

## CONVERSION NOTES

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

### 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. In this document, the program had particular difficulty with 'st', 'fi', and 'ff'. Frequently the last letter was just dropped.



## 2008-09 Online Catalogue

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## Welcome

This is the official publication of degree programs and requirements and course descriptions for the 2008-2009 academic year produced annually by the Office of the Provost.

Students at The University of Vermont are responsible for knowing and complying with all requirements for their respective degrees as stated in the catalogue. Access to **prior editions of the catalogue** is available in the [catalogue archives](#) section of this site.

- [2008-2009 Catalogue \(.pdf\)](#) (The layout of this file is identical to the printed version.)
-  The arrow identifies links that point outside the official catalogue site [External Link].



**Courses:** Browse or search undergraduate and graduate courses in the UVM catalogue.



**Majors, minors, graduate programs:** Review requirements for degrees, certificates, and minors.

**Disclaimer:** 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.

# UVM Academic Calendar

## :: Academic Year 2008-2009

### Fall 2008

<b>Events</b>	<b>Dates</b>	<b>Days of Week</b>
Labor Day Holiday	September 1	Monday
First Day of Classes	September 2	Tuesday
Add/Drop, Pass/No Pass, Audit Deadline	September 15	Monday
Last Day to Withdraw	November 4	Tuesday*
Thanksgiving Recess	November 24-28	Monday-Friday
Last Day of Classes	December 11	Thursday
Reading and Exam Period	December 12-19	Friday-Friday
Reading Days	December 13-14,17	Saturday, Sunday, Wednesday
Exam Days	December 12,15-16,18-19	Friday, Monday-Tuesday, Thursday-Friday

### Spring 2009

First Day of Classes	January 12	Monday
Martin Luther King Holiday	January 19	Monday
Add/Drop, Audit, Pass/No Pass Deadline	January 26	Monday
Presidents' Day Holiday	February 16	Monday
Town Meeting Day Recess	March 3	Tuesday
Spring Recess	March 9-13	Monday-Friday
Last Day to Withdraw	March 30	Monday*
Honors Day	April 17	Friday

Classes End	April 29	Wednesday
Reading and Exam Period	April 30 – May 8	Thursday- Thursday, Friday
Reading Days**	May 2-3, 6	Saturday-Sunday, Wednesday
Exam Days	April 30, May 1, 4-5,7-8	Thursday-Friday, Monday-Tuesday, Thursday-Friday
Commencement	May 17	Sunday

Revised by the Faculty Senate 2.14.08

\*Changed approved May 2, 2008

\*\*Change approved December 8, 2008



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

### ALAN 295 - D1: 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.

Credits: 3.00



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## Graduate Courses in Anatomy & Neurobiology (ANNB)

### 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 261 - Neurobiology

Focus on molecular and cellular aspects of the nervous system. Electrical signaling, synaptic transmission, signal transduction, neural development, plasticity, and diseases. Prerequisite: BIOL 103 or ANPS 019 & ANPS 020. Cross-listed with: BIOL 261. Credits: 3.00

### ANNB 301 - Medical Gross Anatomy

This course includes a complete cadaver dissection by all students and evaluation in embryology as required. Emphasis is placed on individualized laboratory instruction. Prerequisite: Current Medical, Osteopathic, Podiatric and Dental students or Instructor permission. Credits: 8.00

### ANNB 302 - Neuroscience

This course examines the structure and functions of the human nervous system, provides laboratory experience with dissected specimens and incorporates clinical information. Prerequisite: Open to medical students with instructor permission and graduate students. 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: Permission of the Instructor.

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: Permission 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: Permission of the Instructor.

Credits: 3.00

### **ANNB 326 - Basic Sci-Neurologic Disease**

In-depth examination of basic mechanisms and clinical aspects of one neurological disease per year. Disease examined changes every year. Target audience: graduate students and faculty. Prerequisite: Permission of instructor

Credits: 2.00

### **ANNB 327 - Responsible Conduct in Research**

This course teaches trainees in biomedical research about responsible and ethical conduct in research through a combination of lectures and discussions.

Prerequisite: Graduate and Postdoc Students. Cross-listed with PATH 327.

Credits: 1.00

### **ANNB 328 - Neuro Tech Optical Microscopy**

Topics shall include light microscopy, epifluorescence, confocal, multi-photon, deconvolution and applications (FRET, ion imaging, SHG imaging, FRAP, TIRP, FLIM, etc.) Prerequisite: Permission of Instructor.

Credits: 3.00

### **ANNB 329 - Topics in Excitable Membranes**

This course is a graduate course designed to introduce the fundamentals of cellular electrophysiology through independent student reading and faculty-led group discussions of journal articles. Prerequisite: Permission of the Instructor.

Credits: 2.00

### **ANNB 330 - Comparative Neurobiology**

This course is designed to introduce students to the cellular mechanisms that underlie selective motor and sensory abilities that have evolved in various species.

Pre/co-requisite: Permission of the Instructor.

Credits: 2.00

**ANNB 342 - Spec Dissections in Gross Anat**

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

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 in Neurobiology**

Prerequisite: Permission of the Instructor.

Credits: 3.00

**ANNB 491 - Doctoral Dissertation Research**

Credit as arranged.

Credits: 1.00 to 18.00



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## Graduate Courses in Animal Science (ASCI)

### **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 215 - Physiology of Reproduction**

Fundamental principles of the physiology of reproduction with emphasis on, but not limited to, farm animals. Prerequisite: ASCI 141 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.

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 263 - Clin Top:Companion Animal Med**

The use of case studies in companion animal medicine to develop clinical, analytical, and diagnostic skills. Prerequisite: ASCI 118; ASCI 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 297 - Advanced Special Topics**

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 - Advanced Special Topics**

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 10.00

**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 395 - Special Topics**

Credits: 3.00

**ASCI 491 - Doctoral Dissertation Research**

Credits: 1.00 to 12.00





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## Graduate Courses in Animal, Nutrition & Food Sci (ANFS)

### ANFS 313 - Food Safety and Public Policy

An exploration of issues that impact the development of microbiological food safety policy through analysis of how science and risk assessment are used in establishing policy. Pre/co-requisite: NFS 203 or Instructor permission.

Credits: 3.00

### ANFS 395 - Special Topics

Lectures, laboratories, readings, or projects relating to topics in animal, nutrition and food sciences. Pre/co-requisite: Graduate standing.

Credits: 3.00

### ANFS 491 - Doctoral Dissertation

Credits: 1.00 to 18.00



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## Graduate Courses in Anthropology (ANTH)

### 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 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 023, three 100-level courses, or Instructor 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 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 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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## Graduate Courses in Area & International Studies (AIS)

### 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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## Graduate Courses in Art History (ARTH)

### ARTH 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, including three hours in the area of the seminar; Minimum Junior standing.

Credits: 3.00

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## Graduate Courses in Astronomy (ASTR)

### 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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## Graduate Courses in Biochemistry (BIOC)

### 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. Prerequisite: CHEM 142 or CHEM 144. Cross-listed with: CHEM 205 and MMG 205.

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 information transfer, genomics, and proteomics. Prerequisite: BIOC 205. Cross-listed with: CHEM 206, MMG 206.

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. Co-requisite: BIOC 205 or BIOC 206. Cross-listed with: CHEM 207, MMG 207.

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: CHEM 042 or CHEM 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: BIOL 001 , BIOL 002; Organic Chemistry; Junior standing recommended. Cross-listed with: MMG 240. Alternate years.

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: CHEM 141, CHEM 142 or CHEM 143, CHEM 144, and Department permission.

Credits: 3.00

**BIOC 302 - General Biochemistry**

Survey for science majors. Amino acids, nucleic acids, protein synthesis, cellular and physiological control mechanisms. Prerequisites: CHEM 141, CHEM 142 or CHEM 143, CHEM 144, and Department 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: BIOC 301, BIOL 302.

Credits: 3.00

**BIOC 308 - Special Topics in Biochemistry**

Areas of biochemistry not treated in current advanced course offerings. Prerequisites: BIOC 301, BIOC 302 or Department permission.

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.

Prerequisites: BIOC 301, BIOC 302 or Department permission. Alternate years.

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; BIOC 302 or equivalent. Cross-listed with: 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: BIOC 301, BIOC 302, and CHEM 162; Department permission. Alternate years.

Credits: 3.00

**BIOC 370 - Physical Biochemistry**

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

Prerequisites: BIOC 301, BIOL 302 and CHEM 162, or Department permission.

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. Prerequisite: BIOC 301, BIOC 302, or Department permission.

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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## Graduate Courses in Biology (BIOL)

### BIOL 202 - Quantitative Biology

Topics in quantitative methods in biological research, including statistics and computer-based analysis. Prerequisites: One of BCOR 101, BCOR 102, BCOR 103; MATH 019, MATH 020.

Credits: 3.00

### BIOL 204 - Adv Genetics Laboratory

Discussions and Laboratories to provide experience with modern genetic techniques. Bench work and data analysis emphasized. May be repeated for credit. Prerequisites: BCOR 101

Credits: 4.00

### BIOL 205 - Adv Genetics Laboratory

Discussions and Laboratories to provide experience with modern genetic techniques. Bench work and data analysis emphasized. May be repeated for credit. Prerequisites: BCOR 101

Credits: 4.00

### BIOL 209 - Field Zoology

Collection, identification, and ecology of arthropods. Substantial field collecting. Prerequisite: BCOR 102.

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: BCOR 102.

Credits: 4.00

**BIOL 219 - Compar/Func Vertebrate Anatomy**

Structure, function, and phylogeny, with evolutionary and functional trends of all chordate groups. Prerequisite: Two courses from BCOR 101, BCOR 102, BCOR 103.

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. Prerequisite: BCOR 101, BIOL 103.

Credits: 3.00

**BIOL 225 - Physiological Ecology**

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

Credits: 4.00

**BIOL 254 - Population Genetics**

Methods of detecting and investigating genetic variation, as well as its causes and consequences. Applications from medicine, forensics, and environmental biology are emphasized. Pre/co-requisite: BCOR 101.

Credits: 4.00

**BIOL 255 - Comparative Physiology**

Physiology at the organ, systems, and organismal levels. Capstone course to consolidate biological concepts. Pre/co-requisites: BCOR 101, BCOR 102, BCOR 103.

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: BCOR 103. Cross-listed with: ANNB 261.

Credits: 3.00

**BIOL 262 - Neurobiology Techniques**

Extensive study of laboratory methods used in modern research on the function of the nervous system. Techniques from electrophysiology, cell biology, biochemistry, and genetics. Pre/co-requisites: BCOR 103, BIOL 261.

Credits: 4.00

**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: BCOR 101 or Instructor permission.

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. Prerequisite: BCOR 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. Prerequisite: BCOR 101.

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 change. Prerequisite: BIOL 001 and BIOL 002 or BCOR 011 and BCOR 012; BCOR 102 recommended.

Credits: 3.00

**BIOL 270 - Speciation and Phylogeny**

Contribution of modern research in such fields as genetics, systematics, distribution, and serology to problems of evolutionary change. Prerequisite: BCOR 101, BCOR 102 recommended.

Credits: 3.00

**BIOL 271 - Evolution**

Basic concepts in evolution will be covered, including the causes of evolutionary

change, speciation, phylogenetics, and the history of life. Pre/co-requisites: BCOR 102 or permission of the Instructor.

Credits: 3.00

**BIOL 276 - Behavioral Ecology**

Adaptive significance of behavior in natural environments. Evolutionary theory applied to behavior and tested with field data. Prerequisite: BCOR 102 or Instructor permission.

Credits: 3.00

**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 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, PBI0 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 352 - Evolutionary Computation**

Theory and practice of biologically-inspired search strategies, including genetic algorithms, genetic programming, and evolution strategies. Applications include optimization, parameter estimation, and model identification. Significant project. Students from multiple disciplines encouraged. Pre/co-requisites: Familiarity with programming, probability, and Statistics. Cross-listed with: CS 352, CSYS 352.

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 382 - Eco Lunch**

Review and discussion of current research. Attendance of BIOL 382 or BIOL 384 required of Biology Graduate students. Pre/co-requisites: Graduate standing and Instructor permission.

Credits: 0.00 to 1.00

**BIOL 384 - Cell Lunch**

Review and discussion of current research. Attendance of BIOL 382 or BIOL 384 required of Biology Graduate students. Pre/co-requisite: Graduate standing.

Credits: 0.00 to 1.00

**BIOL 385 - Biology Seminar**

Review and discussion of current biological research. Attendance required of Biology graduate students. Pre/co-requisite: Graduate standing and Instructor permission.

Credits: 1.00

**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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## Graduate 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 241 - Statistical Inference**



Introduction to statistical theory; related probability fundamentals, derivation of statistical principles, and methodology for parameter estimation and hypothesis testing. Pre/co-requisites: BIOS 151, BIOS 153 or BIOS 25; BIOS 141 or equivalent; MATH 121. Cross-listed with: STAT 241.

Credits: 3.00

**BIOS 391 - Master's Thesis Research**

Credit as arranged.

Credits: 1.00 to 12.00

**BIOS 395 - Advanced Special Topics**

Credits: 1.00 to 6.00



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## Graduate Courses in Business Administration (BSAD)

### 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 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.

Prerequisites: BSAD 251 and Instructor permission.

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 306.

Credits: 3.00

**BSAD 264 - Intro to Federal Taxation**

An introduction to US federal taxation as it applies to individuals and business entities including proprietorships, partnerships, C Corporations, S Corporations. Pre/co-requisites: BSAD 060 or BSAD 065 or BSAD 306, Jr. Standing.

Credits: 3.00

**BSAD 265 - Accounting Information Systems**

Examination of how accounting information is collected, stored and made available to decision makers with an emphasis on internal control implementation. Students obtain hands on experience with an integrated accounting software package.

Pre/co-requisites: BSAD majors/minors; Jr. stdg.; BSAD 60, 65 or 306.

Credits: 3.00

**BSAD 266 - Advanced Accounting**

Focuses on accounting for business combinations and developing consolidated financial statements. Includes accounting for foreign currency transactions, foreign subsidiaries, governmental entities, and not-for-profit organizations. Pre/co-requisite: BSAD 162.

Credits: 3.00

**BSAD 267 - Auditing**

Examination of auditing theory and practice. Topics include standards, ethics and legal responsibilities of the profession, audit planning, internal control, audit evidence and auditor communications. Pre/co-requisites: BSAD 162.

Credits: 3.00

**BSAD 268 - Cost Accounting**

Accounting for inventory valuation and income determination, nonroutine decisions, policy making and long-range planning. Prerequisites: BSAD 61, junior standing.

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 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. Pre/co-requisite: BSAD 180 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. Pre/co-requisites: Junior Standing; BSAD 180 or BSAD 308.

Credits: 3.00

**BSAD 288 - Finance Honors Seminar**

Application of financial theory to stock/bond valuation, credit analysis, security underwriting, or risk management. Students will complete projects assigned by major financial service firms. Pre/co-requisite: By Invitation.

Credits: 3.00

**BSAD 293 - Integrated Product Development**

Project-based course focusing on the entire product life cycle. Team dynamics, process and product design, quality, materials, management, and environmentally-conscious manufacturing. Prerequisite: Minimum Junior standing or Instructor permission. Cross-listed with: ME 265, STAT 265.

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 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 for developing and interpreting financial statements. Introduction to use of accounting information for planning, cost behavior, control, and decision making. 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 - Political Envir of Business**

Explore the rationale for government interaction with business. Analyze (1) business, and the broader society's demand for public policy, as well as (2) the political institutions that supply public policy in both domestic and international contexts. Pre/co-requisite: 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 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 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 357 - Analysis for Marketing Plan**

A post-introductory MBA marketing course that combines managerial and analytic approaches to gaining insight into customer attitudes and behaviors and improving market decision-making. Pre/co-requisites: BSAD 305; MBA standing.

Credits: 3.00

**BSAD 361 - Accounting Rsch, Reg & Ethics**

Students will research current financial reporting issues and regulatory requirements. Cases will emphasize the ethical responsibilities of professional accountants. Pre/co-requisites: BSAD 266 and MAcc standing.

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 384 - Financial Mrkts&Interest Rates**

Study of level and structure of interest rates. Topics: flow of funds accounting, market vs. natural rate of interest, interest rate structure, behavior of interest rates over business cycle. Prerequisite: MBA Standing.

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 - Strategy and Competition**

Integrative, capstone course concerned with issues and decisions facing senior executives directing entire enterprises. Students develop analytical skills surrounding industry analysis, strategy formulation, organizational design, and competitive dynamics. Pre/co-requisites: MBA Standing. Taken in last semester of study.

Credits: 3.00

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## Graduate 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, P BIO 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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## Graduate Courses in Chemistry (CHEM)

### **CHEM 201 - Advanced Chemistry Laboratory**

Discussion and laboratory experiments using spectroscopy techniques (mass spectrometry, NMR, IR, UV/visible, and atomic spectroscopy) to solve problems in analytical, physical, and inorganic chemistry. Prerequisite: CHEM 121, and CHEM 142 or CHEM 144. CHEM 161 strongly recommended.

Credits: 3.00

### **CHEM 202 - Advanced Chemistry Laboratory**

Laboratory problems requiring modern analytical, physical, and inorganic synthetic techniques. Journal article writing. Prerequisite: CHEM 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 synthesis and characterization. Kinetic models for polymerization and copolymerization. Physical properties, characterization of polymers in the solid state and in solution. Prerequisite: CHEM 142 or CHEM 144, and CHEM 162.

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. Prerequisite: CHEM 121. Credit for or concurrent enrollment in CHEM 161 or CHEM 162 strongly recommended.

Credits: 3.00

### **CHEM 223 - Mass Spectrometry**

An in-depth treatment of modern mass spectrometry, instrumentation and techniques with discussion of biological and chemical applications. Prerequisites: CHEM 142 or CHEM 144, and CHEM 221, or Instructor permission.

Credits: 3.00

### **CHEM 225 - Electroanalytical Chemistry**

Principles and techniques of modern electrochemical analysis and applications to redox chemistry. Heterogeneous effects; voltammetry; electron-transfer processes and reactions. Prerequisite: CHEM 221.

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 - Advanced Inorganic Chemistry**

Molecular symmetry and group theory with an emphasis on applications (vibrational and electronic spectra, bonding and reactivity); introduction to transition metal processes; bioinorganic chemistry. Prerequisites: CHEM 131.

Credits: 3.00

**CHEM 234 - Organometallic Chemistry**

Synthesis, structure, bonding, properties, reactions, and applications of organometallic systems; mechanisms of organometallic reactions including oxidative addition and insertion reactions with applications in catalysis.

Prerequisite: CHEM 131 or CHEM 231.

Credits: 3.00

**CHEM 236 - Physical Inorganic Chemistry**

Determination of molecular and electronic structure of inorganic complexes using spectroscopic techniques. Topics include ligand field theory, magnetism, magnetic resonance, Mossbauer spectroscopy, and X-ray crystallography. Prerequisites: CHEM 131 or CHEM 231; CHEM 161.

Credits: 3.00

**CHEM 237 - Special Topics: Inorganic**

Areas of current interest involving inorganic systems.

Credits: 3.00

**CHEM 238 - Special Topics: Inorganic**

Areas of current interest involving inorganic systems.

Credits: 3.00

**CHEM 241 - Advanced Organic Chemistry 1**

Stereochemistry, conformational analysis, stereoelectronic effects, transition state theory, molecular orbital theory, and reactivity criteria are discussed in regards to reaction mechanisms and functional group manipulations. Prerequisite: CHEM 142 or CHEM 144.

Credits: 3.00

**CHEM 242 - Advanced Organic Chemistry 2**

Modern synthetic organic methods and approaches to multi-step synthesis are discussed. Selected total syntheses are reviewed to highlight important concepts including diastereoselective and enantioselective processes. Prerequisite: CHEM 241.

Credits: 3.00

**CHEM 251 - Physical Organic Chemistry**

Experimental and computational techniques for determining and interpreting structure, properties and reactivity of organic molecules, with an emphasis on the mechanisms of organic reactions. Prerequisites: CHEM 142 or CHEM 144, CHEM 161, and CHEM 162 strongly recommended.

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**

Classical and statistical thermodynamics. Systematic study of applications of thermodynamics to chemical problems. Prerequisite: CHEM 161 and 162.

Credits: 3.00

**CHEM 264 - Adv Quantum & Spectroscopy**

In-depth theoretical discussion of molecular states, their symmetry, and transition probabilities. Explicit treatment of vibrations, electronic states, and vibronic spectroscopy. Prerequisites: CHEM 161 and MATH 121.

Credits: 3.00

**CHEM 267 - Special Topics: Physical**

Selected topics of current interest in physical chemistry.

Credits: 3.00

**CHEM 268 - Special Topics: Physical**

Selected topics of current interest in physical chemistry.

Credits: 3.00

**CHEM 285 - Special Topics**

Credits: 2.00

**CHEM 286 - Special Topics**

Credits: 2.00

**CHEM 291 - Undergraduate Research**

Research in chemistry in a faculty member's laboratory. Prerequisite: Departmental permission. Credit as arranged with maximum of four hours per semester and 12 hours total.

Credits: 3.00

**CHEM 318 - Current Topics in Chemistry**

Survey of current topics in the chemistry literature. Prerequisite: Graduate standing.

Credits: 0.00 or 1.00

**CHEM 380 - Chemical Investigations**

Current problems and literature.

Credits: 1.00

**CHEM 381 - Grad Seminar**

Current problems and literature.

Credits: 1.00

**CHEM 384 - Advanced Topics in Chemistry**

Comprehensive independent study in chemistry. Prerequisite: Permission of the Department.

Credits: 2.00

**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 484 - Advanced Topics in Chemistry**

Comprehensive independent study in chemistry. Prerequisite: Permission of the Department.

Credits: 2.00

**CHEM 488 - Rsch Prob Conception&Solution**

Independent origination of research problems and the methods of their solution. Prerequisite: Permission of Department.

Credits: 1.00

**CHEM 491 - Doctoral Dissertation Research**

Credits: 1.00

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## Graduate Courses in Civil & Environmental Engr (CE)

### 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, 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. Prerequisites: Senior/Graduate standing in Civil & Environmental Engineering or Instructor permission. Cross-listed with: CSYS 226.

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 or permission of instructor.

Credits: 3.00

### CE 245 - Intelligent Transportation Sys

Introduction to Intelligent Transportation Systems (ITS), ITS user services, ITS applications, the National ITS architecture, ITS evaluation, and ITS standards. Pre/co-requisites: CE 140 or equivalent; Instructor permission. Cross-listed with: CSYS 245.

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.

Prerequisite: CHEM 031 or CHEM 025; PHYS 031.

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: Chem 31 or 25, Physics 31.

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. Pre/co-requisites: CE 151, CE 154, or permission of Instructor.

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 or permission of instructor.

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, modeling, uniform and gradually-varied flows.

Prerequisite: CE 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: Math 121 or instructor's permission.

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. Cross-listed with: ME 270.

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 281 - Geotechnical Design**

Subsurface explorations; bearing capacity, lateral earth pressures, slope stability; analysis and design of shallow and deep foundations, retaining structures, and slopes. Pre/co-requisite: 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 359 - Appld Artificial Neural Ntwrks**

Introduction to artificial neural networks. A broad range of example algorithms are implemented in MATLAB. Research applications to real data are emphasized.

Pre/co-requisites: STAT 223, CS 016/CE 011, or Instructor permission. Cross-listed with: CSYS 359.

Credits: 1.00 to 3.00

**CE 361 - Fluvial Forms & Processes**

Advanced topics in fluvial forms and processes; focus on river and stream restoration and design; includes journal readings, discussion, field trips and group design project. Pre/co-requisites: CE 160 or Instructor permission.

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 367 - Phys Flow&Trs thru Porous Mdia**

The fundamental equations describing fluid flow and mass transport in subsurface systems are developed from first principles. Pre/co-requisite: CE 265 or equivalent.

Credits: 3.00

**CE 368 - Groundwater Modeling**

The fundamental theory of groundwater hydrology is combined with concepts in numerical methods to provide the technology needed to study a real-world groundwater problem. Pre/co-requisite: CE 265 and CE 220 or equivalent.

Credits: 3.00

**CE 369 - Applied Geostatistics**

Introduction to the theory of regionalized variables, geostatistics (kriging techniques): special topics in multivariate analysis; Applications to real data subject to spatial variation are emphasized. Pre/co-requisite: STAT 223 or STAT 225, CS 016/CE 011, or Instructor permission. Cross-listed with: CSYS 369, STAT 369.

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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## Graduate Courses in Classics (CLAS)

### **CLAS 295 - Advanced 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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## Graduate Courses in Clinical&Translational Science (CTS)

### CTS 301 - Design Clin&Translational Res

Seminar emphasizing the skills for designing and executing clinical and translational research. Pre/co-requisite: Graduate student, or Instructor permission.

Credits: 3.00

### CTS 305 - Cell To Society I

A two-semester seminar that addresses a medical issue from molecule to market. CTS students must take both semesters. Non-CTS students may take either semester independently. Pre/co-requisite: Graduate student, or Instructor permission.

Credits: 2.00

### CTS 306 - Cell To Society II

A two-semester seminar that addresses a medical issue from molecule to market. CTS students must take both semesters. Non-CTS students may take either semester independently. Pre/co-requisite: Graduate student, or Instructor permission.

Credits: 2.00

### CTS 310 - Conduct Clin&Translational Res

Seminar emphasizing the ethics and mechanics of clinical and translational research. Pre/co-requisite: Graduate student, or Instructor permission.

Credits: 3.00

### CTS 315 - Report Clin&Translational Res

Seminar emphasizing communication skills for writing, editing and presenting science. Pre/co-requisite: Graduate student, or Instructor permission. Credits:

3.00

**CTS 320 - Analyze Clin&Translational Res**

Seminar emphasizing basic and analytical skills for clinical and translational research. Pre/co-requisites: Graduate student, or Instructor permission.

Credits: 3.00

**CTS 325 - Multi Analysis Clin&Trans Res**

Introduction to multivariate regression; models that account for effects of multiple predictors on a single outcome, including linear and logistic regression and survival analysis. Pre/co-requisite: Graduate student, or Instructor permission.

Credits: 3.00

**CTS 340 - Medical & Exper Human Genetics**

Overview of medical genetics, including history, techniques and ethical, legal and social implications of genetic diseases and thier treatments. Pre/co-requisite: Graduate student, or Instructor permission.

Credits: 3.00

**CTS 345 - Genetic Approaches CV Disease**

Application of statistics, molecular biology, and genetics to the analysis of complex diseases such as asthma, hypertension and atherosclerotic heart disease. Pre/co-requisite: Graduate student, or Instruction permission.

Credits: 2.00

**CTS 391 - Master's Thesis Research**

Master's Thesis Research.

Credits: 1.00 to 18.00

**CTS 395 - ST in Clin & Translational Res**

Special topics in Clinical and Translational Research. Pre/co-requisite: Graduate student, or Instructor permission.

Credits: 6.00

**CTS 491 - Doctoral Dissertation Research**

Doctoral Dissertation Research. Credit as arranged.

Credits: 6.00

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## Graduate Courses in Cmty Dev & Apld Econ (CDAE)

### **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 218 - Community Org & Development**

The roles of forms of community capital, civic engagement, leadership, social and political institutions, and communities of place and interest in a community development context. Pre/co-requisites: Junior standing; CDAE 112, or permission.

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. Examples include land use, sustainable agriculture and green business. Prerequisites: 61 or equivalent, or permission.

Credits: 3.00

### **CDAE 238 - Ecological Landscape Design**

Studio course synthesizing work from fields of landscape ecology and landscape

design, exploring ecological design alternatives at multiple scales, and developing multifunctional landscape solutions. Pre/co-requisites: Minimum junior standing, at least design course, at least one course in ecology, or permission. Cross-listings: CDAE 238, ENVS 238, NR 238.

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 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: 3.00

**CDAE 266 - Dec Making:Comm Entrepreneurs**

Quantitative decision-making methods and applications for community entrepreneurs. 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:Comm Entrepreneurs**

Applications of marketing, finance, and management strategies. Drafting a simulated business plan for community entrepreneurs and economic development. Prerequisites: CENT majors or minors, or 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 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 326 - Community Economic Development**

Examines how rural and urban communities address poverty, unemployment and other economic problems through job creation and retention, workforce training and support, and other development strategies. Cross-listed with: PA 326.

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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## Graduate Courses in Communication Sciences (CMSI)

### **CMSI 208 - Cognition & Language**

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: PSYC 109, 161 or instructor permission. Cross-listed: PSYC 208.

Credits: 3.00

### **CMSI 271 - Introduction to Audiology**

Survey of hearing and the nature and causes of hearing impairment. Includes an orientation to assessment procedures and rationales, hearing screening and counseling considerations. Prerequisite: CMSI 101.

Credits: 3.00

### **CMSI 272 - Hearing Rehabilitation**

Examination of the impact of hearing loss on development and its overall effects on communication. Survey of management considerations, sensory devices, speech reading, and auditory training. Prerequisites: CMSI 271.

Credits: 3.00

### **CMSI 274 - D2: Culture of Disability**

Focus on theoretical questions of how societies understand disability and its consequences for social justice, by examining the biological, social, cultural, political, and economic determinants in the societal construction of disability. Prerequisites: Junior, Senior or graduate standing. Cross-listing: EDSP 274.

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: Graduate standing, or Undergraduate by instructor 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.

Credits: 3.00

**CMSI 296 - Advanced Special Topics**

UG only.

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 - Intrdsc Sem Neurodev Disabil I**

Seminar exploring interdisciplinary process, collaborative teaming, cultural competence and family-centered care as they relate to children and families affected by neurodevelopmental and related disabilities. Pre/co-requisites: Permission of Instructor. Cross-listings: EDSP 295, GRNU 296, PSYC 380, MVSR 381, SWSS 380.

Credits: 3.00

**CMSI 312 - Intrdsc Sem Neurodev Disabil 2**

Seminar exploring interdisciplinary process, collaborative teaching, cultural competence and family-centered care as they relate to children and families affected by neurodevelopmental and related disabilities. Pre/co-requisites: Permission of Instructor. Cross-listings EDSP 295, GRNU 296, PSYC 380, MVSR 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 375 - 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. Prerequisite: Admission to CMSI graduate program or by permission of the instructor.

