pay the deposit within two weeks of the offer of admission. Students admitted in January for the spring semester may have less than two weeks in which to pay the deposit. A portion of the fee is for initial advising, selection of courses, and personal orientation to the campus, a requirement for all incoming undergraduate degree students. The remainder will be applied to the initial semester's tuition bill.

If a newly admitted student who has paid the required deposit subsequently chooses not to attend the University, the student will receive a \$100 refund if the University is notified in writing prior to the beginning of the semester for which the student was admitted. If the University is notified after the beginning of the semester, the entire deposit is forfeited. This policy will change effective with the 2004-05 academic year.

Estimated Yearly Expenses

Listed below are estimated expenses (excluding transportation, laundry, and spending money) based on the regular tuition for undergraduate students followed by explanation of these charges.

Estimated Yearly Expenses

	Resident	Nonresident
Tuition	\$8,696	\$21,748

Housing (Double Room)	4,464	4,464
Meal Plan (Average)	2,216	2,216
Comprehensive Student Fee	812	812
Inter-Residence Association Fee	24	24
Student Accident & Sickness Insurance (Optional)	1193	1193
Student Government Ass'n Fee	104	104
Books and Supplies (Estimated)	800	800
Total, excluding personal and miscellaneous costs	\$18,309	\$31,361

Tuition

Vermont Residents: \$376 per credit hour through 11.5 hours. From 12-18 credit hours — \$4,348 per semester plus \$376 per credit hour for each hour in excess of 18 hours.

Nonresidents: \$938 per credit hour through 11.5 hours. From 12-18 credit hours — \$10,874 per semester plus \$938 per credit hour for each hour in excess of 18 hours.

Note: Courses taken for audit are also included in determining the number of credit hours for which a student is billed.

Housing Charges

Room and Board: All housing agreement include both room and board and are legally binding for the nine-month academic year. Each occupant is liable for the yearly rent, one half to be paid each semester.

The University meal plan offers several options. Payment for the plan selected is made in two equal installments paid at the beginning of a semester. The University's food service system includes not only dining halls but also the various campus snack bars, restaurants, and grocery stores. Questions regarding food services should be directed to the University Dining Services/Marriott, Robinson Hall, Redstone Campus.

Students not required to live on campus who wish to cancel a housing agreement must do so in writing. Students canceling before July 1 will be assessed a \$50 penalty and from July 1, but before September, 2003, a \$150 penalty. Unless specifically authorized by the Office of Residential Life, no room cancellations will be honored after the beginning of the fall semester.

Comprehensive Student Fee

This fee is used to cover the operating, capital costs, and improvements of the Library, Student Center, Athletic Complex, Center for Health and Wellbeing, and Campus Transportation services.

Inter-Residence Association Fee

A \$24 per year (\$12 per semester) fee is charged to each resident to be used for activities within the residence hall system.

Student Insurance (Optional)

Students have the option of purchasing a Student Accident and Sickness Insurance Policy through the University. This policy provides coverage for many services not included in the health fee as well as hospitalization benefits. To participate in this program, the student must pay a modest annual premium plus the health fee for the two semesters of the academic year. Students not covered by the health insurance policy of a parent, guardian, or spouse must purchase the Student Accident and Sickness Insurance Policy.

Student Government Association Fee

Undergraduate degree students enrolled in four or more credit hours are charged a fee of \$104 per year (\$52 per semester). This fee is allocated by the Student Government Association toward the support of student organizations and student activities.

Fees for Part-time Students

A comprehensive fee is charged to all part-time students enrolled in four but less than 12 credit hours in a semester, as follows:

Hours Enrolled Per Semester	Fee
4	\$59
5	\$70
6	\$78
7	\$88
8	\$98
9 to 11.5	\$107

All undergraduate degree students enrolled in four or more credit hours in a semester pay the full Student Government Association fee.

Books and Supplies

The estimated yearly cost of books and supplies at \$800 is a low average. Some particular curricula may require one time purchases which will change this amount.

Students in the College of Engineering and Mathematics and School of Business Administration should add about \$100 for computer software to their estimated yearly costs for books and supplies.

Dental Hygiene students should add approximately \$1,500 for an instrument kit and clinical attire in the first year that will be collected during the first week of the fall semester.

Physical Therapy students will be responsible for the cost of medically-required

vaccinations, transportation, and living expenses (including room and board) during clinical affiliation periods. All Physical Therapy students are required to carry professional liability insurance prior to enrolling in the clinical experience.

Nuclear Medicine Technology and Radiation Therapy students should add about \$85 for lab coats and other related expenses.

Professional Nursing students should add about \$250 for clinical attire, professional liability insurance, health screening, vaccinations, and other related expenses in the second semester of the sophomore year and about \$300 in the beginning of the junior year.

Students enrolled in art courses should expect to incur a lab or materials cost roughly equivalent to the cost of books in other courses. In certain courses, instructional materials are purchased in bulk by the department and costs are prorated among students at a far lower rate than if they were purchased individually.

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University Undergraduate Honors

Area: [Undergraduate Academic and General Information](#)

The bachelor's and associate's degrees may be conferred with honors, by vote of the Faculty Senate, in recognition of general high standing in scholarship. Three grades are distinguished and indicated by inscribing on the diploma the words cum laude, magna cum laude, or summa cum laude.