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 and oral language and literacy connections. Prerequisite: CMSI 080, CMSI 094, instructor permission or Graduate standing.

Credits: 3.00

**CMSI 384 - Spch Snd Disorders in Children**

Etiology, diagnosis, pathology, and habilitation and rehabilitation of articulation of speech. Prerequisite: CMSI 090 or equiv.

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: CMSI 101 or instructor 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 080, CMSI 094, CMSI 164.

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, admission to CMSI graduate program.

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 - NonThesis/CasePresentationRsch**

Credits: 1.00 to 6.00

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## Graduate Courses in Complex Systems (CSYS)

### CSYS 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 CSYS 205 may not receive credit for CSYS 208 or CSYS 209. Cross-listed with: CS 205.

Credits: 3.00

### CSYS 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: CS 103 or CS 123; CS 104 or CS 124; STAT 153 or equivalent. Cross-listed with: CS 251.

Credits: 3.00

### CSYS 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 MATH 271; STAT 153 or equivalent; computer programming. Cross-listed with: STAT 256, CS 256.

Credits: 3.00

### CSYS 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. Co-requisite: CSYS 271 or CSYS 230 or Instructor permission Cross-listed with: MATH 266.

Credits: 3.00

### **CSYS 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: CSYS 124, CSYS 230; or Instructor permission. Cross-listed with: MATH 268.

Credits: 3.00

### **CSYS 300 - Principles of Complex Systems**

Introduction to fundamental concepts of complex systems. Topics include: emergence, scaling phenomena and mechanisms, multi-scale systems, failure, robustness, collective social phenomena, complex networks. Students from all disciplines welcomed. Pre/co-requisites: calculus and statistics required; Linear algebra, differential equations, and computer programming recommended but not required. Cross-listed with: MATH 300.

Credits: 3.00

### **CSYS 302 - Modeling Complex Systems**

Integrative breadth-first introduction to computational methods for modeling complex systems; numerical methods, cellular automata, agent-based computing, game theory, genetic algorithms, artificial neural networks, and complex networks. Pre/co-requisites: Computer programming in any language; calculus. Linear algebra recommended. Cross-listed with: CS 302.

Credits: 3.00

### **CSYS 303 - Complex Networks**

Detailed exploration of distribution, transportation, small-world, scale-free, social, biological, organizational networks; generative mechanisms; measurement and statistics of network properties; network dynamics; contagion processes. Students from all disciplines welcomed. Pre/co-requisites: MATH 301/CSYS 301, calculus, and statistics required. Cross-listed with: MATH 303.

Credits: 3.00

### **CSYS 350 - Multiscale Modeling**

Computational modeling of the physics and dynamical behavior of matter composed of diverse length and time scales. Molecular simulation. Coarse-graining. Coupled atomistic/continuum methods. Cross-listed with: ME 350.

Credits: 3.00

### **CSYS 352 - Evolutionary Computation**

Theory and practice of biologically-inspired search strategies including genetic algorithms, genetic programming, and evolution strategies. Applications include optimization, parameter estimation, and model identification. Significant project. Students from multiple disciplines encouraged. Pre/co-requisites: Familiarity with programming, probability, and statistics. Cross-listed with: BIOL 352, CS 352.

Credits: 3.00



### **CSYS 359 - Appld Artificial Neural Ntwrks**

Introduction to artificial neural networks. A broad range of example algorithms are implemented in MATLAB. Research applications to real data are emphasized.

Pre/co-requisites: STAT 223, CS 016/CE 011, or Instructor permission. Cross-listed with: CE 359.

Credits: 3.00

### **CSYS 369 - Applied Geostatistics**

Introduction to the theory of regionalized variables, geostatistics (kriging techniques): special topics in multivariate analysis; Applications to real data subject to spatial variation are emphasized. Pre/co-requisites: STAT 223 or STAT 225; CS 016/CE 011 or Instructor permission. Cross-listed with: CE 369, STAT 369.

Credits: 3.00

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## Graduate Courses in Computer Science (CS)

### 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: CS 101 or CS 121; CS 104 or CS 124.  
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: CS 103 or CS 123; CS 243.  
Credits: 3.00

### CS 204 - Database Systems

Techniques for processing very large collections of data. Secondary storage. Database design and management. Query languages and optimization. Database recovery. Prerequisite: CS 104 or CS 124.  
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 participation in a team project. Students who receive credit for CS 205 may not receive credit for CS 208 or CS 209. Prerequisite: CS 104 or CS 124. Cross-listed with: CSYS 205.  
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 CS 205 and CS 208. Prerequisite: CS 104 or CS 124.

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 CS 205 and CS 209. Prerequisite: CS 104 or CS 124.

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: CS 101 or CS 121.

Credits: 3.00

### **CS 224 - Analysis of Algorithms**

Introduction to both analytical and experimental techniques in algorithm analysis. Basic algorithm design strategies. Introduction to computational complexity theory. Prerequisites: CS 104 or 124, Math 173 recommended.

Credits: 3.00

### **CS 228 - Human-Computer Interaction**

The design, implementation, and evaluation of user interfaces for computers and other complex, electronic equipment. Includes a significant project. Pre/co-requisites: Programming experience and Junior standing or Instructor permission.

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 or 110, 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: CS 104 or 124. (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: CS 103 or CS 123; CS 104 or CS 124; STAT 153 or equivalent. Cross-listed with: CSYS 251.

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 MATH 271; STAT 153 or equivalent; computer programming. Cross-listed with: STAT 256, CSYS 256.

Credits: 3.00

### **CS 260 - Parallel Computing**

Taxonomy of parallel computers, basic concepts for parallel computing, effectiveness and scalability, parallel algorithms for variety of problems, distributed memory and shared memory paradigms. Prerequisite: CS 104 or CS 124, or Instructor permission.

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: CS 101 or 121, STAT 153 or equivalent.

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. Prerequisite: CS 104 or CS 124.

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: CS 104 or CS 124, MATH 124 or MATH 271, recommended.

Credits: 3.00

### **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 302 - Modeling Complex Systems**

Integrative breadth-first introduction to computational methods for modeling complex systems;numerical methods, cellular automata, agent-based computing, game theory, genetic algorithms, artificial neural networks, and complex networks. Pre/co-requisites: Computer programming in any language, calculus. (Linear algebra recommended). Cross-listed with: CSYS 302.

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.

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 352 - Evolutionary Computation**

Theory and practice of biologically-inspired search strategies, including genetic algorithms, genetic programming, and evolution strategies. Applications include optimization, parameter estimation, and model identification. Significant project. Students from multiple disciplines encouraged. Pre/co-requisites: Familiarity with programming, probability, and statistics. Cross-listed with: BIOL 352, CSYS 352.  
Credits: 3.00

**CS 355 - Statistical Pattern Recognitn**

Analysis of algorithms used for feature selection, density estimation, and pattern classification, including Bayes classifiers, maximum likelihood, nearest neighbors, kernels, discriminants, neural networks, and clustering. Prerequisite: STAT 241 or STAT 251 or Instructor permission. Cross-listed with: STAT 355, CSYS 355.  
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 392 - Master's Project**

Prerequisite: Department permission.  
Credits: 3.00

**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**

Credit as arranged.  
Credits: 6.00

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## Graduate 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 CnsIng**

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 - Counseling Practicum**

Introductory supervised experience in counseling in a field setting. Includes 100 hours working as a counselor with a minimum of 40 hours of direct counseling experience. Prerequisites: Counseling Majors or Permission, EDCO 220, EDCO 350, EDCO 374, EDCO 375 (School and Mental Health tracks) EDCO 361 (Mental Health track)

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 - Addictions Counseling**

Development and culturally responsive treatment of addictions, e.g., Motivational Interviewing, family systems, Cognitive Behavioral Therapy (CBT) techniques, recovery maintenance, and an integrative approach to treatment. Prerequisite: Counseling majors or Instructor 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 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: Theory and Practice**

Group leadership skills are developed, practiced, and refined through in-class and laboratory experiences that focus on live group supervision, theory, feedback exchange, and ethical issues. Prerequisites: EDCO 220, EDCO 374, EDCO 375, EDCO 377, EDCO 392 and permission of the Instructor.

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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## Graduate Courses in Curriculum & Instruction (EDCI)

### EDCI 200 - Contemporary Issues

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Pre/co-requisite: twelve hours in Education and related areas.

Credits: 6.00

### EDCI 238 - Teach'g 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

### EDCI 261 - Current Direction in C&I

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

### EDCI 295 - Laboratory Experience in Educ

Supervised fieldwork designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

Credits: 3.00

### EDCI 296 - Laboratory Experience in Educ

Supervised fieldwork designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of

Professional Laboratory Experiences.

Credits: 1.00 to 6.00

**EDCI 333 - Curr Concepts/Planning/Develop**

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

**EDCI 363 - Analysis of Curr & Instruc Sem**

A case study of the design, implementation, and evaluation of selected curricular and instructional improvements. Prerequisite: Ed.D. students have priority.

Credits: 3.00

**EDCI 391 - Master's Thesis Research**

Thesis topic must be approved by a faculty committee. Credit as arranged.

Credits: 1.00 to 12.00

**EDCI 397 - Problems in Education**

Individual work on a research problem selected by the student in consultation with a staff member. Pre/co-requisites: Twelve hours in Education and related areas; endorsement by a sponsoring faculty member.

Credits: 3.00

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## Graduate Courses in Early Childhood Pre K-3 (EDEC)

### EDEC 397 - Problems in Education

Credits: 1.00 to 6.00



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## Graduate Courses in Early Childhood Special Educ (ECSP)

### ECSP 200 - Contemporary Issues

Credits: 3.00

### ECSP 202 - Introduction to EI/ECSE

Characteristics, educational interventions, and overview of systems for young children (0-6 years of age) with diverse abilities and their families. Pre/co-requisites: ECSE Majors need to have completed EDEC 189.

Credits: 3.00

### ECSP 210 - Curriculum in EI/ECSE

Designing and implementing services and supports for young children with diverse abilities. Topics include IEP/IFSP, embedding instruction, family-centered, and inclusion. three credits, four credits with 30-hour field experience. Pre/co-requisites: ECSP 202 and ECSP 211. Cross-listed with: ECSP 310.

Credits: 4.00

### ECSP 211 - Assessment in EI/ECSE

Overview of the strengths and limitations of traditional and nontraditional assessments; legal responsibilities, eligibility, family, and cultural aspects. three credits, four credits with 30-hour field experience. Pre/co-requisite: Completion or co-enrollment in ECSP 202 for undergraduates. Cross-listed with: ECSP 311.

Credits: 4.00

### ECSP 295 - Lab Experience in Education

Undergraduate only.

Credits: 3.00

### ECSP 310 - Curriculum in EI/ECSE

Designing and implementing services and supports for young children with diverse

abilities. Topics include IEP/IFSP, embedding instruction, family-centered, and inclusion (30 hour field experience). Pre/co-requisite: ECSP 202 and ECSP 201. Cross-listed with: ECSP 210.  
Credits: 3.00

**ECSP 311 - Assessment in EI/ECSE**

Overview of the strengths and limitations of traditional and nontraditional assessments; legal responsibilities, eligibility, family, and cultural aspects (30-hour practicum). Pre/co-requisite: Completion or co-enrollment in ECSP 202. Cross-listed with: ECSP 211.  
Credits: 3.00

**ECSP 382 - Teaching Internship**

Undergraduate only.  
Credits: 3.00 to 8.00

**ECSP 386 - Internship: EI/ECSE**

Semester-long internship in an early intervention and/or early childhood special education setting. Pre/co-requisite: ECSP 310, ECSP 311, EDSP 217, EDSP 301, or Instructor permission.  
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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## Graduate Courses in Economics (EC)



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## Graduate Courses in Education (EDSS)

### 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 208 - The Mass Media as Educator

Analysis and assessment of the mass media's teachings about reality and worth and how to live our lives individually and collectively. Appropriate for non-education students. Pre/co-requisites: Junior standing for undergraduates; also can be taken for Graduate credit.

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 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 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 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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## Graduate Courses in Electrical Engineering (EE)

### 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 212 - Computer Vision

Introduction to computer vision systems for interactive and industrial applications using both hard/software computational approaches. Pre/co-requisites: MATH 124 or MATH 271 and CS 026, or Instructor permission. Cross-listing: CS 212.

Credits: 3.00

### EE 214 - Ubiquitous Cmptg & Interaction

Introduction to human computer interaction in the area of sensory intelligence with concentration to biofeedback, biometric analysis, human factor, wearable computing, mixed reality, and graphical user interfaces. Pre/co-requisites: CS 026;

Senior/Graduate standing in Engineering, Math, or Computer Science; Instructor permission.

Credits: 3.00

**EE 216 - Sensory based robotics**

Introduction to broad aspects on modern robotics, including industrial robotic hand, humanoid robot, personal robot, mobile robot, and entertainment robot. Pre/co-requisites: Senior/Graduate standing in Engineering, Mathematics, or Computer Science; Instructor permission.

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/co-requisites: EE 131, EE 163, EE 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 I**

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: EE 121, EE 131.

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: EE 131.

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 - Stochastic Processes**

Probability theory, random variables, and stochastic processes. Response of linear systems to random inputs. Applications in electrical engineering. Prerequisites: EE 171 and STAT 151. Cross-listed with: STAT 270.

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 143 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. Cross-listing: Math 278.

Credits: 3.00

**EE 275 - Digital Signal Processing**

Sampling and reconstruction of signals. DFT, FFT and the z-transform. FIR and IIR filter design. Speech coding. Accompanying lab: EE 289. Pre/co-requisites: EE 171; Instructor permission.

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 278 - Wireless Communication Systems**

Modern wireless systems, including cellular design, propagation modeling, multiple access and equalization techniques. Pre/co-requisites: Pre: EE 174 and (EE 270 or STAT 143 or STAT 151 or STAT 153)

Credits: 3.00

**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 295 - Special Topics**

Special topics in developing areas of Electrical Engineering. Prerequisites: Senior standing; or Instructor permission.

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 - Optoelectronic Devices**

Optical and electro optical properties of semiconductors. Applications to photodetectors, solar cells, light emitting diodes and lasers. Prerequisites: EE 142, EE 261.

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 - ST: Communcation Systems**

Advanced topics of current interest in communication systems. Topics may include channel coding/decoding, software radio, ad-hoc networks, wireless systems, etc. Prerequisite: EE 273 or Permission.

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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## Graduate Courses in Elementary Education (EDEL)

### 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 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 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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## Graduate Courses in Engineering (ENGR)

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## Graduate Courses in Engineering Management (EMGT)



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## Graduate Courses in English (ENGS)

### ENGS 201 - Sem Engl Lang or Critical Thry

Recent topics: "Origins and Development of the English Language;" "Re-disciplining the History of Literature and Prerequisites: 86, 6 hours at the intermediate level, and instructor permission

Credits: 3.00

### ENGS 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." Prerequisite: ENGS 086; six hours at the intermediate level; Instructor permission.

Credits: 3.00

### ENGS 211 - Sem in Composition & Rhetoric

Recent topics: "Writing the New Yorker;" "Writing Vermont Life;" "Editing and Publishing." Prerequisite: ENGS 086; six hours at the intermediate level; Instructor permission.

Credits: 3.00

### ENGS 212 - Sem in Composition & Rhetoric

Recent topics: "Writing the New Yorker;" "Writing Vermont Life;" "Editing and Publishing." Prerequisite: ENGS 086; six hours at the intermediate level; and Instructor permission.

Credits: 3.00

### ENGS 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." Prerequisite: ENGS 086; six hours at the intermediate level; Instructor permission.

Credits: 3.00

**ENGS 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."

Prerequisite: ENGS 086; six hours at the intermediate level; Instructor permission.

Credits: 3.00

**ENGS 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." Prerequisite: ENGS 086; six hours at the intermediate level; Instructor permission.

Credits: 3.00

**ENGS 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." Prerequisite: ENGS 086; six hours at the intermediate level; Instructor permission.

Credits: 3.00

**ENGS 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." Prerequisite: ENGS

086; six hours at the intermediate level; Instructor permission.

Credits: 3.00

**ENGS 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." Prerequisite: ENGS

086; six hours at the intermediate level; Instructor permission.

Credits: 3.00

**ENGS 281 - Sem Lit Themes, Genres, Folklore**

Recent topics: "Spiritual Journeys;" "Murder, He Said: Detective Fiction;"

"Chekhov to Cheever: The Short Story." Prerequisite: ENGS 086; six hours at the intermediate level; Instructor permission.

Credits: 3.00

**ENGS 282 - Sem Lit Themes, Genres, Folklore**

Recent topics: "Spiritual Journeys;" "Murder, He Said: Detective Fiction;"

"Chekhov to Cheever: The Short Story." Prerequisite: ENGS 086; six hours at the intermediate level; Instructor permission.

Credits: 3.00



**ENGS 295 - Advanced Special Topics**

Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 6.00

**ENGS 296 - Advanced Special Topics**

Prerequisites: 86, 6 hours at the intermediate level, and instructor permission.

Credits: 3.00

**ENGS 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

**ENGS 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

**ENGS 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

**ENGS 345 - Practicum in Teaching Writing**

Introduces new graduate teaching assistants in English to best practices in teaching college composition and provides support for their first semester teaching ENGS 001. Prerequisites: Admission to English Graduate program; appointment to a Graduate teaching assistantship; permission of Instructor or English department Graduate advisor.

Credits: 3.00

**ENGS 350 - Surv of Lit Theory & Criticism**

Theory and Criticism.

Credits: 3.00

**ENGS 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

**ENGS 370 - Principles of Literary Rsch**

Methods of literary study, research, and scholarship, including bibliographic,

manuscript, and archival work.

Credits: 3.00

**ENGS 391 - Master's Thesis Research**

Credits: 6.00

**ENGS 392 - Seminar Paper Review**

Credits: 0.00

**ENGS 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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## Graduate Courses in Environmental Sciences (ENSC)

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## Graduate Courses in Environmental Studies (ENVS)

### **ENVS 238 - Ecological Landscape Design**

Studio course synthesizing work from fields of landscape ecology and landscape design, exploring ecological design alternatives at multiple scales, and developing multifunctional landscape solutions. Pre/co-requisites: Minimum junior standing, at least design course, at least one course in ecology, or permission. Cross-listings: CDAE 238, ENVS 238, NR 238.

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

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## Graduate Courses in Forestry (FOR)

### 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 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 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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## Graduate Courses in Foundations (EDFS)

### 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 207 - Traditionalist Education**

Perspectives on schooling at all levels directed at preserving and extending a heritage (cultural, racial, ethnic, religious, regional, national), or promoting individual freedom, character, or academic excellence. Selected topics, Instructor choice. Prerequisite: Junior standing. Also for Graduate credit.

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 - D1:Chall Multicult/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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## Graduate Courses in French (FREN)

### FREN 235 - Medieval/Renaissance Studies

Exploration of writing from Medieval/Renaissance France. Readings to include chivalric romances, heroic and comic epic, lyric poetry, tales by Marguerite de Navarre, essays by Montaigne. Prerequisites: 111 or 112.

Credits: 3.00

### FREN 237 - Early French Women Writers

Exploration of how women from the Middle Ages through the Revolution spoke of love, education, the place of women, the power of writing and more. Prerequisites: 111 or 112.

Credits: 3.00

### FREN 247 - Power/Desire in Class Fr Drama

How dramatists like Corneille, Moliere and Racine used history, legend and satire to explore questions of tyranny, freedom, passion, generosity, hypocrisy, truthfulness and more. Prerequisites: 111 or 112.

Credits: 3.00

### FREN 256 - Enlightenment Society Reimagined

How did 18C writers use the representation of social hierarchy, gender relations, the exotic, etc., to (re-)define French culture on the eve of the Revolution?

Prerequisites: 111 or 112.

Credits: 3.00

### FREN 265 - Romanticism and Symbolism

Exploration of the idealistic tradition in 19th century French poetry and novels. Authors may include Constant, Chateaubriand, Stael, Hugo, Flaubert, Baudelaire, Verlaine, Mallarme. Prerequisites: 111 or 112.

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: 111 or 112.

Credits: 3.00

**FREN 269 - La Belle Epoque**

The aesthetic and moral dilemmas of the turn-of-the-century "decadent" period in French literature, focusing especially on the changing representation of the artist and intellectual. Prerequisites: 111 or 112.

Credits: 3.00

**FREN 270 - Lyric Poetry:Harmony & Crisis**

A consideration of the French lyric tradition. Authors may include the troubadours, Ronsard, Dubellay, Hugo, Baudelaire , Mallarme, Rimbaud, Valery, Roubaud. Prerequisites: 111 or 112.

Credits: 3.00

**FREN 275 - Morality&ItsDiscontents-20C Lt**

20C French authors who challenge traditional notions of morality or advance new modes of philosophical thought and ethics. May include Colette, Gide, Malraux, Beauvoir, others. Prerequisites: 111 or 112.

Credits: 3.00

**FREN 276 - Topics in Modern French Lit**

Selected topics dealing with poetry and/or narrative related either to an historical period or a literary movement. Prerequisites: 111 or 112.

Credits: 3.00

**FREN 280 - Francophone Crossings**

Study of works in French that demonstrate multiple cultural influences. Topics may include: exile writings, cultural/linguistic mixing, colonialism and independence movements, human rights, immigration. Prerequisites: 111 or 112.

Credits: 3.00

**FREN 285 - Quebec Literature**

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 - D2:African Lit: French Express**

Study of West African poetry, theatre, novel, and civilization as an expression of the Black experience in the language of the French colonizer. Prerequisites:111 or 112.

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 294 - Topics in French Cinema**

A topical approach to the study of French cinema and cinematographic aesthetics, from the medium's beginnings through contemporary films. Pre/co-requisites: 111 or 112.

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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## Graduate Courses in Geography (GEOG)

### **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**

Analysis of regional climatology, paleoclimatology, hydroclimatological hazards, or fluvial geomorphology. Topics include droughts, severe weather, climate change,

floods and floodplain management, mountain and lowland rivers. Pre/co-requisites: Geography 40 or 143 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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## Graduate Courses in Geology (GEOL)

### 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 217 - Vermont Field Geology

Field observations of rocks and surficial materials across northern Vermont are utilized to decipher the region's geologic history. Reading complement field work. Pre/co-requisites: Graduate student standing.

Credits: 4.00

### 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.

Prerequisite: CHEM 031, CHEM 032.

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: GEOL 101, GEOL 110.

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. Prerequisite: GEOL 101, GEOL 110, PHYS 011, or Instructor 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.

Prerequisite: GEOL 101, GEOL 110, or Instructor 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 335 - Aqueous Environmental Geochem**

This course focuses on the chemical equilibrium and kinetics principles governing water chemistry, including water interaction with the atmosphere, microbes and minerals. Prerequisite: Graduate standing.

Credits: 3.00

**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 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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## Graduate Courses in German (GERM)

### 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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## Graduate Courses in Graduate (GRAD)

### **GRAD 385 - Master's Language Examination**

Required for all master's degree students during semester in which examination will be completed.

Credits: 0.00

### **GRAD 395 - Advanced Special Topics**

Credits: 1.00

### **GRAD 397 - Master's Comprehensive Exam**

Required for all master's degree students during semester in which comprehensive will be completed.

Credits: 0.00

### **GRAD 399 - Thesis Defense**

Required for all master's degree candidates during semester in which defense is scheduled.

Credits: 0.00

### **GRAD 485 - Doctoral Language Examination**

Required for all doctoral degree students during semester in which examination will be completed.

Credits: 0.00

### **GRAD 497 - Doctoral Comprehensive Exam**

Required for all doctoral degree students during semester in which comprehensive will be completed.

Credits: 0.00

### **GRAD 499 - Dissertation Defense**

Required for all doctoral degree candidates during semester in which defense is scheduled.

Credits: 0.00

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## Graduate Courses in Graduate Medical (GRMD)

### GRMD 353 - Medical Cell & Molec Biology

Fundamental vocabulary, concepts, and methods of molecular genetics, cell physiology, biochemistry and metabolism including cell-cell and cell-environment communication, cell proliferation and cell death. Pre/co-requisite: Graduate standing; permission of the Instructor; six credits coursework, plus two credits lab in Biology, general chemistry, organic chemistry and Physics.

Credits: 3.00

### GRMD 354 - Medical Human Struc & Fncion

Combination of gross anatomy, histology, embryology, physiology and medical imaging to present an integrated overview of the human body. Pre/co-requisites: Graduate standing; Instructor permission; six credits coursework, plus two credits lab in Biology, general chemistry, organic chemistry and Physics; graduate coursework in Cell Biology or Biochemistry.

Credits: 6.00

### GRMD 355 - Medical Attacks & Defenses

Principles of hematology, immunology, microbiology, toxicology, pathology, pharmacology, and neoplasia as a foundation to pathophysiology and therapeutics. Pre/co-requisite: Graduate standing; Instructor permission; six credits coursework plus two credits lab in Biology, general chemistry, organic chemistry and Physics; graduate coursework in Cell Biology or Biochemistry and Anatomy & Physiology.

Credits: 4.00

### GRMD 356 - Medical Nutr, Metab, & GI Syst

Organizes studies in nutrition, organ systems metabolism and the gastrointestinal and endocrine systems through integrated lessons in cell biology, biochemistry, normal and pathologic anatomy, pharmacology, physiology, pathophysiology and

microbiology. Pre/co-requisite: Graduate standing; permission of the Instructor; six credits coursework, plus two credits lab in Biology, Anatomy & Physiology, and an introduction to immunology, microbiology, toxicology, pathology and pharmacology.

Credits: 5.00

### **GRMD 357 - Medical Neural Science**

Organize study of the human nervous and behavioral system through lessons that integrate cell metabolism, endocrinology, normal and pathologic anatomy, pharmacology, physiology, pathophysiology and psychopathology. Pre/co-requisite: Graduate standing; permission of the Instructor; six credits coursework plus two credits lab in Biology, general chemistry, organic chemistry and Physics; Graduate coursework in Cell biology or Biochemistry, human anatomy & physiology, and an introduction to immunology, microbiology, toxicology, pathology and pharmacology.

Credits: 6.00

### **GRMD 358 - Medical Connections**

Introduction to musculoskeletal and integumentary systems that integrates cell metabolism, endocrinology, normal and pathologic anatomy, physiology and pathophysiology, and pharmacology. Pre/co-requisite: Graduate standing; Instructor permission; six credits coursework plus two credits lab in biology, general chemistry, organic chemistry and physics; graduate coursework in cell biology or biochemistry, human anatomy and physiology, and an introduction to immunology, microbiology, toxicology, pathology, and pharmacology.

Credits: 1.00

### **GRMD 359 - Medical Cardio,Resp,Renal Syst**

Organizes studies in the cardiovascular, respiratory and renal system through lessons that integrate cell metabolism, endocrinology, normal and pathologic anatomy, pharmacology, physiology and pathophysiology. Pre/co-requisite: graduate standing; permission of the Instructor; six credits coursework plus two credits lab in biology or biochemistry, human anatomy and physiology, and an introduction to immunology, microbiology, toxicology, pathology and pharmacology.

Credits: 6.00

### **GRMD 360 - Medical Generations**

Organizes studies in reproduction, development and aging through lessons that integrate behavioral development, cell and molecular biology, endocrinology, normal and pathologic anatomy, pharmacology, physiology and pathophysiology. Pre/co-requisite: Graduate standing; permission of the Instructor; six credits coursework plus two credits lab in biology, general chemistry, organic chemistry and physics; graduate coursework in cell biology or biochemistry, human anatomy and physiology, and an introduction to immunology, microbiology, toxicology, pathology and pharmacology.

Credits: 5.00

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## Graduate Courses in Graduate Nursing (GRNU)

### GRNU 300 - Research:Adv Practice Nursing

This course focuses on understanding the research process and methodologies appropriate to nursing. Emphasis is on the synthesis of the body of health-related research to initiate change and improve nursing practice. An underlying theme is the role of the advanced-practice nurse for incorporating evidence-based practice. Prerequisite: Undergraduate Statistics.

Credits: 3.00

### GRNU 301 - Adv Prac Nursing:Prof Dev&Soc

In this course, the role dimensions of advanced practice nursing are analyzed. The advanced practice nursing role in the context of a dynamic, complex health care system is examined. The process of role development is explored and professional and role resocialization is initiated.

Credits: 3.00

### GRNU 302 - Professional Nursing Issues

Issues affecting nursing practice provide framework for examination of and socialization into professional nursing. The historical, legal, ethical, cultural, structural, and economic aspects of nursing practice will be explored. Prerequisite: Admission to MEPN program. Co-requisite: GRNU 311, GRNU 322.

Credits: 2.00

### GRNU 303 - Drug Therapy & Nursing Prac

Pharmacology and pharmacotherapeutics will be applied to nursing practice with a focus on pharmacodynamics, pharmacokinetics, indications, adverse effect, drug interactions, safe Administration and patient education. Prerequisites: GRNU 302, GRNU 311, GRNU 322;Corequisites: GRNU 312, GRNU 314, GRNU 316. Credits:

3.00

**GRNU 304 - Drug Therapy:Select Populatns**

A focus on key issues associated with drug therapy for children, the elderly, individuals with mental health disorders, and people with chronic disease.

Prerequisite: GRNU 303, GRNU 312, GRNU 314, GRNU 316; Co-requisite: GRNU 313, GRNU 317, GRNU 318, GRNU 319, GRNU 321, GRNU 329.

Credits: 1.00

**GRNU 305 - Pathophysiology**

Focus on physiologic and pathophysiologic aspects of disease. Emphasis on biochemical mechanisms associated with selected disease states which occur across the lifespan. Prerequisite: RN license

Credits: 3.00

**GRNU 306 - Pharmacotherapeutics I**

Indepth examination of the pharmacokinetics and pharmacodynamics of select drugs. Attention to and ethical and legal standards of prescriptive authority. First section of a 2-semester course. Prerequisites: 305 strongly recommended.

Credits: 3.00

**GRNU 307 - Pharmacotherapeutics II**

Continuation of GRNU 306. Indepth examination of the pharmacokinetics and pharmacodynamics of select drugs. Attention to ethical and legal standards of prescriptive authority. Prerequisite: GRNU 306.

Credits: 2.00

**GRNU 308 - Family Thry Perspectives:APRNs**

Focus on assessment of family health within the context of culture and development across the lifespan. Socioeconomic, demographic, and political influences will be examined. Prerequisite: GRNU 310.

Credits: 3.00

**GRNU 309 - Adv Prac Nsg Psychophrm**

This course prepares Advance Practice Nurses to prescribe psychopharmacologic medications as a facet of their interdisciplinary role. Topics examined in depth include: psychopharmacologic principles, psychiatric diagnoses, advanced practice nursing interventions, legal and ethical implications of treatment. Case study analysis is used to apply the nursing process.

Credits: 3.00

**GRNU 310 - Theoretical Foundation:Nursing**

Analysis and exploration of the concepts and theories in nursing, and those relevant to advanced practice nursing with emphasis on the relationship between theory and practice. Pre/co-requisite: RN license.

Credits: 3.00

**GRNU 311 - Clinical Nutrition and Nursing**

Self-directed learning module focused on role of nutrition in health, and management of health conditions with emphasis on clinical implications of nutritional imbalances. Prerequisite: Admission to MEPN program. Co-requisite: GRNU 302, GRNU 322.

Credits: 1.50

### **GRNU 312 - Biomedical Science I**

Human physiology and principles of biochemistry provide foundation for understanding genetic and acquired pathophysiological conditions in the cardiovascular, endocrine, gastrointestinal, nervous, renal, and respiratory systems. Prerequisites: GRNU 302, GRNU 311, GRNU 322. Co-requisites: GRNU 303, GRNU 314, GRNU 316.

Credits: 4.00

### **GRNU 314 - Sci of Nsg:Adults & Elders**

Identification and treatment of human responses to pathophysiological problems in adults with acute, chronic, or terminal conditions, with principles of general acute nursing practice emphasized. Prerequisites: GRNU 302, GRNU 311, GRNU 322. Co-requisite: GRNU 303, GRNU 312, GRNU 316.

Credits: 4.00

### **GRNU 315 - Pol, Org & Fin Health Care**

This core course provides an overview of health care policies, organizational structures, and financing systems germane to advanced nursing practice nursing. These concepts will be examined from economic, social, ethical, political, and global perspectives. Contemporary health care organizations and policies will be analyzed with respect to concepts and principles of change theory, ethical decision making, policy processes and analysis. Financing of health care systems, with emphasis on the advanced practice nursing role, will also be examined. Instructor permission.

Credits: 3.00

### **GRNU 316 - Practicum:Adults & Elders**

An initial experience in the nursing lab will be followed with a supervised clinical nursing practicum of adults with acute, chronic, or terminal conditions.

Prerequisites: GRNU 302, GRNU 311, GRNU 322;Corequisites: GRNU 303, GRNU 312, GRNU 314.

Credits: 6.00

### **GRNU 317 - Sci of Nsg:Mental Health**

Theories of human behavior form the foundation for understanding mental health and acute and chronic mental illnesses. Focus on assessment, treatment, and nursing care. Prerequisites: GRNU 303, GRNU 312, GRNU 314, GRNU 316. Co-requisites: GRNU 304, GRNU 313, GRNU 318, GRNU 319, GRNU 321, GRNU 329.

Credits: 3.00



### **GRNU 318 - Practicum: Mental Health**

Faculty guide students in practice settings to maximize exposure to all aspects of the nursing process with adults having selected psychiatric/mental health problems. Prerequisites: GRNU 303, GRNU 312, GRNU 314, GRNU 316. Co-requisites: GRNU 304, GRNU 313, GRNU 317, GRNU 319, GRNU 321, GRNU 329.

Credits: 2.00

### **GRNU 319 - Sci of Nsg:Women & Newborns**

Focus on healthy maternal-newborn care, and promotion of wellness and family integrity during transition within a family-centered framework. Prerequisite: GRNU 303, GRNU 312, GRNU 314, GRNU 316. Co-requisite: GRNU 304, GRNU 313, GRNU 317, GRNU 318, GRNU 321, GRNU 329.

Credits: 2.00

### **GRNU 320 - Rsch: Appl of Qualitative Meth**

Study of purposes, methods, and strategies underlying historical and philosophical principles, and the implementation of qualitative research in nursing. Prerequisite: Instructor permission.

Credits: 3.00

### **GRNU 321 - Practicum:Cmplx Nsg Care**

Precepted clinical practice in adult acute care. Students will focus on an area in which more depth is desired. Prerequisites: GRNU 303, GRNU 312, GRNU 314, GRNU 316. Co-requisites: GRNU 304, GRNU 313, GRNU 317, GRNU 318, GRNU 319, GRNU 329.

Credits: 2.50

### **GRNU 322 - Human Structure and Function**

Self-directed learning module in basic Anatomy & Physiology. Reading, computer assisted instruction, online tutorials, and unit examinations enable foundational understanding of anatomy and physiology. Prerequisite: Admission to MEPN. Co-requisite: GRNU 302, GRNU 311.

Credits: 1.50

### **GRNU 324 - Nurse as Administrator-Theory**

This course is a critical study of the knowledge and skills necessary to exercise effective leadership in contemporary and dynamic health care systems. Prerequisites: GRNU 310, GRNU 315, and GRNU 300 or GRNU 320.

Credits: 3.00

### **GRNU 325 - Science of Nursing:Children**

Identification and treatment of human responses to pathophysiological problems in children with acute, chronic, or terminal conditions, with principles of acute nursing care for hospitalized children emphasized. Prerequisite: GRNU 304, GRNU 313,

GRNU 317, GRNU 318, GRNU 319, GRNU 321, GRNU 329. Co-requisite: GRNU 327, GRNU 337, GRNU 338.

Credits: 3.00

**GRNU 326 - Nurse as Administrator-Pract**

Provide student with opportunity to integrate administrative theory, operations and research in a variety of settings. Practicum is structured according to the needs of the individual to provide knowledge, skills essential for the nurse administrator.

Pre/Co-requisite: GRNU 324

Credits: 3.00

**GRNU 327 - Practicum: Children**

Faculty guide students in practice settings to maximize exposure to all aspects of the nursing process with children having selected pathophysiological problems.

Prerequisite: GRNU 304, GRNU 313, GRNU 317, GRNU 318, GRNU 319, GRNU 321, GRNU 329. Co-requisite: GRNU 325, GRNU 337, GRNU 338.

Credits: 2.00

**GRNU 328 - Curriculum/Instruction Nursing**

Study of the development, implementation and evaluation of curricula in collegiate and nursing service education. Prerequisites: GRNU 310, GRNU 315, and GRNU 300 or GRNU 320.

Credits: 3.00

**GRNU 329 - Practicum:Women & Newborns**

Attention is focused on provision of nursing care to the expectant, laboring, or post-partum mother and to the newborn infant. Prerequisite: GRNU 303, GRNU 312, GRNU 314, GRNU 316. Co-requisite: GRNU 304, GRNU 313, GRNU 317, GRNU 318, GRNU 319, GRNU 321.

Credits: 1.25

**GRNU 330 - Thry&Pract/Adult Hlth NursingI**

Examination of concepts and theories essential to the assessment, diagnosis, and clinical decision making in adult health nursing. Class and clinical placement.

Pre/co-requisite: GRNU 300, GRNU 305, GRNU 310.

Credits: 6.00

**GRNU 331 - Thry&Pract/Adult Hlth Nurs II**

Analysis and evaluation of nursing concepts based upon theories, research and the practice of adult health nursing. Class and clinical placement. Prerequisite:

GRNU 330. Co-requisite: GRNU 315.

Credits: 5.00

**GRNU 332 - Thry&Pract/Adult Hlth Nurs III**

Application and synthesis of concepts relevant to advanced practice in adult health nursing, with emphasis on role development. Class and clinical placement.

Prerequisite: GRNU 331 and one elective.

Credits: 6.00

**GRNU 333 - Advanced Health Assessment**

Development of advanced knowledge and skills in systematic collection, organization, interpretation, and communication of data necessary for formulation of nursing and medical diagnoses. Lab fee required. Prerequisite: GRNU 305.

Credits: 3.00

**GRNU 336 - Mental & Physical Health Assessment**

Mental and physical assessment and diagnostic skills for individuals and families across the lifespan for advanced practice psychiatric mental health nursing.

Prerequisite: Admission to the Advanced Practice-Mental Health Nurse track or permission of the instructor.

Credits: 3.00

**GRNU 337 - Community/Public Health Nursing**

Emphasis on the epidemiological and biostatistical indicators of population health, methods of community health analysis, structure and function of federal, state and local health organizations. Prerequisite: GRNU 304, GRNU 313, GRNU 317, GRNU 318, GRNU 319, GRNU 321, GRNU 329. Co-requisite: GRNU 325, GRNU 327, GRNU 338.

Credits: 2.00

**GRNU 338 - Practicum:Community Health**

Statewide population-focused community health experience involving needs assessment, program development, case management, health promotion, disease prevention, and protection strategies, with opportunities for interdisciplinary collaboration. Prerequisite: GRNU 304, GRNU 313, GRNU 317, GRNU 318, GRNU 319, GRNU 321, GRNU 329. Co-requisite: GRNU 325, GRNU 327, GRNU 337.

Credits: 2.00

**GRNU 340 - Theory&Pract Adv Comm/Pub Health I**

Overview of factors related to advanced community/ public health nursing with special emphasis on the determinants of health populations. Pre/co-requisite: GRNU 310, STAT 200.

Credits: 6.00

**GRNU 341 - Theory&Pract/Adv Com/Pub Health II**

Examines advanced practice roles in community/public health nursing related to strategies for change in the health of populations. Pre/co-requisite: GRNU 340.

Credits: 6.00

**GRNU 342 - Theory&Prac/Adv Com/Pub Health III**

Examines theoretic frameworks and strategies for evaluating the effectiveness of

population -focused health services. Prerequisite: GRNU 341.

Credits: 6.00

**GRNU 348 - Practicum in Nursing Education**

A practicum provides opportunity to investigate the roles and functions of the teacher in higher education and/or nursing service settings. Builds on the theory studied in GRNU 328 and focuses on the interactive nature of the teaching-learning process. Prerequisites: GRNU 330 or GRNU 340. Pre/co-requisite: GRNU 328.

Credits: 3.00

**GRNU 350 - Thry/Pract Prim Care Children**

This course provides the theoretical basis for the primary care of children. An opportunity to apply and evaluate theories and research is provided in clinical settings (three credits of theory, two credits of clinical). Prerequisite: GRNU 305, GRNU 310, GRNU 333. Pre/co-requisite: GRNU 300, GRNU 306.

Credits: 5.00

**GRNU 351 - Assess Hlth Maintenance Adults**

This course provides clinical opportunities for students to solidify knowledge of health assessment and initiate and evaluate interventions focusing on maintenance and enhancement of health of adults (1.5 credit clinical).

Prerequisite: GRNU 305, GRNU 333.

Credits: 1.50

**GRNU 352 - Theory/Pract Prim Care Women**

Course provides the theoretical basis needed by FNP's for the primary care of women. Opportunities for application are provided through clinical practice (1.5 credit class, 1.5 credit clinical). Prerequisites: GRNU 306, GRNU 310, GRNU 351. Pre/co-requisites: GRNU 300, GRNU 307.

Credits: 3.00

**GRNU 353 - Theory/Pract Prim Care Women**

Course provides the theoretical basis needed by ANP's for the primary care of women. Opportunities for application are provided through clinical practice (1 credit class, 1.5 credit clinical). Prerequisites: GRNU 306, GRNU 310, GRNU 351. Pre/co-requisites: GRNU 300, GRNU 307.

Credits: 2.50

**GRNU 354 - Thry/Pract Prim Care Adult/Fam**

This course focuses on the assessment, diagnosis, management and evaluation of acute and chronic health conditions commonly encountered in primary care. Three credits class, two credits clinical. Prerequisites: GRNU 308, GRNU 352 (FNP's), GRNU 353 (ANP's); Pre/co-requisites: GRNU 307.

Credits: 5.00

**GRNU 355 - Thry/Pract Prim Care Families**

Focus is on refinement of diagnostic and ethical judgements and therapeutic interventions used by FNP's in the provision of primary health care. Three credits class, five credits clinical. Prerequisite: GRNU 301, GRNU 315, GRNU 354, STAT 200.

Credits: 8.00

**GRNU 356 - Thry/Pract Prim Care Adults**

Focus is on refinement of diagnostic and ethical judgements and therapeutic interventions used by ANP's in the provision of primary health care. Three credits class, three credits clinical. Pre/corequisite: GRNU 301, GRNU 315, GRNU 354, GRNU 357, STAT 200.

Credits: 6.00

**GRNU 357 - Prct Cnsder in Care Older Adlt**

Focus on health and disease and associated care and treatment of older persons by the advanced practice nurse. Prerequisite: GRNU 310.

Credits: 3.00

**GRNU 358 - Primary Care Adults Practicum**

Students refine their assessment, diagnostic and management skills for a specific clinical specialty. Pre-requisites: GRNU 354, 353, 307. Pre/co-requisite: GRNU 357.

Credits: 2.00

**GRNU 359 - Fam Prim Care:Clin Integration**

Integration of the multidimensional aspects of the FNP role is the focus of this course. Pre/corequisites: GRNU 308, 350, 352.

Credits: 2.00

**GRNU 362 - Thry & Pract in Nurs Admin**

Credits: 6.00

**GRNU 370 - Adv Mntl Hlth-Psy Nsg I**

A bio-psycho-social-spiritual orientation provides the framework for this course, which serves as a theoretical and clinical introduction to the principles of advanced practice mental health nursing. Mental health and mental illness, recognized as internal experiences as well as familial, cultural and social experiences, are examined from a variety of theoretical backgrounds. Emphasis is placed on the use of relevant theory and research in preventing mental illness, as well as in assessing, diagnosing and treating individuals with mental health/psychiatric concerns. Prerequisites: GRNU 300, 310; Corequisites: GRNU 309

Credits: 6.00

**GRNU 371 - Adv Mntl Hlth-Psy Nsg II**

Emphasis is on the use of relevant theories and research in providing advanced

practice mental health/psychiatric nursing services to child, adult, and older adult clients within the context of family systems theory. Family therapy techniques will be explored and applied by students in clinical settings. The course also highlights assessment, diagnosis, and treatment strategies for clients in crisis. In addition to individual counseling and psychopharmacological interventions for children, adults, and older adult clients, specialized counseling techniques are addressed. Prereq: GRNU 370; Coreq: GRNU 301, 315.

Credits: 6.00

### **GRNU 372 - Thry & Pract in Nurs Educ**

Credits: 6.00

### **GRNU 373 - Adv Mntl Hlth-Psy Nsg III**

Emphasis is on the use of relevant theory and research in providing advanced practice mental health/psychiatric nursing interventions to couples and groups. This course will also address issues relating to special populations and circumstances, including: clients with mental illness and substance abuse disorders; bereaved clients; homeless clients; forensic clients; and medically ill clients. The advanced practice nursing roles of clinical consultant, liaison, case manager, program evaluator, and entrepreneur will be applied to mental health settings. Prereq: GRNU 371; Coreq: STAT 200.

Credits: 6.00

### **GRNU 380 - Nsg Mgt of Health Care Envrnmt**

Examination of roles and responsibilities of nurse managers and organizational systems theories. Strategies to improve clinical quality and organizational effectiveness in healthcare environments are explicated. Pre/co-requisite: GRNU 300, GRNU 301.

Credits: 3.00

### **GRNU 381 - Mgt of Professional Nsg Prctce**

Focus on the application of human resource management theories and processes to healthcare and role of nurse manager in developing and evaluating professional practice environments. Pre/co-requisite: GRNU 380.

Credits: 3.00

### **GRNU 382 - Fin Hlth Care Mgt/Strat Plnng**

Links among mission, strategic vision management, financial management, operations management, marketing and organizational outcomes are explicated as a basis for managerial decision making. Pre/co-requisite: GRNU 381.

Credits: 3.00

### **GRNU 385 - Clinical Management Practicum**

Opportunity to integrate management/Administration theory, operations and research in a health care setting with a preceptor and benefit of biweekly seminars. Pre/co-requisite: GRNU 382.

Credits: 6.00

**GRNU 390 - Master's Project**

Self-designed clinical paper or innovative production pertinent to advanced nursing practice. Prerequisite: GRNU 300, GRNU 301, GRNU 310, GRNU 315. Co-requisite: GRAD 397.

Credits: 3.00

**GRNU 391 - Master's Thesis Research**

Prerequisite: GRNU 300, GRNU 301, GRNU 310, GRNU 315; approval of thesis committee. Co-requisite: GRAD 397.

Credits: 1.00 to 6.00

**GRNU 395 - Independent Study**

Individual work in graduate nursing with a base of theory, research, or advanced practice. Student in consultation with faculty sponsor devises objectives, plan of work, and evaluation for designated credit hours. Prerequisites: Permission of academic advisor and sponsoring faculty. Graduate nursing faculty as selected by student.

Credits: 4.00

**GRNU 396 - Special Topics**

Topics of interest to graduate nursing which are based on theory, research or advanced practice. Course content will deal with topics beyond the scope of existing formal courses or thesis research. Prerequisite: Instructor permission.

Credits: 6.00

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## Graduate Courses in Greek (GRK)

### 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 - 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

**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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## Graduate Courses in Greek & Latin (GKLT)

### 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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## Graduate Courses in Health (HLTH)



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## Graduate Courses in Health Education (EDHE)

### 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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## Graduate Courses in Higher Education (EDHI)

### 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 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 363 - Controversies of the Academy**

Critical and timely look at challenges confronting campus leaders. Implications for administrative practice shape seminar conversations of readings and case studies.

Pre/co-requisite: Graduate standing or permission.

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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## Graduate 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 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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## Graduate Courses in History (HST)

### HST 201 - History on the Land

(Cross listed with Historic Preservation 201; Art 201.) 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.

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

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/Graduate standing; twelve hours of History. Cross-listed with: CLAS 221, CLAS 222.

Credits: 3.00

### HST 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/Graduate standing; twelve hours of History. Cross-listed with: CLAS 221, CLAS 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 - Imperial Russian History**

Selected topics in Russian intellectual, social, and cultural history from the Petrine era to the end of the Romanov rule. Pre/co-requisites: Junior/Senior/ Graduate Standing; twelve hours of History including HST 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 - D2: Compar 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 - D2: 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 - D2: Seminar in East Asian Hst**

Topics in the history of East Asia. Prerequisite: Junior/ Senior/Graduate standing; twelve hours of History.

Credits: 3.00

**HST 252 - D2: 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 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 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 - Graduate Historiography**

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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## Graduate Courses in Human Development & Fam Studies (HDFS)

### 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 - D2:Adv Gender & Sexual Iden

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 289 - Theories of Human Development**

Comparative overview of major theoretical perspectives in the study of human development with particular emphasis on the interplay of method and theory and the applied implications of each theoretical model and theory. Prerequisite: 9 hours HDFS or equivalent.

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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## Graduate Courses in Humanities (HUMN)

### 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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## Graduate Courses in Latin (LAT)

### 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 - 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

**LAT 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: 6.00

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## Graduate 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 419 - Quantitative Research Methods**

This course provides knowledge and skill in conducting quantitative research studies for education and social services. Students apply social science research methods in a laboratory setting and produce a model study. Pre/co-requisite: EDLP 409.

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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## Graduate 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 SchI 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 SchI 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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## Graduate Courses in Linguistics (LING)

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## Graduate Courses in Literacy (EDLT)

### EDLT 200 - Contemporary Issues

Credits: 3.00

### EDLT 222 - Cultivate Chil Lit in EI/Mid Sch

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

### EDLT 223 - Read Pgms in Sec Schl & Col

Relationship of reading to learning study or organization, instructional procedures, and materials for developing reading improvement programs for secondary and college students; reading in content areas. Prerequisite: Twelve hours in Education and/or related areas or Instructor permission.

Credits: 3.00

### EDLT 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

### EDLT 295 - Laboratory Experience in Educ

Credits: 3.00

### EDLT 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: EDLT 222 or Instructor permission.

Credits: 3.00

**EDLT 376 - Clin/Tut Appr for Lit Intrvntn**

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 program. Pre/co-requisite: Three graduate credits in Reading/Language Arts or Instructor permission.

Credits: 6.00

**EDLT 380 - Professional Problems in Educ**

Credits: 3.00

**EDLT 385 - Critical Issues in Lang&Litrcy**

Explores the relationships between language and literacy and cultural-linguistic influences on language/literacy development. Topics include phonemic awareness, phonics instruction, fluency, comprehension, spelling and writing. Pre/co-requisite: EDLT 222; nine graduate credits in related areas; Instructor permission.

Credits: 3.00

**EDLT 391 - Master's Thesis Research**

Credits: 1.00 to 18.00

**EDLT 397 - Problems in Education**

Credits: 3.00

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## Graduate Courses in Materials Science (MATS)

### MATS 391 - Master's Thesis Research

Credits: 1.00 to 18.00

### MATS 491 - Doctoral Dissertation Research

Credits: 1.00 to 18.00



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## Graduate Courses in Mathematics (MATH)

### **MATH 207 - Probability Theory**

Distributions of random variables and functions of random variables. Expectations, stochastic independence, sampling and limiting distributions (central limit theorems). Concepts of random number generation. Prerequisites: MATH 121; STAT 151 or STAT 153 recommended. Cross-listed with: STAT 251, BIOS 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: MATH 124; MATH 121 desirable. Cross-listed with: CSYS 221.  
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**

(Cross listed with CS 224.) Introduction to both analytical and experimental techniques in algorithm analysis. Basic algorithm design strategies. Introduction to complexity theory. Prerequisites: CS 104 or 124, Math 173 recommended.  
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 - Applied Computational Methods**

Direct and iterative methods for solving linear systems; numerical solution of ordinary and partial differential equations. Focus will be on application of numerical methods. Prerequisites: MATH 121; either MATH 124 or MATH 271.

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 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. Co-requisite: MATH 271 or MATH 230 or Instructor permission. Cross-listed with: CSYS 266.

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. Prerequisite: MATH 124, MATH 230, or Instructor permission. Cross-listed with: CSYS 268.

Credits: 3.00

**MATH 271 - Adv Engineering Mathematics**

Differential equations and linear algebra, including linear ordinary differential equations, Laplace transforms, matrix theory, and systems of differential equations. Examples from engineering and physical sciences. Pre/co-requisites: Math 121 or Math 123.

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**

(Cross listed with Mechanical Engineering 304; Civil Engineering 304.)

Prerequisites: 271 or 230; 275 for 276

Credits: 3.00

**MATH 276 - Adv Engineering Analysis II**

(Cross listed with Mechanical Engineering 305; Civil Engineering 305.)

Prerequisites: 271 or 230; 275 for 276.

Credits: 3.00

**MATH 278 - 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 filter. Pre/co-requisites: 171, or instructor permission. Cross-listing: EE 274.

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 300 - Principles of Complex Systems**

Introduction to fundamental concepts of complex systems. Topics include: emergence, scaling phenomena, and mechanisms, multi-scale systems, failure, robustness, collective social phenomena, complex networks. Students from all disciplines welcomed. Pre/co-requisites: Calculus and statistics required; Linear Algebra, Differential Equations, and Computer programming recommended but not required. Cross-listed with: CSYS 300.

Credits: 3.00

### **MATH 303 - Complex Networks**

Detailed exploration of distribution, transportation, small-world, scale-free, social, biological, organizational networks; generative mechanisms; measurement and statistics of network properties; network dynamics; contagion processes. Students from all disciplines welcomed. Pre/co-requisites: MATH 300/CSYS 300, Calculus, and Statistics required. Cross-listed with: CSYS 303.

Credits: 3.00

### **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**

L<sup>2</sup>-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 337 - Numerical Diff Equations**

Numerical solution and analysis of differential equations: initial-value and boundary-value problems; finite difference and finite element methods. Prerequisites: MATH 237; either MATH 230 or MATH 271 recommended.

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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## Graduate Courses in Mechanical Engineering (ME)

### 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 - Introductory Bioengineering

Introduction to biomedical engineering science including biomechanics, biomaterials, biomedical imaging, rehabilitation engineering, biomedical computing, biomedical instrumentation, and transport phenomena. Pre/co-requisites: Senior or grad standing in engineering; instructor permission.

Credits: 3.00

### ME 208 - Biomechanics: Tissue Engr

Solid biomechanics including structure, function and mechanical properties of biological tissues. Tissue engineering involving cell mechanics, scaffold materials, and signaling. Current literature topics are covered. Pre/co-requisites: Senior/Graduate standing in Engineering; Instructor permission.

Credits: 3.00

### ME 209 - Biomechanics: Transport Proc

Transport and kinetic processes to vascular biology, respiratory mechanics and medicine. Steady and unsteady laminar flow, pulse wave reflections, curved and collapsible tube flow, turbulence. Pre/co-requisites: Senior/Graduate standing in Engineering; Instructor permission.

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 240 - Gas Dynamics**

Theory of compressible flow. Normal and oblique shocks; expansion waves; unsteady wave motion; method of characteristics; linearized external flows; conical and 3D flows. Prerequisite: ME 143 or equivalent.

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. Prerequisite: ME 143 or equivalent.

Credits: 3.00

**ME 252 - Mechanical Behavior Materials**

Isotropic and anisotropic elasticity; theory of plasticity; deformation mechanisms in crystalline solids; dislocation theory; creep behavior; advanced fatigue and fracture mechanisms. Prerequisite: 101, permission. Credit given for 252 or 272, not both.

Credits: 3.00

**ME 255 - Adv Engineering Materials**

Advanced material processing; physical and mechanical principles of high-temperature alloys, light-weight materials, thin films, nanomaterials, and biomedical materials; elements of computational materials design. Prerequisites: Senior/Graduate standing; or Instructor 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 Development**

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. Cross-listed with: BSAD 293.

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 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 312 - Multi-Scale Bioeng Systems**

Advanced bioengineering design and analysis in current biomedical problems. Analyses spanning molecular, cell, tissue, organ, and whole body systems including their interactions and emergent behaviors. Cross-listing: CSYS 312.

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**

Transonic flows; hypersonic flows and shock relations; boundary layer interactions; high-temperature gases and aerothermodynamics; rarefied flows; computational methods. Prerequisite: ME 240 or equivalent.

Credits: 3.00

**ME 350 - Multiscale Modeling**

Computational modeling of the physics and dynamical behavior of matter composed of diverse length and time scales. Molecular simulation. Coarse-graining. Coupled atomistic/continuum methods. Cross-listed with: CSYS 350.

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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## Graduate Courses in Medical Lab & Radiation Sci (MLRS)

### **MLRS 242 - Immunology**

Lecture dealing with cellular and humoral immunity, B cells and T cells, autoimmunity, immunodeficiency. Prerequisite: One semester of Biochemistry.  
Credits: 3.00

### **MLRS 244 - Immunology Lab**

Laboratory experience dealing with cellular and humoral immunity, B cells and T cells, autoimmunity, immunodeficiency. Laboratory covers immunological techniques and applications. Prerequisites: One Semester Biochemistry, MLRS 242.  
Credits: 1.00

### **MLRS 281 - Applied Molecular Biology**

Lecture and laboratory course focused on application of molecular biology techniques to diagnostic testing and biotechnology. Prerequisites: CHEM 42 or 141.  
Credits: 4.00

### **MLRS 391 - Masters Thesis Research**

Pre/co-requisite: Instructor Permission.  
Credits: 1.00 to 6.00

### **MLRS 395 - Advanced Topics**

Pre/co-requisite: Instructor Permission.  
Credits: 3.00

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## Graduate Courses in Medical Laboratory Science (MLS)

### MLS 221 - Clinical Chemistry I

Lectures and laboratory experiences introduce basic principles in clinical quantitative analysis and laboratory instrumentation; test results are correlated with clinical case studies. Prerequisites: CHEM 031 and CHEM 032; CHEM 141 or CHEM 042; ANPS 019 & ANPS 020 or Instructor permission.

Credits: 4.00

### MLS 222 - Clinical Chemistry II

Advanced instruction in body chemistry and pathophysiology of disease with emphasis on diagnostic lab techniques in chemistry. Prerequisite: MLS 221.

Credits: 4.00

### MLS 231 - Hematology

Advanced theory and analysis of blood cell physiology and related pathology. Concepts of hemostasis and clinical assessment methods.

Credits: 4.00

### MLS 255 - Clinical Microbiology

Advanced instruction in the study of clinically significant microorganisms, infectious disease process, and laboratory methods used for isolation and identification of microorganisms from clinical specimens. Prerequisite: One semester of microbiology.

Credits: 4.00

### MLS 262 - Immunohematology

Advanced theory and experience related to human blood groups and transfusion practice. Prerequisite: One semester of immunology.

Credits: 4.00



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## Graduate Courses in Micr & Molecular Genetics (MMG)

### **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: MMG 104 or BIOC 207 or Instructor permission. 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: BCOR 103 or MMG 104, 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. Prerequisite: CHEM 142 or CHEM 144. Cross-listed with: BIOC 205, CHEM 205. 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: MMG 205. Cross-listed with: BIOC 206, CHEM 206. 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. Co-requisites: MMG 205 or MMG 206. Cross-listed with: BIOC 207 and CHEM 207.

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 and medical mycology. Laboratory sessions provide practical experience in handling and identifying these pathogens. Prerequisites: MMG 065 or MMG 101 or equivalent or Instructor permission. Alternate years. 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: MMG 101 or MMG 104 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 or 110; MMG 102 desirable. (Cross-listed with CS 231). Fall.

Credits: 3.00

### **MMG 262 - Nature of Sensing and Response**

Examination of signal transduction pathways in widely divergent organisms, the



evolutionary conservation of these pathways, and how these systems are perturbed by mutation and disease. Cross-listed with: P BIO 262. Prerequisites: BCOR 101, and either concurrent or past BCOR 103 or P BIO 104, or Instructor permission.