Honors are determined in the following manner: Within the graduating class of each college/school, students in the top one percent will receive summa cum laude; the following three percent will receive magna cum laude; the next six percent will receive cum laude. The total number of honors awarded will not exceed ten percent of the graduating class of each college/school.

Honors will be calculated on all grades received at UVM. To be considered, a student must have taken at least 60 hours (30 hours for two-year programs) at UVM in which a letter grade of A, B, C, D, or F has been awarded.

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Veterans Advising and Benefits

Area: [Student Services](#)

The University provides support and advising to any veteran or dependent eligible for benefits under Federal Law, Chapters 30, 31, 32, 34, 35, or 106. Students eligible for these benefits should contact the Registrar's Office at least one month prior to registration each semester. Students wishing to register for benefits should be prepared to present their certificates of eligibility.

It is important that all veterans and dependents keep in contact with the University for the latest information regarding benefits and requirements. Also, those students involved in the Veterans Program should contact the University in the event of any change in credit load, dependency status, address, or major. The phone number is (802) 656-2045.

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Ways to Earn Undergraduate Credit

Area: [Undergraduate Academic and General Information](#)

Transfer of Credit

Students seeking to transfer academic credit may do so only for courses that are taken at accredited institutions and are comparable in content, nature, and intensity to courses taught at The University of Vermont. Credit is not given for transfer courses with grades lower than C. To insure transferability of courses to be taken elsewhere, degree students must secure prior approval for each course in writing from Transfer Affairs. Questions regarding credit transfer should be directed to the Office of Transfer Affairs, 360 Waterman.

Credit by Examination

A degree student may, under the following conditions, receive credit for a course by taking a special examination and paying the special examination fee charge of \$50 per credit hour. The examination fee must be paid prior to taking the examination.

A request for such an examination must be made in writing at least one month before the date of the examination, and it must be approved by the student's advisor, the chairperson of the department in which the course is given, and the dean, in that order. The student must neither have audited, previously received a grade or mark, nor have attempted a prior special examination in this course at UVM or at any other institution of higher education. Only specific University courses may be challenged using special examination. Readings and Research, Honors Research, etc., are specifically excluded. Special Topics may be challenged only if that course is offered during the semester in which the special examination is being requested. The student may not take a special examination in a course whose content is presupposed by other courses the student is currently enrolled in or has already taken. In cases of uncertainty, the department chairperson shall decide whether it is appropriate for the student to take a special examination for credit in a particular course. Upon passing the special examination, as determined by the examiner and the chairperson of the department in which the course is given, the student receives credit, but not a grade, for the course. Credit by examination forms are available in the Office of the Registrar, 360 Waterman Building.

College-Level Examination Program (CLEP)

The University considers credit for most of the 30 specific subject CLEP exams providing the student has not previously attempted a similar course of study at a college level. Scores acceptable for credit are comparable to attaining a level of accomplishment equal to a B in a graded course situation. Individual exams may earn a student three, six, or eight semester hours of credit depending on the nature and scope of the material covered. Credit is not granted for the general exams.

Credit granted for CLEP Examinations may be applied toward distribution requirements and to the total semester hours specified for a particular degree program when approved by the dean of the college/school in which the student is subsequently a candidate for a degree. Information about CLEP is available at the Office of Transfer Affairs, 360 Waterman Building.

Credit for Calculus

Credit will be given for Math. 21, or Math. 22 and Math. 121, according to the following guidelines.

May receive credit for Math. 21 provided the student:

- Has not taken the advanced placement test in mathematics; and
- Has not attempted Math. 21 for credit at UVM; and
- The average of the grades received in Math. 22 and Math. 121 is B or better; and
- Received a B or better in Math. 121.

May receive credit for Math. 22 provided the student:

- Has not taken the advanced placement test in mathematics; and
- Has not attempted Math. 22 for credit at UVM; and
- Received a B or better in Math. 121.

Academic Learning Integrated with Volunteer Experience (ALIVE)

Through this program, the University of Vermont offers college credit to members of AmeriCorps*VISTA (Volunteers in Service to America). VISTA members participating in ALIVE can earn up to nine undergraduate or graduate credits in a variety of disciplines for structured reflection of their service experience. VISTA scholars will attend workshops, create portfolios and work with faculty advisors during residency weekends on campus that will not detract from their time serving in communities. UVM will annually award six scholarships to Vermont VISTA scholars who participate in ALIVE.

Credit for Military Service

University of Vermont degree students may have their military service record reviewed for possible transfer credit. Veterans should present form DD 214 to the Office of Transfer Affairs; active duty personnel should have form DD 295 sent directly from the

educational officer on the base. Army personnel seeking credit other than Physical Education should have an AARTS transcript sent directly from: AARTS transcript, Manager, AARTS Operations Center, 415 McPherson Ave., Ft. Leavenworth, KS 66027-1373. Transcripts of examinations sponsored by the Defense Activity for Non-Traditional Educational Support (DANTES) are available at a nominal charge from: DANTES Contractor Representative, Educational Testing Service, P.O. Box 2819, Princeton, NJ 08540. All documents except form DD 214 should be sent directly to the Office of Transfer Affairs, University of Vermont, 360 Waterman Building, Burlington, VT 05405.

Students should contact the Office of Transfer Affairs for more information.