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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## Graduate Courses in Middle Level Teacher Education (EDML)

### 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, reflective practice, classroom management, teamwork, and assessment of learning. Guidance in development of Professional Teaching Portfolio. Pre/co-requisites: EDML 260, EDML 261, EDML 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

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## Graduate Courses in Molecular Physiology & Biophys (MPBP)

### MPBP 301 - Human Physiology & Pharm I

An integrated examination of the physiology and pharmacology of the peripheral nervous, muscle and cardiovascular systems in the human body. Pre/co-requisites: CHEM 32 and 42 or equivalent, two semesters general physics, two semesters calculus.

Credits: 8.00

### MPBP 302 - Human Physiology & Pharm II

An integrated examination of the physiology and pharmacology of the endocrine, digestive, renal and respiratory systems in the human body. Pre/co-requisites: CHEM 32 and 42 or equivalent, two semesters general physics, two semesters calculus, MPBP 301 or permission.

Credits: 4.00

### MPBP 303 - Critical Reading

Critical reading of the current literature, team taught by the faculty in the Dept. of Molecular Physiology & Biophysics, giving broad exposure to the expertise present in the department.

Credits: 1.00

### MPBP 306 - Medical Physiology

Function in the whole human organism, and at the cellular, tissue, and organ levels, considered biologically and physically. Pre/co-requisite: Permission of department chair.

Credits: 8.00

### 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 - Biophysical Techniques**

In depth analysis of biophysical techniques. Topics: Introductory statistics, optics, microscopy, motility, optical tweezers, FRET, light-scattering, SAXS and electron microscopy (single-particles, 2 D-crystals, helices). Alternate years. Pre/co-requisite: Basic mathematics including matrices, differentiation and integration.

Credits: 4.00

**MPBP 333 - 3D Electron Microscopy&Img Proc**

In depth study of the theory of 3D electron microscopy and image processing of single particles. Topics: Fourier transforms. Convolution. Correlation. 2D alignment. Radon transforms. 3D reconstruction techniques. The electron microscope. Specimen preparation and data collection. Alternate years. Pre/co-requisites: Basic mathematics including matrices, differentiation and integration.

Credits: 1.00

**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 395 - Special Topics in MPBP**

Topics of interest to Graduate students beyond the scope of existing courses.

Credits: 3.00

**MPBP 491 - Doctoral Dissertation Research**

Credits: 1.00 to 18.00

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## Graduate 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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## Graduate Courses in Music (MU)

### **MU 211 - Senior Music History Project**

Directed readings and research. Research project. Prerequisites: Senior standing as a Music History major; permission of the Instructor.

Credits: 1.00

### **MU 231 - A & B Jazz Combos**

Small groups (a rhythm section and three to five solo instruments) in which students improve their improvisational skills while learning jazz repertory.

Credits: 1.00

### **MU 295 - Special Topics**

Credits: 3.00

### **MU 296 - Special Topics**

Credits: 3.00



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## Graduate Courses in Natural Resources (NR)

### 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 228 - Ecosystem Ecology

(Cross-listed with Forestry 228.) 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: 3.00

### NR 235 - Legal Aspects Envir Planning

Comparison of environmental planning law at local, state, and national levels. Case studies in environmental and natural resource planning and land use controls. Pre/co-requisite: Senior Standing.

Credits: 3.00

### NR 238 - Ecological Landscape Design

Studio course synthesizing work from fields of landscape ecology and landscape design, exploring ecological design alternatives at multiple scales, and developing multifunctional landscape solutions. Pre/co-requisites: Minimum junior standing, at least design course, at least one course in ecology, or permission. Cross-listings: CDAE 238, ENVS 238, NR 238.

Credits: 3.00

**NR 243 - GIS Practicum**

An applied course in geospatial technology with a focus on ESRI's ArcGIS software suite. Prerequisite: NR 143/NR 343.

Credits: 3.00

**NR 245 - Advanced Spatial Methods**

Advanced methods in Geographic Information Systems (GIS) and spatial analysis, including the integration of statistics, classical hypothesis testing, and GIS. Pre/co-requisites: senior standing, 1 introductory GIS course, 1 statistics course

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 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 268 - Soil Ecology**

Underlying concepts and theory of modern soil ecology will be reviewed including spatial and temporal distributions, sampling methods, biogeochemical cycles, and

ecological functions of soil. Prerequisites: BCOR 102 or NR 103, PSS 161. Cross-listed with PSS 268.

Credits: 4.00

**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 288 - Ecol Design & Living Technol**

The course explores the potential for ecological design to shape a sustainable future. It analyses living technologies for food production, waste management and

environmental restoration. Pre/co-requisites: Jr/Sr standing; background in ecology/systems theory.

Credits: 3.00

**NR 289 - Advanced Ecological Design**

A problem-based, cross-disciplinary design course in which existing conditions are integrated with the redesign of place and system in alignment with ecological design principles.

Credits: 3.00

**NR 306 - Race & Culture in Natrl Rsrcs**

Introduces graduate students to selected issues of race and culture and their relevance to society, natural resources, and the environment.

Credits: 2.00

**NR 343 - Fndmntls of Geog Info Systems**

Concepts and methods in Geographic Information Systems (GIS) presented at an accelerated pace for Graduate students using ArcGIS software. Pre/co-requisites: Graduate standing.

Credits: 3.00

**NR 346 - Digital Image Processing**

Principles and applications of digital image processing of remotely sensed imagery. Hands-on analyses of satellite imagery will address environmental issues using ERDAS Imagine software.

Credits: 2.00

**NR 354 - Seminar:Envrmtl Policy & Mgmt**

Seminar examining contemporary environmental policy at local, state, national, and international levels; policy formulation, implementation and design relative to current environmental problems. Prerequisites: Graduate standing.

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 376 - Graduate Teaching Practicum**

Natural Resource teaching practicum for doctoral students in the Rubenstein School. Course is required if students are following the academic option. Should be taken concurrently or one semester in advance of completion of the doctoral teaching requirement. Prerequisite: doctoral standing.

Credits: 2.00

**NR 377 - Land Use Policy & Economics**

Economic and social forces that drive urban and suburban land use patterns, such as urban sprawl, and the policy mechanisms designed to intervene in those processes. Pre/co-requisites: Econ 172 or equivalent, grad standing.

Credits: 3.00

**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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## Graduate Courses in Neurology (NEUR)

### NEUR 491 - Doctoral Dissertation Research

Credit as assigned for research towards a doctoral degree in Neuroscience.

Credits: 1.00



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## Graduate Courses in Neuroscience (NSCI)

### **NSCI 391 - Master's Thesis Research**

Credits: 1.00 to 18.00

### **NSCI 491 - Doctoral Dissertation Research**

Credits: 3.00



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## Graduate Courses in Nursing & Health Sciences (NH)

### NH 301 - Clin Ethics for Hlthcare Prof.

Students will analyze clinical and organizational healthcare issues from an interdisciplinary perspective. Ethical decision-making and inter-disciplinary team skills will be developed. Pre/co-requisite: Graduate standing.

Credits: 3.00

### NH 302 - Quality in Health Care

This interprofessional course provides students with the skills and knowledge needed to apply quality improvement approaches to the design and management of health care services.

Credits: 3.00

### NH 303 - Hlth Promotion & Disease Prvnt

Students learn the value of and barriers to health promotion, health protection, and disease prevention, factors that influence personal health decisions, and preventive interventions.

Credits: 3.00

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## Graduate Courses in Nutrition and Food Sciences (NFS)

### **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 205 - Functional Foods:Prncpl & Tech**

Examines the constituents that make food products functional and provides laboratory techniques needed to create a functional food. Pre/co-requisites: NFS 153, NFS 154, or Instructor permission.

Credits: 3.00

### **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 - Nutrition Educ & Counseling**

Use of appropriate education theory, techniques, and media in nutrition education and counseling theories and negotiation, interviewing and counseling skills in individual and group counseling. Pre/co-requisites: NFS 043, NFS 053, NFS 054, NFS 143.

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 244 - Nutr in Hlth & Disease Prevntn**

Examination of dietary planning, nutrition assessment, genetics, drug-nutrient interactions, CAM therapies and nutrition related to health and prevention of disease. Pre/co-requisites: CHEM 042, ANPS 020, NFS 053, NFS 054, NFS 143.

Credits: 3.00

**NFS 250 - Foodservice Systems**

Emphasis on the foodservice system model for understanding quality control; food procurement, production, and marketing; management and evaluation of foodservice facilities, human and financial resources. Prerequisites: BSAD 065 and BSAD 120.

Credits: 4.00

**NFS 260 - Diet and Disease**

Examination of the physiologic, biochemical, and psychosocial basis of several disease states and the application of medical nutrition therapy in treatment.

Prerequisite: NFS 053, NFS 143, NFS 243, NFS 244.

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 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 311 - Supervised Practice I**

Through lecture, discussion, presentations, and practical experience, students develop competencies in clinical dietetics, community nutrition, and food service management. Prerequisite: Acceptance into MS D program.

Credits: 4.00

**NFS 312 - Supervised Practice II**

Through lecture, discussion, presentations, and practical experience, students develop competencies in clinical dietetics, community nutrition, and food service management. Prerequisite: Acceptance into MS D program.

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

**NFS 392 - Evidence-based Practice Prjct**

On site identification, review of literature for background and possible solutions, data collection and analysis, and writing and presenting the results and conclusions of a research problem. Pre/co-requisites: NFS 360, MS in Dietetics.

Credits: 1.00 to 2.00

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## Graduate Courses in Obstetrics & Gynecology (OBGY)

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## Graduate Courses in Orthopedic Surgery (ORTH)

### ORTH 382 - Rdgs & Rsch:Muscle 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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## Graduate Courses in Pathology (PATH)

### PATH 295 - Special Topics

Credits: 3.00

### 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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## Graduate Courses in Pharmacology (PHRM)

### PHRM 201 - Introduction to Pharmacology

This course will focus on biochemical and physiological actions of prototype drugs used in the treatment and prevention of human diseases. Prerequisite: Introductory courses in Biology and Organic Chemistry.

Credits: 3.00

### 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 - 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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## Graduate Courses in Philosophy (PHIL)

### PHIL 217 - Philosophy of Language

Philosophical study of the nature of language. Prerequisite: One Philosophy course at 100-level. Recommended: PHIL 013.

Credits: 3.00

### PHIL 221 - D2: Topics in Chinese Phil

Detailed examination of a classical Chinese philosophical text or school.

Prerequisite: 121 or 122.

Credits: 3.00

### PHIL 235 - Topics in Phil 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.) Prerequisite: PHIL 101, PHIL 102 or PHIL 135.

Credits: 3.00

### PHIL 240 - Contemporary Ethical Theory

In-depth study of metaethics, emphasizing recent work. Topics include moral objectivity, moral language, moral epistemology, and the relationship between morality and reasons. Pre/co-requisites: One Philosophy course at the 100-level.

Credits: 3.00

### PHIL 241 - Contemp Social&Political Phil

The ideas of leading contemporary philosophers concerning freedom, tolerance, economic justice, international relations, and the relationship between the individual, the community and the state. Prerequisite: PHIL 140, PHIL 142, PHIL 143, or PHIL 144.

Credits: 3.00

**PHIL 242 - Justice & Equality**

An examination of contemporary normative theories of distributive justice and equality. Prerequisites: POLS 041 and either a 100-level POLS course, or PHIL 140, PHIL 142, PHIL 143, or PHIL 144. Cross-listed with: POLS 241.

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 permission. May be repeated for credit when topic is significantly different. Pre/co-requisites: One Philosophy course at the 100-level.

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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## Graduate Courses in Physical Education-Prof (EDPE)

### 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: EDPE 166; ECHD 062 or ECHD 063, or equivalent. Cross-listed with: EXMS 240.

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. Prerequisites: EDPE

155, EDPE 104, EDPE 105 or equivalent teaching experience. Cross-listed with:  
EXMS 260.

Credits: 3.00

**EDPE 266 - Ex Prescrip:Sprt,Hlth,Fit,Perf**

Course covers basic concepts of exercise prescription and exercise program design. Particular attention is paid to individualization of exercise program to meet participant needs.

Credits: 3.00

**EDPE 267 - Sci Strength Training&Condtnng**

Course focuses on physiology of muscle adaptation following resistance or aerobic training. Particular attention is paid to specificity of metabolic adaptation for individual sports.

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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## Graduate Courses in Physical Therapy (PT)

### PT 203 - Professional Seminar 1

Framework for students' becoming excellent practitioners, focusing on values, principles and core documents of the physical therapy profession, and contemporary issues related to the profession. Pre/co-requisite: DPT majors only.  
Credits: 2.00

### PT 204 - Professional Seminar 2

Students discuss professional issues and practices encountered in the clinical environment, allowing them to build a framework of knowledge and skills that supports excellent practice. S/U grading only. Pre/co-requisites: PT 203; Enrollment in DPT program.  
Credits: 0.00

### PT 205 - Professional Seminar 3

Students discuss professional issues and practices encountered in the clinical environment, allowing them to build a framework of knowledge and skills that supports excellent practice. S/U grading only. Pre/co-requisites: Enrollment in DPT program.  
Credits: 0.00

### PT 206 - Professional Seminar 4

Students discuss professional issues and practices encountered in the clinical environment, allowing them to build a framework of knowledge and skills that supports excellent practice. S/U grading only. Pre/co-requisite: Enrollment in DPT program.  
Credits: 0.00

### PT 207 - Professional Seminar 5

Students discuss professional issues and practices encountered in the clinical



environment, allowing them to build a framework of knowledge and skills that supports excellent practice. S/U grading only. Pre/co-requisite: Enrollment in DPT program.

Credits: 0.00

**PT 232 - Clinical Education I**

Clinical experience to understand the role of the physical therapist. Practice specific skills of examination, evaluation and intervention in primarily out-patient musculo-skeletal settings. Pre-requisite: PT 201, PT 211, PT 221. Co-requisite: PT 202, PT 212, PT 222.

Credits: 2.00

**PT 241 - Patient Mngmt Fndmntl Skills**

Introduction to principles and practices of patient/client management including fundamental patient handling skills, physical examination techniques, history taking and interviewing skills, and clinical documentation. Pre/co-requisites: ANNB 201; PT 203.

Credits: 6.00

**PT 242 - Patient Mgmt Musculoskeletal 1**

Lecture/Lab experiences in which students will apply fundamental biomechanical and kinesiology principles of the trunk, spine, and extremities. Pre/co-requisites: ANNB 201, PT 203, PT 241/ RMS 251, PT 244, enrollment as a DPT student.

Credits: 8.00

**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 neruo-musculo-skeletal, metabolic and multiple systems impairments and disabilities.

Prerequisites: PT 211, PT 212. Co-requisites: PT 323, PT 341 , PT 333, PT 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 321 - Applying Research to Practice**

Students will critically appraise professional literature. Emphasis will be on discussion of the strength of the evidence and its relevance to the management of patients. Pre/co-requisite: RMS 220 (formerly PT 220).

Credits: 1.00

**PT 322 - Research Project**

Students learn to conduct a systematic review of the literature. The resulting paper and poster meet the comprehensive examination requirements for the DPT.

Pre/co-requisites: RMS 220; PT 321.

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 331 - Practice Management in PT**

This course introduces students to the fundamental nature and functions of general business organizations, particularly physical therapy practices. Pre/co-requisite: Enrollment in DPT program.

Credits: 3.00

**PT 333 - Clinical Education II**

6-week clinical experience providing opportunities for integration of didactic information and clinical skills for safe, effective, comprehensive patient care in same setting as Clinical Education I. Prerequisite: PT 202, PT 212, PT 222, PT 232.

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: PT 232, PT 333 , PT 334, PT 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

**PT 345 - Patient Mgt-Neuromuscular 1**

Lecture and laboratory experiences re evidence-based medical and physical therapy management of adults with neuromuscular conditions including stroke, multiple sclerosis, and spinal cord injury. Pre/co-requisites: GRNU 303, GRNU 305, PT 215, Enrolled as DPT student.

Credits: 6.00

**PT 346 - Patient Mgt-Neuromuscular 2**

Lecture and laboratory experiences re evidence-based medical and physical therapy management of children with neuromuscular conditions such as cerebral palsy and adults with developmental disabilities. Pre/co-requisites: PT 345, Enrolled as a DPT student.

Credits: 5.00

**PT 347 - Patient Mgt:Cardiopulmonary**

Students explore disease risk and prevention, as well as medical, surgical, pharmacological, psychological, and physical therapies in the management of individuals with cardiopulmonary related diseases. Pre/co-requisites: ANNB 201, PT 241, Enrollment in DPT program.

Credits: 5.00

**PT 348 - Patient Mgt:Medical/Surgical**

Students explore medical, surgical, pharmacological, psychological, and physical therapies in the management of individuals with vascular, integumentary, lymphatic disorders and cancer. Pre/co-requisites: ANNB 201, PT 241, Enrollment in DPT program.

Credits: 4.00

**PT 349 - Patient Mgt:Musculoskeletal 2**

Lecture/lab applying foundational and advanced biomechanical, neurophysiological, kinesiological, and anatomical principles of the trunk, TMJ, spine, and extremities. Pre/co-requisites: Enrollment as DPT student. Credits:

4.00

**PT 350 - PT Professional Practicum**

Professional practicum/Service-Learning experience to explore health/well-being of individuals, groups and communities in interdisciplinary settings. Students will develop core competencies for health care providers. Prerequisites: PT 232; PT 333; or Instructor Permission; Co-requisites: three credit Graduate level interdisciplinary course that matches with type of practicum; approved by PT department.

Credits: 2.00

**PT 353 - Clinical Internship 2**

Full-time (8 weeks) Clinical Education Internship in various practice settings including out-patient, acute care, rehabilitation, home health, pediatric, long term care and specialty practices. Pre/co-requisites: Successful completion of the first two years of the DPT program, PT 331, PT 349, and GRAD 497.

Credits: 3.00

**PT 355 - Clinical Internship 3**

Full-time (8 weeks) Clinical Education Internship in various practice settings including out-patient, acute care, rehabilitation, home health, pediatric, long term

care and specialty practices. Pre/co-requisites: Successful completion of the first two years of the DPT program, PT 331, PT 349, GRAD 497, and PT 353.

Credits: 3.00

**PT 356 - Clinical Internship 4**

Full-time (14 weeks) Clinical Education Internship in various practice settings including out-patient, acute care, rehabilitation, home health, pediatric, long term care and specialty practices. Pre/co-requisites: Successful completion of the first two years of the DPT program, and all third year coursework.

Credits: 6.00

**PT 385 - Evidence-based Practice in PT**

Analysis of evidence regarding efficacy, incorporating client preferences in decision making; synthesis of information, recommendations for practice. Ethics in research. Preventing harm. Prerequisites: PT 201, PT 202, PT 341.

Credits: 2.00

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## Graduate Courses in Physics (PHYS)

### 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: 042 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: 042 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: 042, 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: 042, 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: 012 or 042, 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: 042; 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 274 - Applictns of Quantum Mechanics**

Applications of Quantum Mechanics including Quantum Statistical Mechanics, Time-Independent and Time- Dependent Perturbation Theory, WKB

Approximation, Variational Principle and Scattering. Pre/co-requisite: PHYS 273.

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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### Graduate Courses in Plant & Soil Science (PSS)

**PSS 212 - Advanced Agroecology**

This course presents an in-depth overview of research and applications in the field of agroecology, including current ecological and social dynamics in agricultural landscapes in Vermont and abroad. Pre/co-requisites: PSS 021 and 1 sem ecology at the 100-level or above or permission.

Credits: 4.00

**PSS 215 - Weed Ecology**

Weed identification, reproduction, ecological relationships and integrated management strategies. Intended for students specializing in agriculture, applied botany, environmental science, and natural resources/wildlife management.

Pre/co- requisite: PSS 161 or Instructor permission.

Credits: 3.00

**PSS 238 - Ecological Landscape Design**

Studio course synthesizing work from fields of landscape ecology and landscape design, exploring ecological design alternatives at multiple scales, and developing multifunctional landscape solutions. Pre/co-requisites: Minimum junior standing, PSS 137, at least one course in ecology, or permission. Cross-listings: CDAE 238, ENVS 238, NR 238.

Credits: 4.00

**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 Instructor 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 Instructor permission. 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 Instructor permission. Alternate years.

Credits: 3.00

**PSS 268 - Soil Ecology**

Underlying concepts and theory of modern soil ecology will be reviewed including spatial and temporal distributions, sampling methods, biogeochemical cycles, and ecological functions of soil. Pre/co-requisites: BCOR 102 or NR 103; PSS 161.

Cross-listed with: NR 268.

Credits: 4.00

**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. Prerequisites: PSS 161 or Instructor permission. Alternate years.

Credits: 3.00

**PSS 295 - Advanced 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: Instructor permission.

Credits: 4.00

**PSS 296 - Advanced 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: Instructor permission.

Credits: 4.00

**PSS 298 - Advanced Independent Study**

Individual projects under direction of a faculty member. Project may involve original research, readings, internship, or assisting in teaching. Prerequisite: Instructor permission; more than a total of six credits per semester requires Chair permission.

Credits: 5.00

**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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## Graduate Courses in Plant Biology (P BIO)

### **P BIO 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: P BIO 104. Credits: 3.00

### **P BIO 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

### **P BIO 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: P BIO 109 or Department permission. Credits: 3.00

### **P BIO 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

### **P BIO 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. Prerequisite: Instructor permission. One to three hours.

Credits: 1.00

**PBIO 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

**PBIO 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: PBIO 109. Alternate years.

Credits: 3.00

**PBIO 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

**PBIO 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

**PBIO 282 - Botany Seminar**

Presentations of personal research by faculty, graduate students, and outside guest speakers. Attendance required of plant biology Graduate students and Seniors in botanical research programs. Without credit.

Credits: 0.00

**PBIO 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: Department permission.

Credits: 4.00

**PBIO 311 - Field Naturalist Practicum**

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

Credits: 3.00

**PBIO 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: 4.00

**PBIO 391 - Master's Thesis Research**

Credit as arranged.

Credits: 2.00

**PBIO 392 - Master's Project Research**

Credit as arranged.

Credits: 0.00 to 3.00

**PBIO 491 - Doctoral Dissertation Research**

Credit as arranged.

Credits: 1.00 to 15.00

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## Graduate Courses in Political Science (POLS)





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## Graduate Courses in Psychology (PSYC)

### **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**

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. Prerequisites: PSYC 109, PSYC 161 or Instructor permission. Cross-listed with: CMSI 208.

Credits: 3.00

### **PSYC 215 - Cognition & Aging**

(Cross listed with 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: PSYC 109 or BCOR 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 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 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 260 - Self and Social Cognition**

Analysis of theory and research on self, identity, and social cognition (how people make sense of themselves and others), emphasizing development of these constructs. Pre/co-requisites: Psyc 109 and Psyc 130 or 161

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 267 - Adolescence**

Analysis of current theory and research in adolescent development. Covers biological, cognitive, and social changes; family, peer, and school influences; and normative and problematic development. Pre/co-requisites: PSYC 109 and PSYC 161.

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 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 303 - Biobehavioral Proseminar**

Advanced survey and analysis of behavioral and biological psychology, with special emphasis on learning theory and behavioral neuroscience.

Credits: 3.00

**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 involving psychological intervention assessment and consultation. May be repeated for credit. Pre/co-requisites: Enrollment in Ph.D. program in Clinical Psychology; Instructor permission.

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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## Graduate 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 Srv & 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 320 - Local Government Admin**

This course is a primer on local government Administration in the US using the case method to experience the complexity of the challenges one confronts in the field.

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 323 - Non-Profit Administration**

Course reviews the history of, and managerial challenges inherent to, the non-profit sector in the United States and explores sector's relationship to the governmental and business sectors.

Credits: 3.00

**PA 325 - Health Care Policy**

This course addresses policy issues affecting the structure, performance and change in the U.S. health care system, with a specific focus on the role of health care managers. Pre/co-requisite: CDAE 102, CDAE 124, or Instructor permission.

Credits: 3.00

**PA 326 - Community Economic Development**

Examines how rural and urban communities address poverty, unemployment and other economic problems through job creation and retention, workforce training and support, and other development strategies. Cross-listed with: CDAE 326.

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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## Graduate Courses in Public Serv Tech Gen (PSTG)

### PSTG 300 - Nurse Midwifery Grad Program

Credits: 6.00

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## Graduate Courses in Recreation Management (RM)

### 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.

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

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## Graduate Courses in Rehabilitation & Movement Sci (RMS)

### **RMS 213 - Movement Science 1**

Mechanical properties of muscle, joint, tendon, ligament, and bone related to human movement. Concepts and principles of kinesiology of peripheral, spinal joints, posture, and gait. Pre/co-requisites: ANNB 201

Credits: 3.00

### **RMS 220 - Research I**

Focus is on critical analysis of research literature. Emphasis on critically reading and interpreting published research regarding applicability to the practice of health care professionals. Pre/co-requisite: Undergraduate Statistics.

Credits: 3.00

### **RMS 244 - Patient Mgmt Therapeutic Modal**

Lecture/laboratory experience re theory and application skills for therapeutic modalities including heat, cold, light, water, sound, electricity, massage, traction, pneumatic pressure, and biofeedback. Pre/co-requisite: ANPS 019/ANPS 020.

Credits: 3.00

### **RMS 251 - Exercise in Health and Disease**

Effects of exercise on physiological function, emphasizing muscular, skeletal, cardiovascular, pulmonary, neurological and endocrine systems, and the relationship of diet/exercise to health/wellness across lifespan. Pre/co-requisites: ANPS 019/ANPS 020.

Credits: 3.00



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## Graduate Courses in Religion (REL)

### 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



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## Graduate Courses in Secondary Education (EDSC)

### 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 - Adolscent Dev:Ed/Psy Perspec

In depth examination of developmental and learning theory with applications for teaching in secondary settings. Core activities: exploration of personalization in education and service learning. Co-requisites: EDFS 203/EDSC 209

Credits: 4.00

### EDSC 209 - Practicum in Teaching

Field-experience in secondary setting. Focus on school culture and student needs while documenting effectiveness in one-on-one teaching. Professional attributes/dispositions are critically assessed. Pre/co-requisite: EDFS 203/EDSC 207.

Credits: 4.00

### EDSC 215 - Reading in Secondary Schools

Theory and methods of reading/writing explored in the context of literacy. Focus on reading, writing, speaking and critical thinking across disciplines. Cultural contexts explored. Pre/co-requisite: EDSC 216.

Credits: 4.00

### EDSC 216 - Curr,Instr&Assmt Sec Schl Tch

Development of methods related to secondary school teaching. Study and application of constructivist learning theory, differentiation, authentic assessment in planning. Focus on cross-disciplinary collaboration. Co-requisite: EDSC 215.

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. Individual tasks culminate in production of a licensure portfolio. Co-requisite: EDSC 226.

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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## Graduate Courses in Social Work (SWSS)

### 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. Students are placed in human service agencies and organizations and learn the purposeful application of generalist social work theory, ethics, and skills. Prerequisite: Permission of Coordinator of Field Education.

Credits: 3.00 to 4.00

**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 Yr Field Pract**

Supervised field-based learning of 15-20 hours per week. Students are placed in



human service agencies and organizations and apply advanced social work practice related to an area of concentration. Prerequisite: Completion of all Foundation Year Graduate Level Coursework; permission of Field Education Coordinator.

Credits: 3.00

**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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## Graduate Courses in Sociology (SOC)

### 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 SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission. Cross-listed with: CDAE 218.  
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 - D2: 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, including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

Credits: 3.00

**SOC 219 - D1: 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 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 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 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 of 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 - D2: 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 Theory**

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 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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## Graduate Courses in Spanish (SPAN)

### SPAN 246 - Reading Cervantes

A topical approach to the study of Cervantes, author of Don Quijote de la Mancha, and his works' significance as a reflection of/on Spain's literary-cultural landscape. Prerequisite: SPAN 140.

Credits: 3.00

### SPAN 286 - Writing Revolution-Latin Amer

Topics may include early uprising against Spain, representation of revolutionary figures (Simon Bolivar, Pancho Villa, etc.), contemporary resistance to imperialism, among others. 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 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



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## Graduate Courses in Special Education (EDSP)

### 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 - D2:Foundations of Special Ed

Examination of historical and current trends in the treatment of individuals with disabilities including effects of discrimination, advocacy, litigation, legislation and economic considerations on educational services and community inclusion.

Prerequisite: Twelve hours in Education and related areas, or Instructor permission.

Credits: 3.00

### EDSP 202 - Severe Disabil Char&Intervent

Physical, sensory, health, intellectual and behavioral characteristics of developmental disabilities. Educational approaches and supports from various professional disciplines to educate students with severe disabilities. Prerequisite: Permission of Instructor.

Credits: 3.00

### EDSP 216 - Curr&Insruct in Special Ed

Introduction to curriculum and instruction for individuals who present academic and behavioral challenges. Emphasis on assessment, evaluation, curriculum, instruction, theories of learning and social development. Pre/co-requisite: Instructor Permission.

Credits: 3.00

### EDSP 217 - Behavior Analysis in SpecialEd

Individualized instruction for learners with significant disabilities emphasizing learning principles, behavior analysis, and research based instruction and interventions. Prerequisite: Instructor 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 - Adv Methods & Instr Special Ed**

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 - Early Lit and Math Curriculum**

Study of curriculum and technology areas related to development, adaptation, and assessment of early literacy and mathematics instruction for elementary age students with disabilities. Prerequisite: Instructor 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 - Adolescent Lit & Math Curric**

Development, adaptation and assessment of literacy and mathematics curriculum for adolescent age students with disabilities. Prerequisite: Instructor 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 - Historic Trend Issues Services**

Study treatment of individuals with disabilities, including effects of discrimination, advocacy, litigation, legislation, sociological perspectives and economic considerations in education, vocational, residential service systems. Prerequisite: Instructor 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/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: 3.00

**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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## Graduate Courses in Statistics (STAT)

### STAT 200 - Med Biostatistics&Epidemiology

(Cross listed with 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

(Cross listed with 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

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. Cross-listed with: BIOS 211.

Credits: 3.00

### STAT 221 - Statistical Methods II

Cross-listed with: BIOS 221. Multiple regression and correlation. Basic experimental design. Analysis of variance (fixed, random, and mixed models). Analysis of covariance. Computer software usage. Prerequisites: STAT 141 or STAT 143, or STAT 211.

Credits: 3.00

### STAT 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. Prerequisites: Any 200-level Statistics course; STAT 221 or STAT 225 recommended; matrix algebra recommended. Cross-listed with: BIOS 223.

Credits: 3.00

**STAT 224 - Stats for Quality&Productivity**

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: STAT 141 or STAT 143, or STAT 211.

Credits: 3.00

**STAT 225 - Applied Regression Analysis**

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**

Cross-listed with: PSYC 341. 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. Prerequisites: STAT 211 with computer experience or PSYC 340.

Credits: 3.00

**STAT 229 - Survival Analysis**

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. Cross-listed with: BIOS 229.

Credits: 3.00

**STAT 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: STAT 211, STAT 221 recommended.

Credits: 3.00

**STAT 233 - Survey Sampling**

Design and data analysis for sample surveys. Simple random, stratified, systematic, cluster, multistage sampling. Practical issues in planning and conducting surveys. Prerequisites: STAT 211; or STAT 141 or STAT 143 with Instructor permission.

Credits: 3.00



**STAT 235 - Categorical Data Analysis**

Measures of association and inference for categorical and ordinal data in multiway contingency tables. Log linear and logistic regression models. Prerequisite: STAT 211. Cross-listed with: BIOS 235.

Credits: 3.00

**STAT 237 - Nonparametric Statistical Mthd**

Nonparametric and distribution free methods; categorical, ordinal, and quantitative data; confidence intervals; rank and chi-square hypothesis tests; computer-intensive procedures (bootstrap, exact tests). Prerequisite: STAT 211; or STAT 141 or STAT 143 with Instructor permission.

Credits: 3.00

**STAT 241 - Statistical Inference**

Introduction to statistical theory: related probability fundamentals, derivation of statistical principles, and methodology for parameter estimation and hypothesis testing. Prerequisites: STAT 151 or STAT 153 or STAT 251, STAT 141 or equivalent, MATH 121. Cross-listed with: BIOS 241.

Credits: 3.00

**STAT 251 - Probability Theory**

Distributions of random variables and functions of random variables. Expectations, stochastic independence, sampling and limiting distributions (central limit theorems). Concepts of random number generation. Prerequisites: MATH 121; STAT 151 or STAT 153 recommended. Cross-listed with: MATH 207, BIOS 251.

Credits: 3.00

**STAT 252 - Appl Discr Stochas Proc Models**

Markov chain models for biological, social, and behavioral systems models. Random walks, transition and steady-state probabilities, passage and recurrence times. Prerequisite: STAT 151, STAT 153, or STAT 251.

Credits: 1.00

**STAT 253 - Appl Time Series & Forecasting**

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. Prerequisites: STAT 211 or STAT 225; or STAT 141 or STAT 143 with Instructor permission. Cross-listed with: CSYS 253.

Credits: 3.00

**STAT 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 MATH 271, STAT 153 or equivalent, and computer programming.  
Cross-listed with: CS 256, CSYS 256.  
Credits: 3.00

**STAT 261 - Statistical Theory I**

(Cross listed with Biostatistics 261.) 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: STAT 251 or either STAT 151 or STAT 153 with instructor permission.  
Credits: 3.00

**STAT 265 - Integrated Product Development**

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. Cross-listed with: BSAD 293.  
Credits: 3.00

**STAT 270 - Stochastic Processes in EE**

Probability theory, random variables, and stochastic processes. Response of linear systems to random inputs. Applications in electrical engineering. Prerequisite: EE 171 and STAT 151. Cross-listed with: EE 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 STAT 200, STAT 201, STAT 221 through STAT 237, or STAT 253; Some statistical software experience preferred. No credit for Graduate students in Statistics or Biostatistics.  
Credits: 3.00

**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 360 - Linear Models**

Theory of linear models, least squares and maximum likelihood estimation, fixed, random and mixed models, variance component estimation, introduction to generalized linear models, bootstrapping. Prerequisites: STAT 261 and knowledge of matrix algebra or Instructor permission.

Credits: 3.00

**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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## Graduate Courses in Vermont Studies (VS)

### 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

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## Graduate Courses in Water Resources (WR)

### WR 391 - Master Thesis Rsch

Credit as arranged.

Credits: 1.00 to 12.00



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## Graduate Courses in Wildlife & Fisheries Biology (WFB)

### WFB 232 - Ichthyology

Biology of fishes. Focus is on form and function, morphology, physiology, behavior, life history, and ecology of modern fishes. Prerequisites: BIOL 001, BIOL 002 or equivalent; Junior standing. Alternate years.

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.

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. Prerequisite: Previous or concurrent enrollment in WFB 271 or NR 260.

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: WFB 174.

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 WFB 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; WFB 074 or WFB 174 recommended.

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: BIOL 001 and BIOL 002, an ecology course, or Instructor permission.

Credits: 3.00

**WFB 285 - Advanced Special Topics**

Credits: 4.00

**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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[Animal Science \(A.M.P.\)](#)

Affiliated with: Animal Science Department, College of Agriculture and Life Sciences, Graduate College

[Animal Science \(M.S.\)](#)

Affiliated with: Animal Science Department, College of Agriculture and Life Sciences, Graduate College

[Animal, Nutrition and Food Science \(Ph.D.\)](#)

Affiliated with: Animal Science Department, Nutrition and Food Sciences Department, College of Agriculture and Life Sciences, Graduate College

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[Biochemistry \(M.S.\)](#)

Affiliated with: Biochemistry Department, College of Agriculture and Life Sciences, Graduate College

[Biochemistry \(Ph.D.\)](#)

Affiliated with: Biochemistry Department, College of Engineering and Mathematical Sciences

[Biology \(A.M.P.\)](#)

Affiliated with: Biology Department, College of Arts and Sciences, Graduate College

[Biology \(M.S.\)](#)

Affiliated with: Biology Department, College of Arts and Sciences, Graduate College

Biology (M.S.T.)

Affiliated with: Biology Department, College of Arts and Sciences, Graduate College

Biology (Ph.D.)

Affiliated with: Biology Department, College of Arts and Sciences, Graduate College

Biomedical Engineering (M.S.)

Affiliated with: Mechanical Engineering Program, Electrical Engineering Program,  
College of Engineering and Mathematical Sciences, Graduate College

Biostatistics (A.M.P.)

Affiliated with: Mathematics and Statistics Department, College of Engineering and  
Mathematical Sciences, Graduate College

Biostatistics (M.S.)

Affiliated with: Mathematics and Statistics Department, College of Engineering and  
Mathematical Sciences, Graduate College

Business Administration (M.B.A.)

Affiliated with: Graduate College, School of Business Administration

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[Cell and Molecular Biology \(M.S.\)](#)

Affiliated with: Cell and Molecular Biology Program, Graduate College

[Cell and Molecular Biology \(Ph.D.\)](#)

Affiliated with: Cell and Molecular Biology Program, Graduate College

[Chemistry \(M.S.\)](#)

Affiliated with: Chemistry Department, College of Arts and Sciences, Graduate College

[Chemistry \(Ph.D.\)](#)

Affiliated with: Chemistry Department, College of Arts and Sciences, Graduate College

[Civil and Environmental Engineering \(M.S.\)](#)

Affiliated with: Civil Engineering Program, College of Engineering and Mathematical Sciences, Graduate College

Civil and Environmental Engineering (Ph.D.)

Affiliated with: Civil Engineering Program, College of Engineering and Mathematical Sciences, Graduate College

Communication Sciences (M.S.)

Affiliated with: Communication Sciences Department, College of Arts and Sciences, Graduate College

Community Development and Applied Economics (M.S.)

Affiliated with: Community Development and Applied Economics Department, College of Agriculture and Life Sciences, Graduate College

Computer Science (A.M.P.)

Affiliated with: Computer Science Department, College of Engineering and Mathematical Sciences, Graduate College

Computer Science (M.S.)

Affiliated with: Computer Science Department, College of Engineering and Mathematical Sciences, Graduate College

Computer Science (Ph.D.)

Affiliated with: Computer Science Department, College of Engineering and Mathematical Sciences, Graduate College

Counseling (M.S.)

Affiliated with: Integrated Professional Studies Department, College of Education and Social Services, Graduate College

Counseling (Post-Master's Certificate)

Affiliated with: Integrated Professional Studies Department, College of Education and Social Services

Curriculum and Instruction (M.A.T.)

Affiliated with: College of Education and Social Services, Graduate College

Curriculum and Instruction (M.Ed.)

Affiliated with: Education Department, College of Education and Social Services, Graduate College

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#### Dietetics (M.S.D.)

Affiliated with: Nutrition and Food Sciences Department, College of Agriculture and Life Sciences, Graduate College

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[Educational Leadership \(M.Ed.\)](#)

Affiliated with: Education Department, College of Education and Social Services, Graduate College

[Educational Leadership \(Post-Master's Certificate\)](#)

Affiliated with: Education Department, College of Education and Social Services

[Educational Leadership and Policy Studies \(Ed.D.\)](#)

Affiliated with: Education Department, College of Education and Social Services, Graduate College

[Educational Studies \(M.Ed.\)](#)

Affiliated with: Education Department, College of Education and Social Services, Graduate College



Electrical Engineering (A.M.P.)

Affiliated with: Electrical Engineering Program, College of Engineering and Mathematical Sciences, Graduate College

Electrical Engineering (M.S.)

Affiliated with: Electrical Engineering Program, College of Engineering and Mathematical Sciences, Graduate College

Electrical Engineering (Ph.D.)

Affiliated with: Electrical Engineering Program, College of Engineering and Mathematical Sciences, Graduate College

English (M.A.)

Affiliated with: English Department, College of Arts and Sciences, Graduate College

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#### French (M.A.)

Affiliated with: Romance Languages Department, College of Arts and Sciences, Graduate College

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[Geology \(M.S.\)](#)

Affiliated with: Geology Department, College of Arts and Sciences, Graduate College

[German \(M.A.\)](#)

Affiliated with: German and Russian Department, College of Arts and Sciences, Graduate College

[Greek and Latin \(M.A.\)](#)

Affiliated with: Classics Department, College of Arts and Sciences, Graduate College

[Greek and Latin \(M.A.T.\)](#)

Affiliated with: Classics Department, College of Arts and Sciences, Graduate College

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[Higher Education and Student Affairs Administration \(M.Ed.\)](#)

Affiliated with: Integrated Professional Studies Department, College of Education and Social Services, Graduate College

[Historic Preservation \(M.S.\)](#)

Affiliated with: History Department, College of Arts and Sciences, Graduate College

[History \(M.A.\)](#)

Affiliated with: History Department, College of Arts and Sciences, Graduate College

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[Integrated Studies \(Post-Master's Certificate\)](#)

Affiliated with: College of Education and Social Services

[Interdisciplinary \(M.Ed.\)](#)

Affiliated with: Integrated Professional Studies Department, College of Education and Social Services, Graduate College

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[Master's Entry Program In Nursing \(Pre-License/M.S.\) \(M.S.\)](#)

Affiliated with: Nursing Department, College of Nursing and Health Sciences

[Materials Science \(A.M.P.\)](#)

Affiliated with: Physics Department, Mechanical Engineering Program, Chemistry Department, College of Engineering and Mathematical Sciences, Graduate College

[Materials Science \(M.S.\)](#)

Affiliated with: Materials Science Program, College of Arts and Sciences, College of Engineering and Mathematical Sciences, Graduate College

[Materials Science \(Ph.D.\)](#)

Affiliated with: Materials Science Program, College of Arts and Sciences, College of Engineering and Mathematical Sciences, Graduate College

Mathematical Sciences (Ph.D.)

Affiliated with: Mathematics and Statistics Department, College of Engineering and Mathematical Sciences, Graduate College

Mathematics (A.M.P.)

Affiliated with: Mathematics and Statistics Department, College of Engineering and Mathematical Sciences, Graduate College

Mathematics (M.S.)

Affiliated with: Mathematics and Statistics Department, College of Engineering and Mathematical Sciences, Graduate College

Mathematics (M.S.T.)

Affiliated with: Mathematics and Statistics Department, College of Engineering and Mathematical Sciences, Graduate College

Mathematics: Statistics (A.M.P.)

Affiliated with: Mathematics and Statistics Department, College of Engineering and Mathematical Sciences, Graduate College

Mechanical Engineering (A.M.P.)

Affiliated with: Mechanical Engineering Program, College of Engineering and Mathematical Sciences, Graduate College

Mechanical Engineering (M.S.)

Affiliated with: Mechanical Engineering Program, College of Engineering and Mathematical Sciences, Graduate College

Mechanical Engineering (Ph.D.)

Affiliated with: Mechanical Engineering Program, College of Engineering and Mathematical Sciences, Graduate College

Microbiology and Molecular Genetics (A.M.P.)

Affiliated with: Microbiology and Molecular Genetics Department, College of Agriculture and Life Sciences, Graduate College

Microbiology and Molecular Genetics (M.S.)

Affiliated with: Microbiology and Molecular Genetics Department, College of Agriculture and Life Sciences, Graduate College

Microbiology and Molecular Genetics (Ph.D.)

Affiliated with: Microbiology and Molecular Genetics Department, Graduate College

Molecular Physiology and Biophysics (M.S.)

Affiliated with: Molecular Physiology and Biophysics Department, College of Agriculture and Life Sciences, Graduate College

Molecular Physiology and Biophysics (Ph.D.)

Affiliated with: Molecular Physiology and Biophysics Department, College of Agriculture and Life Sciences, Graduate College

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#### Natural Resources (Ph.D.)

Affiliated with: Natural Resources Program, Graduate College, The Rubenstein School of Environment and Natural Resources

#### Natural Resources: Aquatic Ecology and Watershed Science (M.S.)

Affiliated with: Natural Resources Program, Graduate College, The Rubenstein School of Environment and Natural Resources

#### Natural Resources: Environment, Society and Public Affairs (M.S.)

Affiliated with: Natural Resources Program, Graduate College, The Rubenstein School of Environment and Natural Resources

#### Natural Resources: Environmental Thought and Culture (M.S.)

Affiliated with: Natural Resources Program, Graduate College, The Rubenstein School of Environment and Natural Resources

Natural Resources: Forestry (M.S.)

Affiliated with: Natural Resources Program, Graduate College, The Rubenstein School of Environment and Natural Resources

Natural Resources: Wildlife Biology (M.S.)

Affiliated with: Natural Resources Program, Graduate College, The Rubenstein School of Environment and Natural Resources

Neuroscience (M.S.)

Affiliated with: Neuroscience Program, Anatomy and Neurobiology Department, College of Arts and Sciences, Graduate College

Neuroscience (Ph.D.)

Affiliated with: Anatomy and Neurobiology Department, Neuroscience Program, College of Arts and Sciences, Graduate College

Nursing (A.M.P.)

Affiliated with: Nursing Department, College of Nursing and Health Sciences, Graduate College

Nursing (M.S.)

Affiliated with: Nursing Department, College of Nursing and Health Sciences, Graduate College

Nutrition and Food Sciences (M.S.)

Affiliated with: Nutrition and Food Sciences Department, College of Agriculture and Life Sciences, Graduate College

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[Pathology \(M.S.\)](#)

Affiliated with: Pathology Department, Graduate College

[Pharmacology \(M.S.\)](#)

Affiliated with: Pharmacology Department, Graduate College

[Pharmacology \(Ph.D.\)](#)

Affiliated with: Pharmacology Department, Graduate College

[Physical Therapy \(D.P.T.\)](#)

Affiliated with: Rehabilitation and Movement Science Department, College of Nursing and Health Sciences, Graduate College

[Physics \(A.M.P.\)](#)

Affiliated with: Physics Department, College of Arts and Sciences, Graduate College

Physics (M.S.)

Affiliated with: Physics Department, College of Arts and Sciences, Graduate College

Plant Biology (M.S.)

Affiliated with: Plant Biology Department, College of Agriculture and Life Sciences, Graduate College

Plant Biology (Ph.D.)

Affiliated with: Plant Biology Department, College of Agriculture and Life Sciences, Graduate College

Plant and Soil Science (M.S.)

Affiliated with: Plant and Soil Science Department, Graduate College

Plant and Soil Science (Ph.D.)

Affiliated with: Plant and Soil Science Department, College of Agriculture and Life Sciences, Graduate College

Psychology (M.A.)

Affiliated with: Psychology Department, College of Arts and Sciences, Graduate College

Psychology (Ph.D.)

Affiliated with: Psychology Department, College of Arts and Sciences, Graduate College

Public Administration (A.M.P.)

Affiliated with: Community Development and Applied Economics Department, College of Agriculture and Life Sciences, Graduate College

Public Administration (M.P.A.)

Affiliated with: Community Development and Applied Economics Department, College of Agriculture and Life Sciences, Graduate College

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[Reading and Language Arts \(M.Ed.\)](#)

Affiliated with: Education Department, College of Education and Social Services, Graduate College

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Affiliated with: Social Work Department, College of Education and Social Services, Graduate College

#### [Special Education \(M.Ed.\)](#)

Affiliated with: Integrated Professional Studies Department, Education Department, College of Education and Social Services, Graduate College

#### [Special Education \(Post-Master's Certificate\)](#)

Affiliated with: Integrated Professional Studies Department, Education Department, College of Education and Social Services

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[Teacher Preparation \(Postbaccalaureate Certificate\)](#)

Affiliated with: Education Department, Integrated Professional Studies Department, College of Education and Social Services

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No graduate degrees start with the letter 'u'.

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No graduate degrees start with the letter 'w'.

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No graduate degrees start with the letter 'y'.



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No graduate degrees start with the letter 'z'.



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### Contact Information

*University of Vermont*  
*Graduate College*  
 333 Waterman Building  
 Burlington, VT 05405-0160

Phone: (802) 656-3160  
 Fax: (802) 656-0519  
 Email: [gradcoll@uvm.edu](mailto:gradcoll@uvm.edu)

[Web Site](#)

### Overview

The Graduate College of The University of Vermont is responsible for all advanced degree programs except the program leading to the degree of Doctor of Medicine. The mission of the Graduate College is to provide the environment for high quality graduate education by simulating and supporting the intellectual and professional development of a diverse faculty and student body; by promoting interdisciplinary and innovative forms of scholarship, research, and curricula; and by recognizing scholarly excellence.

Although the Graduate College was established formally in 1952, the University recognized early the value of graduate education, awarding its first master's degree in 1807. Today, the Graduate College offers 52 different master's programs of study and 21 doctoral programs. During the 2006-2007 academic year, 399 master's and 57 doctoral degrees were awarded. The College enrolls approximately 1,300 students, more than 450 of these pursuing the doctorate.

The combination of sound library holdings, laboratories, and computer facilities, along with the engaging size of the University, affords a unique opportunity to pursue high

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- Continuing Education

quality graduate programs in a challenging yet personable environment.

- **Graduate College**

A variety of scholarships, fellowships, assistantships, and loan programs are available in limited numbers to students with solid and sustained records of academic performance.

- Honors College

The Graduate College is served by an Executive Committee comprised of faculty and a graduate student member . The Executive Committee works closely with the Dean of the Graduate College to insure comprehensive and outstanding programs of study .

- School of Business Administration

[\[Location\]](#)

- The Rubenstein School of Environment and Natural Resources

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## Master of Science for Teachers (M.S.T.)

- [Biology \(M.S.T.\)](#)
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### **Master of Education (M.Ed.)**

- Curriculum and Instruction (M.Ed.)
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### **Master of Business Administration (M.B.A.)**

- Business Administration (M.B.A.)

### **Master of Public Administration (M.P.A.)**

- Public Administration (M.P.A.)

### **Master of Social Work (M.S.W.)**

- Social Work (M.S.W.)

### **Master of Dietetics (M.S.D.)**

- Dietetics (M.S.D.)

### **Doctor of Education (Ed.D.)**

- Educational Leadership and Policy Studies (Ed.D.)

### **Doctor of Philosophy (Ph.D.)**

- Animal, Nutrition and Food Science (Ph.D.)
- Biochemistry (Ph.D.)
- Biology (Ph.D.)
- Cell and Molecular Biology (Ph.D.)
- Chemistry (Ph.D.)
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## Animal Science (Accelerated Masters Program)

### Overview

An option for the outstanding student with an interest in a graduate degree is the Accelerated Maser's in which students commence study for their maser's degree in their senior year and have the potential to obtain a B.S./M.S. in a five-year period.

Further details about the Accelerated Maser's Program (AMP, available for students majoring in Animal Sciences or Biological Science, can be obtained from the Department of Animal Science, 102 Terrill Hall, (802) 656-0155.

### Specific Requirements

([Click here](#))

### Affiliations

- Colleges and Schools:[College of Agriculture and Life Sciences](#).[Graduate College](#).
- Departments and Programs:[Animal Science Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Biology (A.M.P.)

## Biology (Accelerated Masters Program)

### Overview

A master's degree in Biology can be earned in a shortened time by careful planning in the junior and senior years of Biology B.S. majors at UVM. Students should discuss this possibility with the Department Graduate Program Director as soon as they think they might be interested in the program. The M.S. can typically be earned in one additional year. Up to six credits of undergraduate course work taken in the junior and senior year can be counted towards the M.S. degree requirement, including [BIOL 202](#), [BIOL 203](#), [BIOL 205](#), [BIOL 208](#), [BIOL 209](#), [BIOL 212](#), [BIOL 217](#), [BIOL 219](#), [BIOL 223](#), [BIOL 225](#), [BIOL 238](#), [BIOL 246](#), [BIOL 254](#), [BIOL 255](#), [BIOL 263](#), [BIOL 264](#), [BIOL 265](#), [BIOL 267](#), [BIOL 270](#), and [BIOL 276](#).

To be eligible for the AMP, a student must be a declared Biology B. S. major and have identified a faculty sponsor. Other requirements include a G.P.A. typically higher than 3.1 overall and 3.3 in biology courses. Following admission, students are required to take at least 3 credit hours of undergraduate research. After graduation with the B.S. degree, students are eligible to become candidates for the M.S. degree. Applications and further information may be obtained from the Department of Biology.

### Specific Requirements

[\(Click here\)](#)

### Affiliations

- Colleges and Schools:[College of Arts and Sciences](#).[Graduate College](#).
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## Biostatistics (Accelerated Masters Program)

### Overview

Accelerated master's programs in Mathematics, Statistics, and Biostatistics are also offered. These programs allow students to earn both their B.S. and M.S. degrees in as little as five years.

A maser's degree in Mathematics, in Statistics or in Biostatistics can be earned in a shortened time by careful planning during the junior and senior years at UVM. For example, the M.S. could be earned in just one additional year , because six credits of undergraduate courses can also be counted concurrently towards the M.S. degree requirements. A student must declare his/her wish to enter the Accelerated Masers Program in Mathematics in writing to the department chair before the end of their sophomore year, and before they have taken [MATH 241](#) . They would apply to the Graduate College for admission, noting their interest in the accelerated Maser's program. They can receive concurrent undergraduate and graduate credit for one or two courses, once admitted. Please refer to Section 13 of the [Handbook for Graduate Studies in Mathematics \(.pdf\)](#)  for detailed information. Students should discuss the possibility of an accelerated master's program in Statistics or in Biostatistics with the statistics program director as soon as they think they may be interested in this program.

### Affiliations

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- Departments and Programs:[Mathematics and Statistics Department](#) .

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## Computer Science (Accelerated Masters Program)

### Overview

The Accelerated Master's Program (AMP in Computer Science) allows students with strong ability and motivation to complete a bachelor and a master's degree in computer science within five years. It is expected that students enrolled in this program will pursue a master's thesis on original research commencing in the summer following their senior year.

Undergraduates interested in the AMP should discuss this option with the Director of Graduate Studies in Computer Science during their junior year.

### Specific Requirements

The first four years of the AMP consist of a complete undergraduate program in Computer Science, satisfying the curricular requirements for either the Bachelor of Science in Computer Science (B.S./CS), the Bachelor of Science, major in Computer Science and Information Systems (B.S./CSIS), or the Bachelor of Arts, major in Computer Science (B.A./CS). During the fourth year, a student in the A.M.P. has dual status, being an undergraduate student in Computer Science, and simultaneously a first-year graduate student in Computer Science. Up to six credit hours of courses taken during an A.M.P. student's senior year can be applied simultaneously towards the bachelor's and master's degree requirements. These courses must be approved in advance by the Director of Graduate Studies in Computer Science.

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- Colleges and Schools: [College of Engineering and Mathematical Sciences](#), [Graduate College](#), [College of Arts and Sciences](#).
- Departments and Programs: [Computer Science Department](#).

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## Electrical Engineering (Accelerated Masters Program)

### Overview

Qualified undergraduate students who plan to earn a thesis-based master's degree in Electrical Engineering may enroll in the program's Accelerated M.S. Degree Program, which enables students to begin working on a master's degree while still an undergraduate. Students apply for the Accelerated M.S. Program in the second semester of their junior year. Upon entering the Accelerated M.S. Program, students may take up to 9 credit hours of courses for graduate credit while still an undergraduate. Of these, up to 6 credit hours of 200-level or higher courses can be counted toward both the B.S. and the M.S. degrees, subject to approval of the student's graduate advisor. Students in the Accelerated M.S. Program typically begin work toward their master's thesis starting in the summer following their junior year. To be admitted to the Accelerated M.S. Program, students must have a cumulative grade point average of at least 3.2 at the time of application, and they must submit a letter of application to the Graduate Program Coordinator naming a faculty member who has agreed to serve as their graduate advisor.

### Specific Requirements

([Click here](#))

### Affiliations

- Colleges and Schools:[College of Engineering and Mathematical Sciences, Graduate College.](#)
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## Materials Science (Accelerated Masters Program)

### Overview

The program offers an Accelerated Masters Program leading to both B.S. and M.S. degrees in five years. The program is open to undergraduate chemistry, physics, electrical engineering, and mechanical engineering majors. Interested students should contact the Materials Science Director by the beginning of their junior year.

### Specific Requirements

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## Mathematics (Accelerated Masters Program)

### Overview

Accelerated master's programs in Mathematics, Statistics, and Biostatistics are also offered. These programs allow students to earn both their B.S. and M.S. degrees in as little as five years.

A master's degree in Mathematics, in Statistics or in Biostatistics can be earned in a shortened time by careful planning during the junior and senior years at UVM. For example, the M.S. could be earned in just one additional year, because six credits of undergraduate courses can also be counted concurrently towards the M.S. degree requirements. A student must declare his/her wish to enter the Accelerated Masters Program in Mathematics in writing to the department chair before the end of their sophomore year, and before they have taken [MATH 241](#). They would apply to the Graduate College for admission, noting their interest in the accelerated Master's program. They can receive concurrent undergraduate and graduate credit for one or two courses, once admitted. Please refer to Section 13 of the [Handbook for Graduate Studies in Mathematics \(.pdf\)](#)  for detailed information. Students should discuss the possibility of an accelerated master's program in Statistics or in Biostatistics with the statistics program director as soon as they think they may be interested in this program.

### Affiliations

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Colleges and Schools > Graduate College > Academic Offerings > Mathematics: Statistics (A.M.P.)

## Mathematics: Statistics (Accelerated Masters Program)

### Overview

Accelerated master's programs in Mathematics, Statistics, and Biostatistics are also offered. These programs allow students to earn both their B.S. and M.S. degrees in as little as five years.

A master's degree in Mathematics, in Statistics or in Biostatistics can be earned in a shortened time by careful planning during the junior and senior years at UVM. For example, the M.S. could be earned in just one additional year, because six credits of undergraduate courses can also be counted concurrently towards the M.S. degree requirements. A student must declare his/her wish to enter the Accelerated Masters Program in Mathematics in writing to the department chair before the end of their sophomore year, and before they have taken [MATH 241](#). They would apply to the Graduate College for admission, noting their interest in the accelerated Master's program. They can receive concurrent undergraduate and graduate credit for one or two courses, once admitted. Please refer to Section 13 of the [Handbook for Graduate Studies in Mathematics \(.pdf\)](#)  for detailed information. Students should discuss the possibility of an accelerated master's program in Statistics or in Biostatistics with the statistics program director as soon as they think they may be interested in this program.

### Affiliations

- Colleges and Schools:[College of Engineering and Mathematical Sciences](#).[Graduate College](#).[College of Arts and Sciences](#).
- Departments and Programs:[Mathematics and Statistics Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Mechanical Engineering (A.M.P.)

## Mechanical Engineering (Accelerated Masters Program)

### Overview

Qualified undergraduate students who plan to earn a thesis-based master's degree in mechanical engineering may enroll in the program's accelerated M.S. program, which enables students to begin working on a master's degree while still an undergraduate. Students apply for the accelerated M.S. program in the second semester of their junior year. Upon entering the accelerated M.S. program, students may take up to 9 credit hours of courses for graduate credit while still an undergraduate. Of these, up to 6 credit hours of 200-level or higher courses can be counted toward both the B.S. and the M.S. degrees, subject to approval of the student's graduate advisor. Students in the accelerated M.S. program typically begin work toward their master's thesis starting in the summer following their junior year. To be admitted to the accelerated M.S. program, students must have a cumulative grade point average of 3.2 at the time of application, and they must submit a letter of application to the Graduate Program Coordinator naming a faculty member who has agreed to serve as their graduate advisor.

### Specific Requirements

([Click here](#))

### Affiliations

- Colleges and Schools:[College of Engineering and Mathematical Sciences, Graduate College.](#)
- Departments and Programs:[Mechanical Engineering Program.](#)

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Colleges and Schools > Graduate College > Academic Offerings > Microbiology and Molecular Genetics (A.M.P.)

## Microbiology and Molecular Genetics (Accelerated Masters Program)

### Overview

Outstanding students with an interest in the graduate degree may apply to enter the Accelerated Masters Program of the Department. In this program students commence study for their master's degree in their senior year and have the potential to obtain a B.S./M.S. in a five-year period.

Microbiology and Molecular Genetics normally accepts only applicants for the Ph. D. program. However, UVM undergraduate students may apply for the Accelerated Master's Program.

### Specific Requirements

([Click here](#))

### Affiliations

- Colleges and Schools:[College of Agriculture and Life Sciences](#).[Graduate College](#).[College of Medicine](#).
- Departments and Programs:[Microbiology and Molecular Genetics Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Nursing (A.M.P.)

## Nursing (Accelerated Masters Program)

### Overview

An R.N.-B.S.-M.S. program is available for current registered nurses. More details can be found under the B.S. in Nursing Science (for Registered Nurses).

### Specific Requirements

[\(Click here\)](#)

### Affiliations

- Colleges and Schools:[College of Nursing and Health Sciences](#).[Graduate College](#).
- Departments and Programs:[Nursing Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Physics (A.M.P.)

## Physics (Accelerated Masters Program)

### Overview

Students must apply for the Accelerated Master's Program (AMP) during spring semester of their junior years. Students interested in the AMP can request information in writing from the Department. Recommendation for admission will be based upon the student's prior academic record with particular attention paid to performance in upper-division 200-level physics courses. Generally, AMP students must begin a research project by or during the summer prior to their senior years.

### Specific Requirements

([Click here](#))

### Affiliations

- Colleges and Schools:[College of Arts and Sciences](#).[Graduate College](#).
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Colleges and Schools > Graduate College > Academic Offerings > Public Administration (A.M.P.)

## Public Administration (Accelerated Masters Program)

### Overview

The AMP-PA affords UVM students the opportunity to secure a sound undergraduate and graduate program of study in five rather than a minimum of six years, integrates more closely both programs of study, and enhances competitiveness in a marketplace stressing broad undergraduate and focused professional graduate education. The AMP-PA welcomes students majoring in the administrative, behavioral, health, environmental, organizational, social sciences and related disciplines requiring graduate work in administration, or planning and policy capacities in the public service. For more information contact the MPA Office (802 656-2606).

### Specific Requirements

[\(Click here\)](#)

### Affiliations

- Colleges and Schools: [College of Agriculture and Life Sciences](#). [Graduate College](#).
- Departments and Programs: [Community Development and Applied Economics Department](#).

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- College of Nursing and Health Sciences

Colleges and Schools > Graduate College > Academic Offerings > Physical Therapy (D.P.T.)

## Physical Therapy (Doctor of Physical Therapy)

### Overview

Students will enter the DPT professional entry-level program. The DPT contains course work related to the science and art of physical therapy practice including the basic sciences of anatomy, physiology and neuroscience, the clinical sciences of pathophysiology and pharmacology related to sensorimotor function, and the applied sciences of exercise, physical agents, orthotics and environmental modification. Principles of research, education, administration, and ethical practice in multicultural settings will be addressed throughout this curriculum. Students will acquire necessary knowledge, skills, and behaviors through case studies and practice which integrate basic and clinical sciences, professional practice and critical inquiry in a progression from the foundational sciences and clinical care issues, to an integration of health care practice, research and policy issues. Upon completion of the program, graduates will be eligible to sit for the national professional licensure examination.

The full-time Clinical Education Program is an integral part of the curriculum, offering the student opportunities to apply knowledge, skills and behaviors in the clinical setting. The program is widely affiliated throughout the U.S., but focused in the Northeast. Students affiliating will be responsible for the cost of medically required vaccinations, transportation and living expenses (including room and board) during the full-time clinical experiences. All students in the program are required to carry professional liability insurance prior to enrolling in the clinical education experience. Students should plan their finances to include these expenses. Students who matriculate in the Doctor of Physical Therapy program are required to complete a Criminal Background Check prior to July 1st of the year in which they begin the professional program. Evidence of a Criminal Record may prevent students from being eligible for clinical placement, and/or professional licensure. The affiliations will be scheduled as indicated in the curriculum plan unless insufficient clinical sites are available; in that case, students may be required to complete clinical affiliation requirements in an alternate time period.

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## Specific Requirements

### UVM Undergraduate to Graduate Admission

UVM undergraduates interested in pursuing the Doctor of Physical Therapy (DPT degree) are eligible for direct matriculation into the program following completion of their undergraduate degree requirements and physical therapy requirements. Students must first complete an undergraduate application then select and be admitted to an undergraduate major. These students may follow an undergraduate-to-graduate program model of 4+3 or an accelerated 3+3 model. Students following the accelerated program are awarded the baccalaureate degree in their undergraduate major after the successful completion of their first year of study in physical therapy .

Students will be considered eligible for matriculation if they meet the following criteria:

- Successfully complete requirements for the undergraduate major and minor (where applicable) with an overall GPA of 3.0 or higher;
- Successfully complete the prerequisites for the physical therapy program by the end of the junior year (accelerated) or senior years at UVM;
- Complete science prerequisites with an overall GPA of 3.0 or higher.

The process for matriculation for all UVM students will include:

- Completion of the paper Graduate College Application;
- 3 letters of recommendation using the Graduate College Letter of Recommendation Form;
- Waiver of application fee.

### Post Baccalaureate Admission

Applicants who have already completed a baccalaureate, master of doctoral degree in other disciplines are encouraged to apply to the Doctor of Physical Therapy program. The total length of post baccalaureate study in the DPT program is three years, including some summer course work.

### Prerequisites to the DPT Program for the Degree of Doctor of Physical Therapy

Students must have completed the following college level prerequisites: 2 semesters of chemistry, with laboratory, including introduction to organic chemistry; 2 semesters of physics, with laboratory; 1 semester of statistics; one semester of biology; 2 semesters of anatomy and physiology, one semester of psychology .

### Admissions Requirements for the Degree of Doctor of Physical Therapy

Minimum GPA of 3.0 in college level courses and minimum overall GPA of 3.0 in science prerequisites. Competence in conveying ideas in an organized manner, critical thinking and logic, and writing as demonstrated in a writing sample. Excellent interpersonal and

communication skills as evidenced by life and community experience. Commitment to the profession of physical therapy, as assessed by volunteer or work experience in PT settings. Three letters of reference, at least one each from professional and educational sources. Official transcript, completion of application form, completion of health form. For students who will have completed a minimum of a baccalaureate degree prior to enrolling in the DPT program, submission of scores of the Graduate Record Examination. A minimum score of 500 on the verbal and quantitative sections and 4.0 on the written analytical section is expected.

### **Minimum Degree Requirements for the Degree of Doctor of Physical Therapy**

Satisfactory completion of 99 credits of graduate courses in physical therapy, including 5 credits in Anatomy, 4 credits in Neuroscience, 6 credits in Physiology, and 13 credits of full-time Clinical Education.

### **Affiliations**

- Colleges and Schools: [College of Nursing and Health Sciences](#), [Graduate College](#).
- Departments and Programs: [Rehabilitation and Movement Science Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > English (M.A.)

## English (Master of Arts)

### Overview

The research interests of the faculty of the Department of English and library resources permit graduate students to undertake thesis subjects in virtually all fields of the discipline.

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Arts

An undergraduate major in English or its equivalent; satisfactory scores on the general (aptitude Graduate Record Examinations; demonstration of proficiency in writing by a detailed statement concerning the purpose in pursuing graduate study in English. If admitted conditionally the student must complete satisfactorily a stipulated number of hours (usually six) of graduate level work.

#### Requirements for Advancement to Candidacy for the Degree of Master of Arts

Satisfactory completion of 18 hours of appropriate credit.

#### Minimum Degree Requirements for the Degree of Master of Arts

*Thesis Option:* Completion of 24 credits of course work, including five of the following six: [ENGS 320](#), [ENGS 330](#), [ENGS 340](#), [ENGS 350](#), [ENGS 360](#), and [ENGS 370](#) or ENGS 201-296; and at least nine additional hours (at least three of these nine in English or Humanities, at most six in related fields). Candidates must submit a customized reading list, pass a comprehensive exam based on it, and complete six additional hours by writing an acceptable thesis and defending it successfully ([ENGS 391](#)).



- Continuing Education
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*Nonthesis Option:* Completion of 30 credits of course work, including five of the following six: [ENGS 320](#), [ENGS 330](#), [ENGS 340](#), [ENGS 350](#), [ENGS 360](#), and [ENGS 370](#) or ENGS 201-296; and at least fifteen additional credits (at least nine of these in English or Humanities, at most six in related fields). Candidates must pass a three-part comprehensive examination based on set Departmental reading lists, and must receive a grade of B+ or better on two seminar papers submitted to an ad hoc faculty Reading Committee ([ENGS 392](#)).

*Both Options:* All M.A. candidates in English must demonstrate a reading knowledge of a foreign language by examination or by advanced coursework.

### Affiliations

- Colleges and Schools:[College of Arts and Sciences](#).[Graduate College](#).
- Departments and Programs:[English Department](#).

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- College of Nursing and Health Sciences

Colleges and Schools > Graduate College > Academic Offerings > French (M.A.)

## French (Master of Arts)

### Overview

Opportunities for thesis research in the literatures and cultures of France, Quebec, and other regions of the Francophone world.

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Arts

An undergraduate major in French or equivalent. Satisfactory scores on the general (aptitude) Graduate Record -Examinations.

### Minimum Degree Requirements

#### Master of Arts

Twenty-four credit hours of course work, including the Graduate Humanities Seminar and EDSC 259 (Teaching Foreign Language in the Schools). In addition, six hours of directed research, with the following options:

*Plan A:* Thesis research (six hours)

*Plan B:* Two research papers (six hours)

Candidates must pass an examination in four areas of their study.

### Affiliations

- Colleges and Schools: College of Arts and Sciences. Graduate College.
- Departments and Programs: Romance Languages Department.

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- College of Nursing and Health Sciences

Colleges and Schools > Graduate College > Academic Offerings > German (M.A.)

## German (Master of Arts)

### Overview

Current research interests include GDR literature; history of the German language; medieval literature; literature of the 18th, 19th, and 20th centuries; and folklore.

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Arts

An undergraduate major in German, including a year course in literature and a year course in advanced composition and conversation or the equivalent. Satisfactory scores on the Graduate Record Examinations general (aptitude) section.

#### Minimum Degree Requirements

Thirty hours of graduate level courses including [GERM 281](#), [GERM 282](#) or [GERM 295](#), [GERM 296](#); additional courses in German, which may include two advanced courses in a related field (six hours), thesis research (six to 12 hours).

The department also offers a program leading to the degree of Master of Arts in Teaching.

#### Affiliations

- Colleges and Schools:[College of Arts and Sciences](#).[Graduate College](#).
- Departments and Programs:[German and Russian Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Greek and Latin (M.A.)

## Greek and Latin (Master of Arts)

### Overview

Current research interests include Homer; Mycenaean and Homeric Greece; Greek and Latin lyric and elegiac poetry; Greek drama; the Attic orators; ancient literary criticism; Greek and Roman philosophy and intellectual History; Greek and Roman historiography; Greek and Latin Prose; Cicero; Virgil; Latin epic; Petronius, satire; Greek and Roman technological authors; Roman history; Roman Imperial Families; Mythology; Archaeology; Medieval studies.

### Specific Requirements

#### Requirements for Admission to Graduate Studies in Greek and Latin for the Degree of Master of Arts

An undergraduate major or minor or the equivalent; a reading knowledge of a modern foreign language, usually French, German, or Italian.

### Minimum Degree Requirements

Eighteen hours of advanced courses in Greek and Latin, six hours of which must be 381; six additional hours in Greek and Latin, History, or Philosophy; thesis research (normally six hours). Comprehensive examinations in Greek and Latin translation, at least one modern foreign language, Greek and Roman history, and literature and philology are required. In addition to course work, students will have a reading list of authors in Greek and Latin.

### Courses:

### A. Thesis Option:

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24 hours of graded course work plus at least six hours of thesis research (GKLT 391, and successful completion and defense of a Master's Thesis. The 24 hours of course work consist of: GKLT 300; 6 hours of GKLT 381; 9 additional hours of advanced courses in Greek and Latin; 6 additional hours in Greek, Latin, Classics, or approved hours in related fields.

## B. Non-thesis Option:

30 hours of graded course work. The 30 hours of course work consist of: GKLT 300; 6 hours of GKLT 381; 15 additional hours of advanced courses in Greek, Latin, and Classics; 6 additional hours in Greek, Latin, Classics, or approved hours in related fields.

## Both Options

Comprehensive examinations in Greek, Latin, at least one modern foreign language, ancient history, and literature and philology are required. In addition to course work, students will have a list of ancient authors to be read in the original languages.

Those who expect the department's recommendation to go on for a Ph.D. elsewhere ordinarily choose the thesis option and must show competence in both German and French by the end of their first year of graduate study.

## Affiliations

- Colleges and Schools: [College of Arts and Sciences](#). [Graduate College](#).
- Departments and Programs: [Classics Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > History (M.A.)

## History (Master of Arts)

### Overview

The History Department offers a comprehensive program of courses in the history of the Western Hemisphere, European history, and non-Western history.

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Arts

Applicants should have an undergraduate major in history, or in a related field of the social sciences or humanities with the equivalent of a minor in history. They must take the Graduate Record Examination and submit with the application a sample of writing, such as a research paper done in the course of undergraduate study.

#### Requirements for Advancement to Candidacy for the Degree of Masters of Arts

Each student's Studies Committee will certify admission to candidacy when it has approved a course of study (which may include remedial work such as courses in appropriate foreign languages) and a tentative thesis topic.

#### Minimum Degree Requirements for the Degree of Master of Arts

**Plan A:** (Non-thesis) Thirty hours of coursework in history, at least fifteen of which must be earned in seminar courses.

**Plan B:** (Thesis) Thirty hours of coursework in history, including six hours of thesis research. The thesis must be successfully defended in an oral examination.

Each plan requires that the student pass a comprehensive exam (oral or written in two

• Continuing  
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areas of historical knowledge.

• Graduate College

### Affiliations

• Honors College

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Colleges and Schools > Graduate College > Academic Offerings > Psychology (M.A.)

## Psychology (Master of Arts)

### Overview

Additional clinical, research, and adjunct faculty supervise students in clinical and research placements.

The Ph. D. Program in General/Experimental psychology admits students in three broad areas of concentration ("clusters"): Biobehavioral Psychology; Developmental/Social Psychology; and Behavioral Psychopharmacology.

The Ph. D. program in Clinical Psychology places equal emphasis on research and clinical training. The clinical program is fully accredited by the American Psychological Association.

Further information about both programs can be obtained [electronically](#) , or by requesting a department graduate studies brochure from the Department of Psychology . Both contain details of requirements, funding opportunities, clinical and research facilities, specialty areas, ongoing research, and faculty, as well as general information about the University and the area.

Applicants must apply for the Ph. D. degree only . Students whose goal is a terminal master's degree are not accepted. The application deadline for admission is December 1.

### Specific Requirements

#### Requirements for Advancement to Candidacy for the Degree of Master of Arts

A major or its equivalent in undergraduate psychology including courses in statistics and experimental psychology; satisfactory scores on the Graduate Record Examination, including the subject (advanced) studies in Psychology .



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### Minimum Degree Requirements for the Degree of Master of Arts

Twenty-four hours of psychology courses and seminars, including Psychology - [PSYC 301](#), [PSYC 302](#), [PSYC 340](#), [PSYC 341](#); Proseminar; thesis research for six credits. The requirements of the specific courses ( [PSYC 301](#), [PSYC 302](#), [PSYC 340](#), [PSYC 341](#)) may be exempted by examination. There is no foreign language requirement.

### Affiliations

- Colleges and Schools:[College of Arts and Sciences](#).[Graduate College](#).
- Departments and Programs:[Psychology Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Animal Science (M.S.)

## Animal Science (Master of Science)

### Overview

The research program focuses on Lactation Physiology and Mammary Gland Biology involving a combination of courses and graduate research. Areas of research interests include lactation physiology, breast cancer, mastitis, developmental biology, nutrition, immunology, cell signaling and metabolism, biotechnology, and transgenetics.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

An acceptable undergraduate major in animal science, chemistry, biology, or a related field. Satisfactory scores on the general (aptitude) Graduate Record Examination must be presented.

#### Requirements for Advancement to Candidacy for the Degree of Master of Science

The applicant must satisfy the requirements of the Graduate College and complete one semester with satisfactory performance in graduate courses or courses prescribed by the Graduate Committee.

### Minimum Degree Requirements

*Option A:* 30 credit hours of study with a minimum of 15 credit hours in courses in Animal Science or related fields and a minimum of 9 credit hours of thesis research.

• Continuing  
Education

Students are required to attend and participate in [ASCI 301](#), Graduate Journal Club and [ASCI 302](#), Graduate Seminar every semester the courses are offered. Students must also prepare a research proposal.

• Graduate College

• Honors College

Students are expected to meet with their graduate studies committee during their second and third semester and during the final semester for their thesis defense. Students are also expected to have one publication ready to submit or already submitted to an appropriate journal at the time of their defense. Students are also required to participate in at least one semester of teaching.

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*Option B (non-thesis MS):* 30 credit hours of study with 24 credit hours in courses in Animal Science or related fields and a minimum of 6 credit hours of literature research. Students are required to attend and participate in [ASCI 301](#), Graduate Journal Club and [ASCI 302](#), Graduate Seminar every semester the courses are offered.

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Colleges and Schools > Graduate College > Academic Offerings > Biochemistry (M.S.)

## Biochemistry (Master of Science)

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Satisfactory score on the Graduate Record Examination. Subject (advanced) portion not required but helpful. In addition: Year courses in organic chemistry, physical chemistry, and physics (equivalent to [CHEM 141/CHEM 142](#) or [CHEM 143](#); [CHEM 144](#), [CHEM 162](#) and [PHYS 15/PHYS 16](#); quantitative chemistry; mathematics preferably through differential and integral calculus, a year course in a biological science. If a physical chemistry course has not been taken previously, a student must take Physical Chemistry ([CHEM 162](#)) in their first year (for which they do not receive credit toward the MS degree).

#### Requirements for Advancement to Candidacy for the Degree of Master of Science

Successful completion of a Phase I exam is required for advancement to candidacy.

#### Minimum Degree Requirements

Thirty credits, 17 of which must be taken from graduate courses offered by the Department of Biochemistry, including [BIOC 301](#), [BIOC 302](#), [BIOC 309](#), [BIOC 381](#), and two upper level courses selected from [BIOC 351](#), [BIOC 352](#), [BIOC 353](#) or [BIOC 370](#). At least 13 credits of Master's Thesis Research ([BIOC 391](#)).

- Continuing Education

See [Biochemistry Department](#)  for more details.

*Thesis Option:* At least 13 credits of Maser's Thesis Research ([BIOC 391](#)).

- Graduate College

*Nonthesis Option:* Up to eight credits of Independent Literature Research ([BIOC 392](#)).

- Honors College

### Affiliations

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- Colleges and Schools: [College of Agriculture and Life Sciences](#), [Graduate College](#), [College of Medicine](#).

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Colleges and Schools > Graduate College > Academic Offerings > Biology (M.S.)

## Biology (Master of Science)

### Overview

Faculty research interests fall into two broad groupings: A) developmental biology/cell and molecular biology/physiology; and B) ecology/evolution/natural history. Current ongoing research projects include: A) molecular biology of receptors; cell biology; signal transduction and development; identification of novel muscle proteins by means of biochemical and genetic approaches; how molecular interactions define mechanical properties of muscles; genetics of chemoreception and chemotactic behavior of protozoa; electrophysiological basis of signal transduction; analysis of G protein signaling in *Drosophila* using genetic, molecular and immunohistochemical approaches; B) taxonomy and natural history of insects, particularly Rhysodid beetles; null models; community assembly; population and community ecology of carnivorous plants; parasite-host ecology; ecology and evolution of plant-animal interactions; population and community ecology of lizards; behavioral ecology; population genetics and molecular systematics in taxa such as Himalayan rodents, Polynesian black flies, and neotropical mosquitoes; genetic differentiation and evolution in structured populations; population genetics; cytoplasmically inherited reproductive incompatibility; evolutionary consequences of parasite-host interactions; physiological energetics of insects.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

### Requirements for Admission to Graduate Studies for the Degree of Master of Science

An undergraduate major in Biology or its equivalent. Satisfactory scores on the Graduate

- Continuing Education  
Record Examination, general (aptitude) section. Acceptability to the faculty member with whom the candidate wishes to do thesis research.
- Graduate College  
**Requirements for Advancement to Candidacy for the Degree of Master of Science**  
Satisfactory completion of a qualifying examination.
- Honors College
- School of Business Administration  
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Biology Graduate Colloquia, four hours; 11 to 18 additional hours in biology and related fields; thesis research (eight to 15 hours). Each candidate must participate in the teaching of at least one undergraduate course.

### Affiliations

- Colleges and Schools:[College of Arts and Sciences](#).[Graduate College](#).
- Departments and Programs:[Biology Department](#).

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## Biomedical Engineering (Master of Science)

### Overview

The program in Biomedical Engineering is interdisciplinary and offers the Master of Science degree. Graduate students obtain the M. S. degree through a program administered cooperatively by the Mechanical Engineering and Electrical and Computer Engineering departments. The program is directed jointly by James Iatridis (Mechanical Engineering), Dryver R. Huson (Mechanical Engineering, and Bruce D. Beynnon (Orthopaedics and Rehabilitation).

Participating faculty with strong commitments to biomedical engineering research and education are from the departments of Civil and Environmental Engineering, Electrical and Computer Engineering, Mathematics and Statistics, Mechanical Engineering, Molecular Physiology and Biophysics, Orthopaedics and Rehabilitation, Physical Therapy, and Physics. The extensive research facilities of the participating faculty and departments are available to all graduate students enrolled in the program, and the program provides the flexibility necessary for students to gain competence in the area of their choice. Research includes: Bioinstrumentation, Biomechanics, Biomedical Imaging, Biomedical Systems and Signal Analysis, Clinical Engineering, Implant Design, Rehabilitation Engineering, Simulation, and Biomathematics.

Students in the program are generally supported by sponsored research projects, participating departments and training grants. Inquiries about current research and funding opportunities should be directed to Laurel Zeno, Vermont Space Grant Consortium, Burlington, VT 05405; Phone: (802) 656-1429; Fax: (802) 656-8802.

Research includes: biomedical signal processing and mathematical modeling applied to the respiratory system; (Berger) structural dynamics in motor proteins during muscle contraction; (Beynnon) sports medicine, ankle, knee shoulder and spine biomechanics, low back pain; (Clark) health care technology planning and management, instrumentation for life sciences research and medical device validation; (Fleming) sports



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- medicine, lower and upper extremity ligament and tendon injuries, biomechanics; (Hamrell) mechanisms of sarcomere function, normal and diseased heart muscle, viral myocarditis; (Haugh) statistical process control and quality improvement, medical biostatistics and clinical trials, orthopaedics and rehabilitation, low back pain, reliability estimation, time series analysis; (Hazard) spine disability risk factors, seating design, continuous passive spinal motion, low back pain; (Henry) motor control of human posture and movement, related to musculoskeletal injuries; (Hitt) mechanics of branching blood flows, microcirculatory hemodynamics, artificial blood; (Huson) whole body vibration, low back pain, electromyography; (Iatridis) soft-tissue and spinal bioengineering; (Irvin) respiratory biomechanics; (Johnson) sports, knee and ski injuries and knee biomechanics; (Krag) normal and degenerative disc biomechanics, spinal instrumentation, spinal disorders; (Lakin) applied mathematics, modeling intracranial pressure dynamics, microgravity effects on human physiology; (Laible) computational biomechanics, analysis of flow and transport modeling in biologic materials; (Low) regulation of smooth muscle contractile proteins; (Maughan) molecular biophysics of muscle contraction; (Stokes) biomechanics of spine and spinal deformity; (Warshaw) smooth muscle physiology, including structure/function relationship of molecular motors; (G. Wu) biomechanics of human postural control and aging, modeling, and instrumentation. (J. Wu) muscle mechanics, molecular mechanics, ultrasonic biosensors, ultrasonic heating and enhanced anti-cancer action.

## General Requirements

- [Requirements for the Masters Degree](#)

## Specific Requirements

### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Students applying for admission to the graduate program must meet the general requirements of admission of The University of Vermont Graduate College. Admission is competitive and students are selected on the basis of their scholastic preparation and intellectual capacity.

The following minimum preparation is recommended:

- Biology, Chemistry: Two semesters each, or four introductory courses in the following subjects - anatomy, biology, biophysics, chemistry, physiology.
- Engineering: Two introductory courses in one or more of the following subjects - biomechanics, mechanics, thermodynamics, electrical engineering, control theory, or fluid mechanics.
- Mathematics: One course past differential equations.
- Physics: Two semesters of physics.

Special arrangements may be made, on an individual basis, for students who are highly prepared in one area, but less well prepared in another.

## Requirements for Advancement to Candidacy for the Degree of Master of Science

Completion of any deficient admission requirements.

### Minimum Degree Requirements

Candidates for the degree of Master of Science must complete 30 graduate credit hours of an approved program of study, including 18-24 semester credits of graduate-level courses approved by the program faculty and distributed as follows: Physiology and Biophysics (eight credits); engineering subspecialty (electrical, civil, or mechanical engineering), seven-11 credits; physics, mathematics or engineering elective, three credits. In addition, the candidate must present a research thesis (six-12 credits) and pass a final oral examination. Most candidates complete a six-seven credit thesis.

### Affiliations

- Colleges and Schools: College of Engineering and Mathematical Sciences. Graduate College.
- Departments and Programs: Electrical Engineering Program. Mechanical Engineering Program.

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Colleges and Schools > Graduate College > Academic Offerings > Biostatistics (M.S.)

## Biostatistics (Master of Science)

### Overview

The program offers a concentration in biostatistics leading to the M.S. degree.

Emphasis is placed on learning how to design studies and perform computerized data analysis as the statistician in a research team. The curriculum takes full advantage of courses taught in the Statistics Program and includes potential experience in a variety of health, biomedical, natural resource and other research projects in the College of Medicine or other departments of UVM. This experience is designed to provide candidates with opportunities to use their academic training and work experience in defining research problems, formulating rational methods of inquiry, and gathering, analyzing, and interpreting data.

Three of our faculty are in the College of Medicine's Department of Medical Biostatistics and Bioinformatics, whose research activities cover the full range of studies that take place within an academic medicine environment. These include population-based health surveys of various types and evaluations of health promotion programs and professional education activities, such as community intervention studies to prevent smoking and to promote breast cancer screening. They also include clinical studies of many different interventions, bioengineering experiment design and measurement studies, statistical genetics, as well as data from other preclinical, clinical, and epidemiological studies.

Opportunities are also available for biostatistical research related to problems in agriculture and the life sciences, as well as natural resources and the environment. Opportunities could include multivariate or spatial data analyses for ongoing wildlife and water quality studies for example. All students gain research and consulting experience through our research requirement: a research project ([STAT 381](#)) or a thesis ([STAT 391](#)). Other opportunities for experience will arise through involvement in our Statistical Consulting Clinic. ([STAT 385](#)). (See also Statistics Program and Statistical Consulting Clinic descriptions.)

- Continuing Education

- Graduate College

- Honors College

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## General Requirements

- [Requirements for the Masters Degree](#)

## Specific Requirements

### Requirements for Admission to Graduate Studies and Advancement to Candidacy for the Degree of Master of Science

An undergraduate major which provides a foundation for the application of statistical methodology and concepts to health and biomedical or agriculture/natural resource problems. For example, premedicine majors who have delayed their application to medical school will be well suited for the program. It is expected that candidates will have completed three semesters of calculus and a course including matrix algebra methods. Also they will have a solid introductory course in statistics (like [STAT 211](#)) and a course including undergraduate probability (like [STAT 151](#)). However, provisional admission to the program can be given prior to the completion of these mathematics and statistics requirements. Computer experience is desirable. The Graduate Record Examination is strongly advised and is required of any applicant who wishes to be considered for assistantship support. Current undergraduate students at the University of Vermont should contact the program director for details on the Accelerated Master's Program.

### Minimum Degree Requirements for the Degree of Master of Science

*Plan A:* (Thesis) A 30 semester credit hour program requiring 24 semester hours of course work. The program must include (Biostatistics) [BIOS 200](#), [BIOS 221](#), [BIOS 223](#), [BIOS 229](#), [BIOS 231](#), or [BIOS 235](#), [BIOS 251](#), [BIOS 261](#), and [BIOS 350](#); plus six semester hours of approved thesis research.

*Plan B:* (Non-thesis) A 33 semester credit hour program requiring 30 semester hours of course work. The program must include [BIOS 200](#), [BIOS 221](#), [BIOS 223](#), [BIOS 229](#), [BIOS 231](#), or [BIOS 235](#) or [BIOS 251](#), [BIOS 261](#), and [BIOS 350](#), as well as other 200/300-level statistics/biostatistics courses (except [BIOS 211](#), [BIOS 241](#), [BIOS 281](#), [BIOS 308](#)), or (if approved) other courses in mathematics, quantitative methods, or specialized fields of application. The research project requirement is met by taking three semester hours if either statistical research ( [BIOS 381](#) or statistical consulting ( [BIOS 385](#)).

*Under both plans, students must have or acquire a knowledge of the material in [BIOS 211](#), attend the regular colloquium series and participate in the Statistics Student Associate Journal Club as part of their training. The comprehensive examination covers knowledge acquired in the core courses of the program. Under the non-thesis option, students will be expected to take major responsibility for a comprehensive data analysis or methodological research project, and are encouraged to present the results from the project.*

### Affiliations

- *Colleges and Schools:*College of Engineering and Mathematical Sciences.Graduate College.College of Arts and Sciences.
- *Departments and Programs:*Mathematics and Statistics Department.

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Colleges and Schools > Graduate College > Academic Offerings > Cell and Molecular Biology (M.S.)

## Cell and Molecular Biology (Master of Science)

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Biology (three semesters, including genetics, chemistry through organic, mathematics through calculus, physics (two semesters, physical chemistry . Satisfactory scores (60 percentile) on general (aptitude) Graduate Record Examination. Students who do not have all of the courses listed but who have a good academic record will be considered for admission to the program. Deficiencies may be made up after matriculation.

#### Requirements for Advancement to Candidacy for the Degree of Master of Science

Completion of any deficient admission requirements.

Masters candidates are required to take 6 credits of Cell Biology (CLBI 301 & 302, 6 credits of Biochemistry (BIOC 301 & 302, 2 credit hours of CLBI 381 Seminar and 6 research credits. The remaining 9 credits are to be completed in combination of at least one course credit and 8 research credits. Studies committee and advisor will guide student in course selection.

All students must demonstrate satisfactory progress; finish minimum course work within three years; and finish cumulative exam within prescribed times limits; participate in seminar program.

• Continuing  
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• Graduate College

• Honors College

• School of Business  
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## Affiliations

- Colleges and Schools:[Graduate College](#).
- Departments and Programs:[Cell and Molecular Biology Program](#).

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Colleges and Schools > Graduate College > Academic Offerings > Chemisry (M.S.)

## Chemistry (Master of Science)

### Overview

Current research in organic chemistry includes design and synthesis of peptide mimics, applications of molecular diversity to catalyst design, syntheses of medicinally valuable natural products, biomimetic syntheses, preparation of benzomorphans and their analogues which have chemotherapeutic potential, synthesis and reactions of hybrid organic-inorganic polymers, synthesis and properties of carbon-rich organic materials, mechanistic studies of organic chemical reactions, and development of novel synthetic methodologies.

Physical chemistry research projects include hydrogen absorption by metals, alloys, and intermetallic compounds with a view toward storage of hydrogen as a fuel, and the use of various types of molecular spectroscopy, such as fluorescence, magnetic resonance, and IR/Raman, to address questions of structure, bonding, and dynamics in chemical and biophysical systems.

Research in inorganic chemistry includes investigations of the syntheses, structure, and spectroscopic properties of main-group ring systems and polymers with an emphasis on phosphazenes and borazines, electrochemical control of the structure and reactivity of transition metal complexes, solid state structure by x-ray diffraction, complexes of polydentate ligands, physical inorganic and organotransition metal chemistry. Additional research areas include materials chemistry, solid state chemistry, mesoporous materials, biomineralization, and chemical vapor deposition.

Research in analytical chemistry includes electrochemical studies of transition metal complexes and organometallic complexes, electron spin resonance studies of materials in unusual oxidation states, novel reaction of reactive compounds generated electrochemically under high vacuum, studies of factors influencing heterogeneous electron transfer process in nonaqueous media, studies of transient, imploding plasmas as solid sample atomizers for atomic spectroscopy, the development of instrumentation



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and techniques suitable for elemental analysis of nonconducting solid samples via atomic spectrometry, the development and use of analytical methods using stable isotopically labeled tracers and kinetic models to answer questions of human physiology and biochemistry, and the simultaneous physical and chemical analysis of individual aerosol particles, leading to the rapid, on-line and in situ determination of the physico-chemical makeup of the aerosol.

## General Requirements

- [Requirements for the Masters Degree](#)

## Specific Requirements

### Requirements for Admission to Graduate Studies for the Degree of Master of Science

An undergraduate major in an appropriate field. Satisfactory scores on the Graduate Record Examination general (aptitude section for those requesting financial assistance).

### Requirements for Advancement to Candidacy for the Degree of Master of Science

The requirements for admission to candidacy for the Maser of Science degree are: (1 proficiency in three areas of chemistry evidenced by the biannual qualifying examinations or completion of designated courses at this university; (2 one semester of residence; (3 at least 15 hours of formal course work including (a six hours of graduate-level courses in the chemical field of specialization, (b three hours of graduate-level chemistry courses not in the area of concentration, and (c Chemistry 381 (Seminar, and (4 maintenance of an overall point-hour ratio of 3.00. Students studying in the Maser of Science degree program are advised to take the cumulative examinations in their specialty.

### Minimum Degree Requirements

The above prerequisites for admission to candidacy must be supplemented in either of the following two ways:

*Plan A:* Completion of 12 hours of Masers Thesis Research ([CHEM 391](#)) and submission of a satisfactory thesis; (2 completion of at least 30 hours of graduate credit (courses and Masers Thesis Research; and (3 one additional hour of CHEM 381 (Seminar).

*Plan B:* Completion of six hours of Independent Literature Research Project ([CHEM 395](#)); (2 completion of at least 30 hours of graduate credit (courses and Literature Research Project); and (3) one additional hour of [CHEM 381](#) (Seminar).

M. S. students should decide at the beginning of their program whether they will pursue Option A or Option B and inform the chemistry department and Graduate College of their decisions.

## Affiliations

- Colleges and Schools: College of Arts and Sciences. Graduate College.
- Departments and Programs: Chemistry Department .

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## Civil and Environmental Engineering (Master of Science)

### Overview

Graduate programs in Civil and Environmental Engineering that lead to the Master of Science and Doctor of Philosophy degrees are offered. The curricular and research programs emphasize engineering related to environmental issues and intelligent transportation systems; in addition, geotechnical, and structural studies are also possible at the master's level.

Research includes: groundwater contamination, modeling and remediation including optimal remediation design; environmental restoration and ecological engineering; hydrological processes; indoor air pollution and related health effects; mathematical modeling of contaminant transport in the environment, chemical and mechanical processes in human tissues, and dynamic behavior of structures; intelligent transportation systems; and information technology applications in civil and environmental engineering.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

A bachelor's degree and the approval of this Department. Satisfactory scores on the Graduate Record Examination general (aptitude) section. International students whose native language is not English or who have not received their education in English are required to submit satisfactory results from the TOEFL examination. Completed applications are due February 1.

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## Requirements for Advancement to Candidacy for the Degree of Master of Science

Specific course work may be required of those who lack a sufficiently strong engineering background.

### Minimum Degree Requirements

The above requirements for advancement to candidacy must be supplemented in either of the two following ways:

*Plan A:* Completion of advanced courses in civil and environmental engineering, mathematics, and other approved disciplines and the completion of an acceptable master's thesis. At least 30 credits must be accumulated, six to nine of them in thesis research.

*Plan B:* Completion of 36 credits of advanced courses in civil and environmental engineering, mathematics, and other approved disciplines.

Students must declare which option they intend to pursue at the beginning of their program.

### Affiliations

- Colleges and Schools: [College of Engineering and Mathematical Sciences](#), [Graduate College](#).
- Departments and Programs: [Civil Engineering Program](#).

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Colleges and Schools > Graduate College > Academic Offerings > Communication Sciences (M.S.)

## Communication Sciences (Master of Science)

### Overview

The faculty does research in speech and language development and disorders, and sociolinguistics.

The Maser of Science degree program in Communication Sciences and Disorders is accredited for speech-language pathology by the Council on Academic Accreditation of the American Speech-Language-Hearing Association ([ASHA](#) ). The Eleanor M. Luse Center for Communication: Speech, Language, and Hearing which shares quarters with the Department and is a primary practicum site. Students are required to fulfill academic requirements for the Certificate of Clinical Competence-Speech Language Pathology of the American Speech-Language-Hearing Association. To do so, they will need to have at least one course in each of 4 areas: social sciences, biological sciences, physical sciences, and mathematics. All students are supervised by clinically certified members of the faculty of the Eleanor M. Luse Center and affiliated practicum sites.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Baccalaureate degree from an accredited institution; satisfactory performance on the general (aptitude) Graduate Record Examination. Completion of courses equivalent to [CMSI 80](#) (Introduction to Linguistics), [CMSI 90](#) (Phonetics), [CMSI 94](#) (Development of Spoken Language), [CMSI 101](#) (Speech & Hearing Science), [CMSI 164](#) (Structure of the English Language), [CMSI 281](#) (Cognitive Neuroscience and a course in statistics).

- Continuing Education
  - Graduate College
  - Honors College
- Applicants must complete prerequisites courses either before entering or upon entrance to the program. Students are also required to complete 25 observation hours obtained according to guidelines provided by the American Speech-Language-Hearing Association. These 25 observation hours must be completed by students before they begin their graduate program.

- School of Business Administration

### Requirements for Advancement to Candidacy for the Degree of Master of Science

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Satisfactory completion of the written comprehensive examination in the form of a portfolio. Students will not be admitted to candidacy if 400 practicum hours are not reached. Students may submit their comprehensive examination portfolio only in or following that semester in which they will have completed 36 semester credits of graduate study and 300 hours of supervised clinical practicum and four credits in clinical study . Students register for the comprehensive examination ( [GRAD 397](#) in the last semester of their graduate study .

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### Minimum Degree Requirements

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All students are required to complete 48 credits, if they do not do a thesis and 51 credits if they do write a thesis. These credits will include 13 required CMSI courses: [CMSI 271](#) - Introduction Audiology, [CMSI 272](#) - Hearing Rehabilitation, [CMSI 284](#) - Augmentative Communication, [CMSI 310](#) - Clinical Preparation and Management, [CMSI 375](#) - Swallowing Disorders, [CMSI 380](#) - Research Methods in Communication Disorders, [CMSI 383](#) - Seminar in Language/Learning Disabilities, [CMSI 384](#) - Speech Sound Disorders, [CMSI 385](#) - Voice Disorders, [CMSI 386](#) - Adult Neuropathologies, [CMSI 387](#) - Language Disorders, [CMSI 388](#) - Stuttering, and [CMSI 389](#) - Aphasia. In addition, students are required to take a total of 6 credits of [CMSI 291/CMSI 292](#) - Clinical Study.

*Thesis Option:* The student will complete 45 credit hours of graduate level courses and six additional credits ([CMSI 391](#)) for conducting the research leading to an M.S. thesis.

*Nonthesis Option:* The students choosing the non-thesis option will complete the 48 credit hours required for the degree. They must take at least 3 credits of non-thesis research (392). An additional 3 credits of 392 may be taken by students who have elective credits available or who elect to take a total of 51 credits.

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## Community Development and Applied Economics (Master of Science)

### Overview

The Department offers a Master of Science Degree in CDAE. Research includes sustainable development, both domestic and abroad; applied demand analysis; and consumer and public policy issues.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

- GPA = 3.0 or equivalent from Bachelor's Degree
- GRE Total > A minimum of 400 in Verbal & Quantitative sections, and a minimum of 4 on writing section.
- TOEFL score > 550 written test or 213 computer test or TOEFL iBT 79 - 80 for international students whose native language is not English or who have not received their education in English.

NOTE: for students seeking funding for Fall, application deadline is March 1.

#### Requirements for Advancement to Candidacy for the Degree of Master of Science

Specific course work may be required of those who lack calculus, statistics and/or economics background.

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## Minimum Degree Requirements

The degree requires a total of 30 credit hours, of which 24 are from advanced courses in CDAE and other related fields plus six hours of thesis research. A written comprehensive examination and an oral defense of the thesis are also required. A student's thesis research is often an integral part of the faculty-led, ongoing research projects in the Department.

Students in the graduate program must have a 3.00 grade point average to remain a degree candidate. A student may be dismissed from the Graduate College if two or more grades below a "B" are received.

## Core Course Requirements

Four core courses and graduate research seminars are required for each graduate student:

- CDAE 354 - Advanced Microeconomics: Theory of the consumer, theory of the firm, perfect and imperfect competition, welfare economics, uncertainty and selected topics in economic policy.
- CDAE 351 - Research Methods: Procedures of developing a research project, applications of economic theory and analytical tool in empirical economic research.
- One additional course in quantitative or qualitative analysis to be approved by the Studies Committee (e.g., [STAT 225](#) - Applied Regression Analysis; [STAT 223](#) - Applied Multivariate Analysis; [EDFS 347](#) - Qualitative Research Methods).
- One course in community development to be approved by the Studies Committee (e.g., [CDAE 205](#) - Rural Communities in Modern Society; [CDAE 218](#) - Community Organization and Development)
- CDAE 392 - Graduate Seminars. Each student is required to complete three hours of this course. Students should enroll for one hour in each of three semesters.

## Affiliations

- Colleges and Schools: [College of Agriculture and Life Sciences](#). [Graduate College](#).
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Colleges and Schools > Graduate College > Academic Offerings > Computer Science (M.S.)

## Computer Science (Master of Science)

### Overview

Research areas include algorithm design and analysis, combinatorial design, computational biology, database design and management, data mining and knowledge discovery, discrete modeling, knowledge-based systems, neural networks, numerical methods, parallel and scientific computing, pattern recognition, programming languages, and software engineering.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

A bachelor's degree in computer science or a related discipline, and satisfactory scores on the Graduate Record Examination general (aptitude) section are required for admission. Students should also demonstrate that they have taken the following courses: two courses that treat systematic program development in a high level language ([CS 021](#) and [CS 026](#), or equivalent), one course in computer system organization and assembly language programming ([CS 101](#), or equivalent); one course in either programming languages (e.g., [CS 103](#) or [data structures](#) (e.g., [CS 104](#), two courses in differential, integral, and multivariate calculus ([MATH 021](#), [MATH 022](#), or equivalent), one course in linear algebra ([MATH 124](#), or equivalent), and one course in applied probability ([STAT 151](#), or equivalent).

International students whose native language is not English or who have not received their education in English are required to submit satisfactory results from the TOEFL

• Continuing  
Education

examination.

• Graduate College

## Requirements for Advancement to Candidacy for the Degree of Master of Science

• Honors College

Specific course work may be required of those who lack a sufficiently strong computer science background.

• School of Business  
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### Minimum Degree Requirements

• The Rubenstein  
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Natural Resources

*Thesis Option:* Thirty hours of which six to nine hours are maser's thesis research (CS 391), the remainder being approved course work.

*Project Option:* Thirty hours, of which six are Maser's Project (CS 392, the remainder being approved coursework.

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*Nonthesis Option:* Thirty-three hours of approved course work.

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Students in all options must (a) take, or have completed the equivalent of, the core sequence: Computer Science 201, 222, 224, and 243; (b) pass a comprehensive exam covering material from the core sequence, and (c) fulfill the credit hour requirements with approved graduate level coursework in computer science or related areas.

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### Affiliations

- Colleges and Schools:[College of Engineering and Mathematical Sciences](#).[Graduate College](#).[College of Arts and Sciences](#).
- Departments and Programs:[Computer Science Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Counseling (M.S.)

## Counseling (Master of Science)

### Overview

The Counseling Program provides professional preparation for individuals who wish to work as counselors in schools, colleges, community mental health, social service agencies or private practice. The program is accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP). It meets the requirements set by the State of Vermont Department of Education for preparing school counselors (K-12) for licensure in Vermont, and the academic requirements set by the Vermont Board of Allied Mental Health Practitioners for preparing clinical mental health counselors for licensure in Vermont.

To achieve professional competence, students are expected to become knowledgeable and skilled in the following areas: professional identity, social and cultural diversity, human growth and development, career development, helping relationships, group work, assessment, research and program evaluation. A supervised internship in an appropriate field setting is of major importance in the program.

The specific composition of a student's program, designed with the assistance of a faculty advisor, is based on University, College, and Program requirements as well as the individual student's background, current needs and desires, and future goals. Learning experiences consist of a balance between theory and supervised practice.

In addition to the general application procedures, a resume and a group interview are required of each qualified applicant. For a more detailed description of the program visit our [Web Site](#)  or contact The University of Vermont, Counseling Program, Mann Hall, 208 Colchesser Avenue, Burlington, VT 05405-1757 (802-656-3888 or [Counseling.Program@uvm.edu](mailto:Counseling.Program@uvm.edu)).

### General Requirements

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

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- [Requirements for the Masters Degree](#)

### Specific Requirements

The Counseling Program offers two specialty tracks: school counseling and mental health counseling. Students may also select the dual option which includes preparation in both specialty tracks. Fifty-one credit hours are required for completion of the school counseling track, sixty credit hours are required for the mental health counseling track and sixty-nine credit hours are required for the dual option. (Note: School counselor licensure in Vermont requires that the individual have at least a 30-credit-hour liberal arts concentration at the undergraduate level.) Successful completion of the program is based on the demonstration of appropriate knowledge, relevant skills, and personal characteristics, as well as the accumulation of credits.

### Affiliations

- Colleges and Schools:[College of Education and Social Services](#).[Graduate College](#).
- Departments and Programs:[Integrated Professional Studies Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Electrical Engineering (M.S.)

## Electrical Engineering (Master of Science)

### Overview

Typically Candidates have obtained the Bachelor of Science degree in Electrical Engineering prior to application but others are encouraged to apply for the program if they have extensive background in mathematics and the basic sciences. In such cases, it may be necessary for a student to complete the entrance qualifications without receiving credit toward graduate studies. The general requirements for admission as outlined under the "Regulations of the Graduate College" must be met. Areas of research expertise are biomedical engineering, machine vision, mechatronics, computer engineering, solid state physical electronics, electromagnetics, information processing, communication theory, semiconductor materials, devices and integrated circuits (VLSI).

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

An accredited bachelor's degree in an appropriate field.

#### Requirements for Advancement to candidacy for the Degree of Master of Science

An accredited bachelor's degree in electrical engineering or equivalent education.

### Minimum Degree Requirements

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

Advanced courses in electrical engineering, physics, computer science, and mathematics (18 to 24 credit hours with at least 15 credit hours appropriately distributed in approved areas of study in the Electrical and Computer Engineering Department.

Thesis research (6 to 12 hours).

Although a thesis is normally required in the program leading to the M. S. in Electrical Engineering, the thesis may be waived with departmental approval, in favor of additional courses which constitute a non-thesis option. In such cases, the student will be expected to have considerable professional experience, or to submit high quality technical reports as evidence of professional maturity.

In either case, successful completion of the M.S. degree will require passing a comprehensive examination. This examination will be based on course work that was taken in the pursuit of the M.S. degree. thesis option students will be tested orally at the time of their thesis proposal. Non-thesis option students will be asked to make a report, both written and oral on a design or research topic of current interest which relates to course work taken at UVM. The presentation must be understandable to engineers and scientists, but not necessarily working directly on the particular topic.

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Colleges and Schools > Graduate College > Academic Offerings > Geology (M.S.)

## Geology (Master of Science)

### Overview

Research programs include environmental geology, geomorphology, and water resources; sedimentary, igneous and metamorphic environments and structural evolution of orogenic belts. Specific faculty interests include geologic history and recent sedimentation in the Lake Champlain Basin, processes and chronology of glaciation, stable and cosmogenic isotopic studies, water quality and pollutant transport, tectonic evolution of deformed continental margins, petrofabric and structural analysis of deformed rocks, partial melting processes, stratigraphy and sedimentary environments of lower Paleozoic sandstones and carbonates.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

An undergraduate major in an appropriate field: 12 semester hours in geology; satisfactory scores on the general (aptitude) Graduate Record Examination. Year courses in chemistry, physics or biology, and calculus or in an approved ancillary science strongly recommended.

#### Requirements for Advancement to candidacy for the Degree of Master of Science

Satisfactory completion of one year of graduate study plus a comprehensive examination.

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## Minimum Degree Requirements for the Degree of Master of Science

Thesis and advanced courses in geology must total at least 30 semester hours, including at least one 300-level course. Advanced courses in related sciences are encouraged and may be substituted for some selected geology courses on approval by the departmental advisor. All students must complete successfully a course in field geology before graduation. This can be satisfied by Geology 201, or a comparable course at another institution, or recognized experience with a state survey, U.S. Geological Survey, an oceanographic institute, a geomorphological group or industry. Satisfactory completion will be determined by the Departmental Studies Committee.

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- Colleges and Schools: [College of Arts and Sciences](#), [Graduate College](#).
- Departments and Programs: [Geology Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Historic Preservation (M.S.)

## Historic Preservation (Master of Science)

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science in Historic Preservation

(1) A baccalaureate degree with a major in a preservation-related field such as architecture, architectural history, history, planning, business administration, economics, engineering, interior design, law, or environmental studies. (2) Applicants must take the general (aptitude portion of the Graduate Record Examination and submit a sample independent research paper, design project, or other evidence of preservation-related professional ability. Almost all successful applicants have spent at least a year in a preservation-related job or volunteerwork after the baccalaureate.

#### Requirements for Advancement to Candidacy for the Degree of Master of Science

Admission to this highly competitive program constitutes acceptance to candidacy as well.

#### Minimum Degree Requirements for the Master of Science

(1) Thirty-six credit hours of course work. A minimum of 33 credit hours (including an internship or thesis) must be taken in historic preservation. (2) A written comprehensive examination given during the third semester. (3) An internship in a preservation agency, or a written thesis. This may be undertaken upon completion of two or three semesters of concentrated coursework. At the conclusion of the internship, an oral presentation describing work accomplished will be given before a jury of practicing professionals for

- Continuing Education
- Graduate College
- Honors College
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evaluation.(4) Historic Preservation 200, 201, 204, 205, 206, 301, 302, 306, 307 and 303 or 391 are required courses for the degree. Students also take one elective unless they elect to do a thesis instead of an internship. For the thesis option, a total of six credit hours is required for HP391.

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Academic Offerings > Master's Entry Program In Nursing (Pre-License/M.S. (M.S.

## Master's Entry Program In Nursing (Pre-License/M.S.) (Master of Science)

### Overview

The master's entry program in nursing is an accelerated educational program that prepares well-qualified graduates of baccalaureate or higher degree programs in other disciplines to become advanced practice nurses such as nurse practitioners, advanced practice psychiatric-mental health nurse clinicians, managers of clinical systems in an intensive program designed for highly motivated students. The program consists of a 12-15 month intensive pre-licensure educational program leading to registered nurse licensure that must be completed successfully on a full-time schedule, followed by a 2-2.5 year period in which students will earn a master's degree in nursing and be prepared for certification and practice in one of the graduate specialties offered by the Department of Nursing.

Completion of the pre-licensure requirements does not lead to a second baccalaureate degree, but to a certificate of completion that will entitle those who successfully complete this portion of the program to take the national licensing examination and to be provisionally licensed in the State of Vermont. The provisional license is effective until completion of the master's program. Students eligible for advanced practice licensure upon graduation from the master's program will apply for a change in license status at that time. Students graduating from clinical specialties in which advanced practice licenses are not required in this state will be able to renew their RN licenses according to the cycle set by the Vermont Board of Nursing.

### Programs of Study

Students successfully completing the pre-licensure coursework and the registered nurse licensing examination (NCLEX will enter one of the following graduate specialty tracks in

nursing for completion of the MS degree. No additional application procedure is required for progression.

- [Advanced Practice \(AP\) Psychiatric Mental Health Nursing](#)
- [Adult Nurse Practitioner](#)
- [Family Nurse Practitioner](#)
- [Clinical Systems Management](#)

## MEPN Admission Requirements

- Graduation from an accredited baccalaureate degree program or higher
- Cumulative GPA of 3.0 or higher in previous post-secondary education
- Completion of the Graduate Record Examination General Test (requirement waived for those with masters degrees or higher)
- Completion of a college level course in basic statistics (may be completed during pre-licensure year)
- Coursework in nutrition and anatomy/physiology strongly recommended, but not required (may be completed at UVM prior to fall clinical coursework)

## MEPN Pre-licensure Courses

[GRNU 302 - Professional Nursing Issues](#) - 2

[GRNU 305 - Pathophysiology](#) - 3 cr

[GRNU 322 - Structure and Function of the Human Body: Self-Study Module](#) - 1.5 \*\*

[GRNU 311 - Clinical Nutrition and Implications for Nursing: Self-Study Module](#) - 1.5 \*\*

[GRNU 312 Biomedical Science I](#) - 4 \*\*\*

[GRNU 305 Pathophysiology](#) - 3

[GRNU 303 Drug Therapy: Implications for Nursing Practice](#) - 3

[GRNU 304 Drug Therapy: Special Considerations for Select Populations](#) - 1

[GRNU 314 The Science of Nursing: Adults and Elders](#) - 4

[GRNU 316 Practicum: Adults and Elders](#) - 6 (2 lab/4 practicum)

[GRNU 317 The Science of Nursing: Mental Health](#) -3

[GRNU 318 Practicum: Mental Health](#) -2

[GRNU 319 The Science of Nursing: Women and Newborns](#) - 2

[GRNU 329 Practicum: Women and Newborns](#) - 1.25

[GRNU 321 Practicum: Complex Nursing Care of Adults and Elders](#) - 2.5

[GRNU 325 The Science of Nursing: Children](#) - 3

[GRNU 327 Practicum: Children](#) - 2

[GRNU 337 The Science of Nursing: Community/Public Health Nursing](#) - 2

[GRNU 338 Practicum: Community/Public Health Nursing](#) - 2

[STAT 141 Basic Statistical Methods](#) - 3 \*□

## **Total Pre-licensure Credits: 42.75-48.75**

\* Basic Statistical Methods may be waived if a student has completed one equivalent undergraduate or graduate level course in statistical methods. \*\* The self-study modules in Anatomy/Physiology or Nutrition may be waived if a student has successfully completed equivalent an undergraduate level course.

\*\*\* Portions or all of Biomedical Sciences I may be waived if a student has successfully completed courses with equivalent content advanced undergraduate or graduate level study.

### **Specific Requirements**

No description available

### **Affiliations**

- Colleges and Schools: [College of Nursing and Health Sciences](#).
- Departments and Programs: [Nursing Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Materials Science (M.S.)

## Materials Science (Master of Science)

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Maser of Science

A bachelor's degree in physics, chemistry, metallurgy, engineering, materials science, or mathematics. Applicants with other backgrounds will be evaluated individually.

#### Minimum Degree Requirements

The above requirements for admission must be supplemented in either of the following ways:

*Plan A With Thesis:* 30 graduate credit hours of an approved program of study including at least 18 credit hours of course work; completion of at least one three-credit hour course in each of the following categories; solid state theory, quantum mechanics, applied mathematics, and materials properties of solids; satisfactory completion of a comprehensive examination, and satisfactory completion of an M.S. thesis including its defense at an oral examination.

*Plan B Without Thesis:* 30 credit hours of an approved program of study; completion of at least one three-credit hour course in each of the following categories: solid state theory, quantum mechanics, applied mathematics, and materials properties of solids, and satisfactory completion of a comprehensive examination.

### Affiliations

- Continuing Education
  - Colleges and Schools:[College of Arts and Sciences](#).[College of Engineering and Mathematical Sciences](#).[Graduate College](#).
  - Departments and Programs:[Materials Science Program](#).
- Graduate College
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- College of Nursing and Health Sciences

Colleges and Schools > Graduate College > Academic Offerings > Mathematics (M.S.)

## Mathematics (Master of Science)

### Overview

The Department of Mathematics offers programs towards the Maser of Science, Maser of Science in Teaching, and the Doctor of Philosophy in Mathematical Sciences. There are two areas of concentration: pure mathematics and applied mathematics. The programs emphasize the interaction between these two areas and the common role of scientific computation. Students can take courses common to both areas, enabling them to gain an appreciation of the mathematical techniques and the connections between theory and applications.

The department offers an Accelerated Maser's Program (AMP) leading to a B.S. and M.S. degree in five years. Interested students should contact the department by the end of their sophomore year.

Department research interests include classical analysis, harmonic analysis, Fourier analysis, approximation theory, algebra, number theory, graph theory, combinatorics, fluid mechanics, biomathematics, differential equations, numerical analysis, and modeling.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Because of the breadth of pure and applied mathematics, it is recognized that applicants for admission will have diverse backgrounds. Admission requirements are therefore



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flexible. Applicants should have demonstrated strength in either pure or applied mathematics, a bachelor's degree with a major in mathematics or a closely related discipline, and satisfactory scores on both the general and subject (mathematics) sections of the Graduate Record Examination.

### Minimum Degree Requirements for the Degree of Master of Science

Each student must complete one of the following options:

- a. Twenty-four semester hours of acceptable graduate credits in advanced mathematics courses; six semester hours of thesis research culminating in a master's thesis, or
- b. Thirty semester hours of acceptable graduate credits in advanced mathematics courses; no thesis required.

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Under either option students must take, or acquire the knowledge of the content in, the courses [MATH 331](#) and [MATH 333](#), and must satisfactorily complete at least four 300-level mathematics courses and the seminar 382. In both options students must select a major concentration from among the areas: Analysis, Algebra, Applied Mathematics, or Discrete Mathematics. The concentration shall consist of at least nine approved hours in advanced mathematics courses in the respective area, three of which must be at the 300-level; students in option b. may count the six hours of thesis credit towards these nine hours. In both options students must also select a minor concentration consisting of at least three approved hours of advanced mathematics complementary to the major area. With approval of the student's advisor up to six hours of courses outside mathematics may be used to fulfill the major, minor, or degree requirements.

### Affiliations

- Colleges and Schools: [College of Engineering and Mathematical Sciences](#), [Graduate College](#), [College of Arts and Sciences](#).
- Departments and Programs: [Mathematics and Statistics Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Mechanical Engineering (M.S.)

## Mechanical Engineering (Master of Science)

### Overview

Master of Science and Doctor of Philosophy programs are offered. Candidates holding degrees other than those in Mechanical Engineering are encouraged to apply. In such cases, it is typically necessary for students to complete some preparatory course work in addition to the graduate studies. In all courses, general requirements for admission, as outlined under the Regulations of the Graduate College, must be met. Areas of research interest include: applied mechanics, biomechanics, fluid mechanics, fuel science, heat transfer, mechatronics, microelectromechanical systems (MEMS), precision engineering, smart structures, tissue engineering, vibrations.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

An accredited bachelor's degree in Mechanical Engineering or equivalent is the typical requirement; however, students holding a bachelor's degree in a related engineering or scientific field may also qualify for admission.

#### Requirements for Advancement to Candidacy for the Degree of Master of Science

A cumulative grade point average of 3.0 or better for the first nine credit hours of graduate course work.

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- Honors College
- School of Business Administration
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## Minimum Degree Requirements for the Degree of Master of Science

The Department of Mechanical Engineering offers both thesis and non-thesis options for the master's degree. Both options require the completion of advanced courses in mechanical engineering, mathematics, and other approved courses and research (for thesis students totaling at least 30 credits. Graduate students. Graduate students receiving financial support via teaching or research fellowships are required to select the thesis option. Part-time students typically select the non-thesis option but may choose the thesis option if they prefer. Students normally decide on which option they intend to pursue at the beginning of their program.

All students are required to complete a prescribed set of fifteen core course credits which cover areas of advanced engineering mathematics, mechanics, and numerical methods. In addition, all students must select an area of specialization for their degree. Currently, the department offers specialization tracks in (1) solid mechanics and design; (2) thermo-fluid mechanics; and (3) biomechanics. Further details on the core course requirements and the areas of specialization can be obtained from the Mechanical Engineering website.

*Thesis Option:* In addition to core courses, students selecting the thesis option must complete a minimum of six credits of course work in their chosen area of specialization. Students must also complete six to nine hours of independent thesis research; those opting for a six-credit thesis must complete an additional three credits of approved course work.

*Non-Thesis Option:* Students selecting the non-thesis option must complete an additional fifteen credits of course work beyond the core credits in lieu of a thesis. Of the additional course work, a minimum of nine credits must be in a chosen area of specialization.

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- Departments and Programs:[Mechanical Engineering Program](#).

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Colleges and Schools > Graduate College > Academic Offerings > Microbiology and Molecular Genetics (M.S.)

## Microbiology and Molecular Genetics (Master of Science)

### Overview

Research activities include: Mutagenic mechanisms in human populations; the enzymology and regulation of cellular DNA replication and repair; molecular mechanisms of genetic recombination; structural biology of proteins and nucleic acids; cell cycle control of transcription and DNA replication in eukaryotes; regulation and enzymology of RNA polymerase II transcription; enzymology and atomic structure of mammalian cell mRNA processing factors; molecular basis of tRNA recognition; ribozyme structure and enzymology; signaling networks that regulate morphogenesis in yeas; isolation and regulation of mating type genes in Schizophyllum; plant growth and development; molecular mechanisms of bacterial adhesion and pathogenesis; molecular and cellular mechanisms of host-pathogen interactions; and bacterial transformations of organic pollutants.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Master of Science Degree

MMG normally accepts only applicants for the Ph. D. program. However, UVM undergraduate students may apply for the Accelerated Maser'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 . One year of biological science; one year physics (equivalent of Physics 11 and 12; one year of inorganic chemistry and one year of organic chemistry (equivalent of [CHEM 001](#), [CHEM 002](#), [CHEM 141](#) and [CHEM 142](#)), mathematics through

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- Graduate College
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calculus (equivalent of MATH 019 and MATH 020); additional courses required by the Department depending on the aims of the student. A student may be admitted pending satisfactory completion of one or two of the above courses during the first semester(s) of graduate study. Satisfactory scores on the general aptitude portion of the Graduate Record Examination. Subject GRE tests are recommended but not mandatory.

### Requirements for Advancement to Candidacy for the Degree of Master of Science

Applicants may be accepted concurrent with admission, or candidacy may be deferred pending a period of satisfactory graduate study at The University of Vermont. Acceptance to candidacy is granted only to those students who have met all undergraduate course prerequisites.

### Minimum Degree Requirements for the Degree of Master of Science

Thirty total credits to include six credit hours of Thesis Research ([MMG 391](#)) and 24 course credits, including the Microbiology and Molecular Genetics core curriculum (six course credits each in Biochemistry, Genetics, and Microbiology; at least two credits in current Topics in Molecular Genetics ([MMG 310](#)); other approved courses such that at least 16 course credits are taken from courses offered by the Department of Microbiology and Molecular Genetics; qualifying exam; successful completion of dissertation.

### Combined Medical College and Graduate College Degree Programs

Qualified students, following acceptance into the medical college, may simultaneously enroll in the Graduate College for a Master of Science or Ph. D. degree program in Microbiology and Molecular Genetics. The program would be developed with concurrence of the Dean for Student Affairs in the College of Medicine.

### Affiliations

- Colleges and Schools: [College of Agriculture and Life Sciences](#). [Graduate College](#). [College of Medicine](#).
- Departments and Programs: [Microbiology and Molecular Genetics Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Molecular Physiology and Biophysics (M.S.)

## Molecular Physiology and Biophysics (Master of Science)

### Overview

The Department offers a highly flexible program of doctoral study (biophysics track and molecular physiology track) for individuals embarking on a career in biomedical research and teaching. Students can study crucial biological processes using state of the art biophysical techniques in a unique setting. Biological research interest: Cytokinesis and cell division; heart failure, insect flight, and various muscle-dependent processes; structure and function of metabolic enzymes, structural biology and biophysics of contractile and cytoskeletal proteins, structure and function of bacterial adhesins. Biophysical Techniques: cell imaging (time lapse, confocal microscopy, fluorescence spectroscopy, high resolution electron microscopy (3D, single particles, tomography), single molecule detection techniques (optical trap, TIRF, AFM, X-ray crystallography).

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Masters of Science Degree

MPBP usually only accepts students applying for the Ph. D. program. Applicants must demonstrate excellent undergraduate academic performance in physical and biological sciences and satisfactory scores on the general aptitude portion of the Graduate Record Examination (GRE). Foreign students must also show good proficiency in the English language (TOEFL). Students with outstanding performance on either physical or biological sciences but lacking the necessary background to successfully fulfill the common core requirements might be accepted. These students will be required to

- Continuing Education
- successfully complete the necessary remedial courses (MATH 021 / MATH 022; CHEM [141](#) / CHEM [142](#); [BCOR 011](#) / [BCOR 012](#) or [MPBP 019](#) / [MPBP 020](#) during their first year of graduate studies.

- Graduate College

### Requirements for Advancement to Candidacy for the Degree of Masters of Science

- Honors College

- School of Business Administration

Students will be advanced to candidacy if they have successfully completed core course requirements; have performed satisfactorily on their teaching assignments and have favorably completed the departmental comprehensive examination. Students will select a Thesis advisor and a Thesis Committee will be assembled, both approved by the Faculty of the Department.

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Students who are not admitted to candidacy for the doctoral degree will be permitted to complete studies for the master's degree if requirements for that program are met.

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### Minimum Degree Requirements for the Degree of Masters of Science

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A minimum of 41 credit hours are required to confer the Masters of Science Degree with at least 8 credit hours of dissertation research. Molecular Physiology and Biophysics graduate students are required to take a minimum of 31 course credits: 16 fulfilled with the common core courses ([MPBP 301](#), [MPBP 303](#), [ANNB 327](#), [MPBP 323](#); [BIOC 301](#)) and the additional 15 depending on the chosen track, either molecular physiology or biophysics. Elective courses will be determined for each individual after consultation with the Studies Committee. Students should also fulfill their teaching assignments, oral presentation requirements, and successfully complete the comprehensive examination and Thesis dissertation ([MPBP 399](#)).

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## Natural Resources Requirements (M.S.)

The masters of science in natural resources prepares students to pursue studies in advanced disciplinary topics. They will learn scientific and practical methods and develop technical skills for understanding ecological, physical, social, political, and economic aspects of environmental and natural resource issues.

Students choosing to pursue research in the Masters program will take 15 to 24 credits of advanced coursework and write and defend a thesis or project. This experience will further their knowledge and proficiency in natural resource fields including five areas of concentration:

1. Aquatic Ecology and Watershed Science
2. Environment, Society and Public Affairs
3. Environmental Thought and Culture
4. Forestry
5. Wildlife Biology

Other areas of studies can be pursued through the general degree in Natural Resources including interdisciplinary research not included in the above concentrations (e.g., conservation biology). Students and their Graduate Studies Committee work closely together to design these individualized curricula.

Students choosing to emphasize advanced course work (27 credits) will pursue academic and work experiences leading to development of professional skills in curricula emphasizing conservation leadership, ecological planning, and sustainable forestry. A three credit project/internship experience will complement the academic course work.

### Requirements for Admission to Graduate Studies for the Degree of Master of Science



- Continuing Education
- Graduate College
- Honors College
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Undergraduate degree in an appropriate field in the sciences, social sciences, or humanities/fine arts; satisfactory scores on the General Test of the Graduate Record Examination; and three letters of recommendation attesting to the candidate's academic potential for graduate work and motivation for pursuing this degree. Most successful applicants to this highly competitive program have had past experience in an environmental or natural resource-related job, internship, volunteer work, or international travel.

### Minimum Degree Requirements

The Master of Science program requires from 15 to 27 hours of course work in related fields (including [NR 378](#)), a public research seminar presented at the annual graduate student symposium, a research proposal, a comprehensive examination, and 3 to 15 hours of thesis/project research. An oral defense of the thesis/project is required of students not pursuing the advanced course work option.

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## Natural Resources: Aquatic Ecology and Watershed Science (Master of Science)

### Overview

The Aquatic Ecology and Watershed Science concentration provides students with advanced understanding of aquatic ecosystems and their watersheds, and the skills and methodologies required to analyze and solve technical problems concerning the effects of human activities on these systems. Current areas of research emphasis include watershed processes and management; stream and lake ecology; fish ecology and fisheries management; aquatic ecotoxicology; pollutant studies; biogeochemical dynamics, and the modeling of aquatic systems, processes and populations.

### General Requirements

- [Requirements for the Masters Degree](#)
- [Natural Resources Requirements \(M.S.\)](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Undergraduate degree in a discipline related to the intended specific field of study . Satisfactory scores on the General Test of the Graduate Record Examination.

### Minimum Degree Requirements

In addition to the general M.S. in Natural Resources requirements, this concentration requires enrollment in a one credit special topics seminar organized by faculty and students in the concentration, and at least 12 additional hours of course work in the

• Continuing Education aquatic and watershed sciences, or supportive fields (approved by the student's studies committee). Students in this concentration pursue a thesis.

• Graduate College

### Affiliations

• Honors College

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Colleges and Schools > Graduate College > Academic Offerings > Natural Resources: Environment, Society and Public Affairs (M.S.)

## Natural Resources Environment Society and Public Affairs (Master of Science)

### Overview

Through the M.S. concentration in Environment, Society, and Public Affairs, graduate students build theoretical understanding, analytical skills, and applied knowledge in the social dimensions of environmental and natural resource issues. Specific areas in which students may build understanding, skills, and knowledge include:

- environmental policy and planning
- community studies, human behavior, and environmental
- sociology ecological economics
- park and wilderness management
- public participation, conflict resolution, and decision making
- geospatial analysis

### General Requirements

- [Requirements for the Masters Degree](#)
- [Natural Resources Requirements \(M.S.\)](#)

### Specific Requirements

### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Undergraduate degree in a discipline related to the intended specific field of study .  
Satisfactory scores on the General Test of the Graduate Record Examination.

### Minimum Degree Requirements

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

In addition to the general M.S. in Natural Resources requirements, this concentration requires 22 to 25 credit hours of advanced courses (including a methods course, three courses from an approved list of courses reflecting this concentration's emphasis, and one ecology course), and three to six credits of project work or six credits of thesis research. Students pursue a project or thesis.

### Affiliations

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Colleges and Schools > Graduate College > Academic Offerings > Natural Resources: Environmental Thought and Culture (M.S.)

## Natural Resources: Environmental Thought and Culture (Master of Science)

### Overview

In this concentration graduate students build interdisciplinary analytical skills and theoretical understanding of environmental and natural resource issues, with a focus on their human, ethical, and cultural dimensions. Specific areas include: environmental communication and cultural studies; environmental education and interpretation; environmental ethics and philosophy; environment, development, peace, and global justice studies; environmental politics and advocacy; religion and environment; sustainability and sustainable development.

### General Requirements

- [Requirements for the Masters Degree](#)
- [Natural Resources Requirements \(M.S.\)](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Undergraduate degree in a discipline related to the intended specific field of study .  
Satisfactory scores on the General Test of the Graduate Record Examination.

### Minimum Degree Requirements

In addition to the general M.S. in Natural Resources requirements, this concentration requires 19 to 22 credit hours of advanced courses including Vermont Field Studies and 15 credits in a specialization within environmental thought and culture, and six to nine

- Continuing Education

hours of thesis/project research. Students pursue a thesis or project.

- Graduate College

### Affiliations

- Honors College

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Colleges and Schools > Graduate College > Academic Offerings > Natural Resources: Forestry (M.S.)

## Natural Resources: Forestry (Master of Science)

### Overview

The goal of this Master of Science concentration is to provide graduate students with advanced training in forest science and the opportunity to further their knowledge and proficiency in some specialized aspect of forestry . The faculty has research interests which span the broad areas of ecology, management, pathology, physiological ecology, sustainable forestry , and community forestry .

### General Requirements

- [Requirements for the Masters Degree](#)
- [Natural Resources Requirements \(M.S.\)](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Undergraduate degree in forestry or in a discipline related to forest science. Satisfactory scores on the General Test of the Graduate Record Examination.

### Minimum Degree Requirements

In addition to the general M.S. in Natural Resources requirements, this concentration requires 19 to 22 credit hours of advanced forestry and related courses, a comprehensive examination with both a written and oral component, and six to nine hours of thesis/project research. A student's thesis or project research is often an integral part of ongoing research projects in the Rubenstein School of Environment and Natural Resources.



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Colleges and Schools > Graduate College > Academic Offerings > Natural Resources: Wildlife Biology (M.S.)

## Natural Resources: Wildlife Biology (Master of Science)

### Overview

This Master of Science concentration is designed to provide a vehicle for a wildlife biologist to develop research abilities and pursue a specialized course of study. Current areas of research emphasis include applied avian ecology, behavioral ecology, game management, nongame wildlife populations, reserve design, and landscape ecology.

### General Requirements

- [Requirements for the Masters Degree](#)
- [Natural Resources Requirements \(M.S.\)](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Undergraduate degree in wildlife biology/management or in the biological sciences. Satisfactory scores on the General Test of the Graduate Record Examination.

### Minimum Degree Requirements

The Wildlife Biology concentration requires 21 to 24 credit hours of course work in wildlife and related fields, including [NR 378](#), a public research seminar presented at the annual graduate student symposium, a research proposal, a comprehensive examination with both a written and oral component, six to nine hours of thesis/project research, and an oral defense of the thesis or project. The Studies Committee may require additional undergraduate preparation without credit toward the degree in instances of perceived deficiency.

- Continuing Education
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- Honors College
- School of Business Administration
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## Affiliations

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- Departments and Programs:[Anatomy and Neurobiology Department](#).[Neuroscience Program](#).

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Colleges and Schools > Graduate College > Academic Offerings > Nursing (M.S.)

## Nursing (Master of Science)

### Overview

The Department of Nursing offers a graduate program leading to a Master of Science degree in nursing that prepares nurses to assume leadership roles within health care systems in a variety of settings, to expand knowledge of the discipline of nursing, to develop expertise in a specialized area of nursing, and to acquire the foundation for doctoral study and continued professional development. The ability to work collaboratively on an interdisciplinary team, provide patient-centered care, employ evidence-based practice, access information technology, and apply quality improvement strategies are basic competencies expected of all graduates of this program.

The graduate curriculum includes five core courses essential for all students that address the theoretical basis of nursing care: professional issues and role development of advanced practice registered nurses, research utilization and evidence based practice, health policy and financing, theoretical foundations of nursing, and biostatistics and epidemiology. Students apply core content to their chosen area of specialization. Students may select a course of study in: Clinical Systems Management, Primary Care Nursing with preparation either as an Adult, Family Nurse Practitioner, or Psychiatric-Mental Health Nursing. After successful completion of program requirements students are eligible to take either the American Nurse Credentialing Center or American Academy of Nurse Practitioner certification exams at the advanced level.

Clinical practica are an integral aspect of graduate nursing education providing students an opportunity to apply their knowledge and skills in a precepted environment. Students need to be able to travel throughout the state and will incur associated costs for travel and lodging if necessary. All students are required to complete a criminal background check prior to July 1st of the year which they begin the professional program. Prior to enrolling in clinical practica, students must have current certification in Cardio-Pulmonary Resuscitation (CPR), evidence of meeting OSHA requirements, HIPAA training, annual

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PPD testing, select immunizations, and professional liability insurance.

## General Requirements

- [Requirements for the Masters Degree](#)

## Specific Requirements

### Requirements for Admission to Graduate Studies for the Degree of Master of Science

There are three routes of entry into the Graduate Nursing Program.

1. Registered nurses (RN) with a Bachelor of Science degree with a major in nursing; or
2. Registered nurses with a Bachelor's Degree in another field and successful completion of the Bridge Process (means of assessment of nursing knowledge); or
  - Undergraduate grade point average preferably of 3.0 or better; Successful completion of an undergraduate course in statistics;
  - Successful completion of an undergraduate health assessment course for nurse practitioner tracks;
  - Satisfactory scores on the Graduate Record Exam;
  - Licensure or eligibility for licensure as a registered nurse in Vermont (non-MEPN applicants);
  - Three letters of recommendation from persons who can assess your potential for graduate work.
3. Non-nurse college graduates may apply to the Master's Entry Program in Nursing (MEPN) and progress to the MS in an advanced practice area.

### Requirements for Advancement to Candidacy for the Degree of Master of Science

Applicants may be accepted concurrent with admission, or candidacy may be deferred pending a period of satisfactory graduate study at The University of Vermont.

### Minimum Degree Requirements

Total number of required credits is dependent on the specialty track chosen. Satisfactory completion of a Comprehensive Examination and either a thesis or master's project is also required.

### Affiliations

- Colleges and Schools: [College of Nursing and Health Sciences](#), [Graduate College](#).
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Colleges and Schools > Graduate College > Academic Offerings > Nutrition and Food Sciences (M.S.)

## Nutrition and Food Sciences (Master of Science)

### Overview

The department mission is to study the relationship between nutrition, food science, health and fitness (preventive nutrition) and between diet and disease (therapeutic nutrition). Faculty research encompasses both basic and applied or community aspects of human nutrition and food science and technology. Research is being conducted on: the impact of attitudes and behaviors toward eating and exercise on body weight and composition, web-based interactive multimedia tools for use in teaching and research, behavior modification programs to improve individual eating behaviors and testing the effectiveness of Internet support on the long term management of obesity, factors affecting the nutritional status of children, milk chemistry and cheese technology (i.e., structure, function, and properties of mozzarella and goat's milk cheese), chemistry and processing of infant formula, and food microbiology.

For more information, contact Ann Martin, Department of Nutrition and Food Sciences, 250 Carrigan Wing, (802) 656-3374 or e-mail ([Ann.Martin@uvm.edu](mailto:Ann.Martin@uvm.edu)).

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

### Requirements for Admission to Graduate Studies for the Degree of Master of Science

An undergraduate major in nutrition, dietetics, food science, or a science-related field. An undergraduate course in biochemistry. Satisfactory scores on the Graduate Record Examination, general (aptitude) portion.

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## Minimum Degree Requirements for the Degree of Master of Science

Thirty hours including six to fifteen hours of thesis research. Twenty-one hours should be earned in the field of specialization; nine hours may be selected from related areas; courses is statistics, Research Methods in Nutrition and Food Sciences, and Nutrition and Food Sciences Seminar are required.

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- Departments and Programs:[Nutrition and Food Sciences Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Pathology (M.S.)

## Pathology (Master of Science)

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Satisfactory undergraduate or graduate course work in chemistry and the biological sciences. Microbiology and immunology are also recommended but not required. Satisfactory scores on the Graduate Record Examination, general (aptitude) section. Persons interested in a Ph. D. program may wish to consider the interdisciplinary program in Cell and Molecular Biology in which Pathology participates.

#### Minimum Degree Requirements for the Degree of Master of Science

Anatomy 311 (three hours), Pathology 305 (three hours), Biochemistry 301-302 (six hours); additional approved courses; thesis research (six to 15 hours).

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- Departments and Programs: [Pathology Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Pharmacology (M.S.)

## Pharmacology (Master of Science)

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degrees of Master of Science

Year courses in biology, organic chemistry, physics, analytic geometry and calculus; physical chemistry and/or a reading knowledge of one foreign language may be additional prerequisites, depending on the requirements of the research supervisor; and acceptable scores on the general (verbal, quantitative) section of the Graduate Record Examination.

#### Minimum Requirements for the Master of Science Degree

[BIOC 301](#), [BIOC 302](#); [GRMD 354](#); [PHRM 301](#), [PHRM 302](#), [PHRM 303](#), [PHRM 328](#), [PHRM 381](#), [PHRM 391](#); [STAT 308](#). Total of 45 credits, to include 35 from graded coursework and 10 from Maser's Thesis Research. Pass oral and written qualifying exams and pre-thesis proposal. Successful Thesis Defense.

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Colleges and Schools > Graduate College > Academic Offerings > Physics (M.S.)

## Physics (Master of Science)

### Overview

The Department of Physics offers research opportunities in astrophysics, biophysics, condensed matter physics, and the physics of materials.

Astrophysical research centers on experimental radio astronomy , with particular emphasis on pulsars and the interstellar medium. Observations are carried out using major instruments of the U.S. National Observatories and generally involve computer analysis and interpretation.

Research in biophysical ultrasound is directed toward an understanding of the physical principles involved when ultrasound interacts with living systems. This often involves collaboration with the College of Medicine. Acoustical and optical tweezers permit manipulating single cells without touching them. New forms of ultrasonic transducers and biosensors are being developed in collaboration with Electrical Engineering, as part of the Materials Science Program.

Biophysical research includes studies on the development and employment of novel uses of in situ atomic force microscopy for biological applications, specifically high-resolution structural studies of membrane proteins, investigation of the packing of genetic materials on bilayer membranes, and studies on how DNA-bilayer interactions affect the use of cationic lipids as gene-delivery means. Other studies to better understand the structure and assembly kinetics of biological membranes focus on the physical properties of lipid layers employing in situ atomic force microscopy, fluorescence imaging, and differential scanning calorimetry .

Other research in biological physics and protein dynamics involves combining the detail of atomic-resolution X-ray crystallography with the sensitivity of optical and IR spectroscopy. We have access to a state-of-the-art protein crystallography diffractometer and make regular trips to synchrotrons in the US and Europe. Computational facilities for

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structural biology include several SGIs and a 12-node Beowulf parallel-processor Linux cluster .

Research in theoretical condensed matter physics focuses on the dynamics of quantum systems with application to electronic, magnetic, optical, structural, and thermal properties of nanomaterials including fullerene-derived solids (buckyballs) and carbon nanotubes. Basic research also includes the investigation of low energy scattering of atoms and molecules from surfaces and systems with many internal degrees of freedom and the development of new methods for studying quantum many-body systems, such as new extensions of density functional theory to van der Waals systems.

Theoretical studies of the optical properties of materials include the electronic structure of defect complexes in ionic crystals, the application of subtracted dispersion relations to optical data analysis, and the separation of inter- and intra-band effects in the infrared spectra of metals. Related studies are concerned with theories of X-ray scattering, of X-ray optical properties, and of X-ray optical elements.

Research in materials physics includes studies of the kinetics of thin film growth and surface processing, applied to materials with interesting and useful physical properties such as organic semiconductors and magnetic materials. Many of the research projects involve real-time X-ray or electron diffraction structural studies of surface phenomena, combined with computer simulation of relevant surface processes. We have an ultra-high vacuum thin-film deposition laboratory dedicated to these studies, and we make regular use of synchrotron X-ray facilities in the US.

Opportunities for collaborative research with other University departments and groups include those with Chemistry , the Materials Science Program, Molecular Physiology and Biophysics, the Cell and Molecular Biology Program, Computer Science and Electrical Engineering, Civil and Environmental Engineering, and Mechanical Engineering, Medical Radiology, and Geology.

The Department participates in two doctoral programs: Materials Science and Cell and Molecular Biology.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Undergraduate majors in science, engineering, or mathematics are considered for admission to the program. Satisfactory scores on the Graduate Record Examination (general) are required.

#### Requirements for Advancement to Candidacy for the Degree of Master of

## Science

Physics [PHYS 211](#), [PHYS 213](#), and [PHYS 273](#); two additional semester courses in physics above the sophomore level; two semester courses in mathematics above the sophomore level.

## Minimum Degree Requirements for the Degree of Master of Science

A total of 30 credit hours including a minimum of six hours of thesis research and at least nine hours of Physics courses numbered over [PHYS 300](#).

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Colleges and Schools > Graduate College > Academic Offerings > Plant and Soil Science (M.S.)

## Plant and Soil Science (Master of Science)

### Overview

Current research projects are concerned with the solution of horticultural and agronomic problems with special emphasis on environmental physiology, soil chemistry, pasture management, plant nutrition, and pest management. Areas of research include winter hardiness of fruits, and woody and herbaceous ornamentals; cultural and environmental interrelationships as they affect plant growth, crop adaptation, and variety; pasture production and marginal land utilization; crop establishment and soil productivity; mycorrhizal fungi; soil chemistry of the rhizosphere; redox reactions in soils; the behavior of heavy metals; compost and organic matter research; behavior of nitrogen in the soil; nutrient availability to plants; agricultural waste management; biological control of insects, disease, and weeds; integrated pest management for control of insects, diseases, and weeds. A student's thesis research will be an integral part of the on-going research efforts of the department.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

An undergraduate major in an appropriate agricultural, environmental, biological, or physical science. Satisfactory scores on the Graduate Record Examination, general (aptitude) section.

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## Science

Satisfactory completion of one academic year of graduate study in the Department of Plant and Soil Science, and a written or oral comprehensive examination. The decision on the type of comprehensive exam will be made by the major professor after consulting with the student.

## Minimum Degree Requirements for the Degree of Master of Science

Eighteen to 22 hours in Plant and Soil Science and closely related fields; satisfactory participation in seminars during residency; thesis research (six to 12 hours). All masters students must take part in the department's undergraduate teaching program.

## Affiliations

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## Plant Biology (Master of Science)

### Overview

The Plant Biology Department has ongoing research programs in: ecology and evolution including physiological ecology of aquatic plants, effects of acid depositions on forest ecosystems, physiological ecology of acid depositions, systematics and evolution of vascular plants, biogeography; physiology including morphogenesis and developmental biology of embryonic plant systems, mineral nutrition, growth and development, translocation, cellular electrophysiology, membrane function, amino acid transport, aluminum effects on cell membranes; and cell and molecular biology including molecular genetics; recombinant DNA of fungi and plant molecular development.

The Plant Biology Department participates actively in the Cell and Molecular Biology Program which provides opportunities for interdisciplinary research with other life science departments.

The Plant Biology Department offers a multidisciplinary non-thesis program leading to the degree of Master of Science, Field Naturalist Option. Enrollment is limited to a small number of mature, highly talented individuals who have demonstrated sustained interest in field aspects of the natural sciences. The program is designed to provide students with: (1) a solid grounding in field-related sciences; (2) the ability to integrate scientific disciplines into a coherent whole at the landscape level; (3) the ability to evaluate sites from a number of perspectives and/or criteria; (4) the ability to translate scientific insights into ecologically sound decisions; and (5) the ability to communicate effectively to a wide range of audiences.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements



- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

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## Requirements for Admission to Graduate Studies for the Degree of Master of Science

The equivalent of a UVM major or minor in a natural or physical science. Satisfactory scores on the Verbal and Math sections of the Graduate Record Examination.

### Minimum Degree Requirements

A total of 30 credits of course work and thesis research. A minimum of 15 credits of course work should be in botany, other natural sciences, and supporting fields, and at least nine credits should be in thesis research.

## Requirements for Admission to Graduate Studies for the Degree of Master of Science, Field Naturalist Option

An undergraduate or graduate degree in earth or life sciences is expected; additionally, a demonstrated commitment to field sciences (e.g., participation in environmental and conservation organizations, workshops, field trips, research; strong scores on the Graduate Record Examination. A subject (advanced test in biology or geology is advised for students who lack an undergraduate degree in natural sciences. Recent college graduates are encouraged to pursue interests outside academe before application to the Field Naturalist program.

### Minimum Degree Requirements, Field Naturalist Option

Thirty credit hours of courses to include at least two courses in each of three core areas: (1) life science; (2) earth science; and (3) ecology, the course selection to be determined by the student's studies committee. Enrollment in the Field Naturalist Practicum (PBIO 311) each semester; oral comprehensive examination the fourth semester; written field research project (PBIO 392 at the end of the fourth semester .

### Affiliations

- Colleges and Schools:[College of Agriculture and Life Sciences](#).[Graduate College](#).
- Departments and Programs:[Plant Biology Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Statistics (M.S.)

## Statistics (Master of Science)

### Overview

The Statistics Program offers biostatistics, statistics, and probability courses for the entire University community along with traditional degree programs and individually designed degree programs emphasizing statistics applied to other fields. The degree programs are designed primarily for students who plan careers in business, actuarial science, industry, and government or advanced training in disciplines that make extensive use of statistical principles and methods. The Program faculty is deeply involved in consulting and collaborative research in a wide variety of fields, including industry, agriculture and in the basic and clinical medical sciences. These research activities along with the research of other quantitative UVM faculty offer students unique opportunities to apply their classroom training to "real world" problems. Qualified students with the goal of learning statistics to use in a specialized area of application are especially encouraged to take advantage of these cooperative arrangements.

Program faculty have active statistics research efforts in areas such as bioinformatics, sequential analysis, three stage sampling, time series analysis, survival data analysis, discriminant analysis, bootstrap methods, categorical data analysis, measurement error models, and experimental design. Students seeking the traditional graduate degree in statistics (along with course work in mathematics and computer science, if desired) have excellent opportunities to participate in the faculty's research.

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

### Requirements for Admission to Graduate Studies and Advancement to

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

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## Candidacy for the Degree of Master of Science

A baccalaureate degree. Three semesters of calculus, a course in matrix methods, and one semester of statistics. Provisional acceptance can be given prior to the completion of these requirements. Satisfactory scores on the -general (aptitude) portion of the Graduate Record Examination are required for most sources of financial aid. Computer experience is highly recommended.

Current undergraduate students at The University of Vermont should contact the program director for details on the Accelerated Master's Program (AMP).

## Minimum Degree Requirements for the Degree of Master of Science

*Plan A (Thesis):* A 30 semester credit hour program requiring 24 semester hours of Statistics course work. The program must include [STAT 221](#), [STAT 223](#), [STAT 231](#), [STAT 251](#), [STAT 261](#), [STAT 360](#), one of [STAT 233](#), or [STAT 235](#), and at least one other 200/300-level statistics course (except [STAT 211](#), [STAT 241](#), [STAT 281](#), [STAT 308](#)), as well as (if approved) other courses in mathematics, quantitative methods, or specialized fields of application of career interest to the student. Six semester hours of thesis research is required ([STAT 391](#)).

*Plan B (Nonthesis):* A 33 semester credit hour program requiring 30 semester hours of course work. The program must include [STAT 221](#), [STAT 223](#), [STAT 231](#), [STAT 251](#), [STAT 261](#), [STAT 360](#), one of [STAT 233](#), or [STAT 235](#), other 200/300-level statistics courses (except [STAT 211](#), [STAT 241](#), [STAT 218](#), [STAT 308](#)), or (if approved) other courses in mathematics, quantitative methods, or specialized fields of application of career interest to the student. The research project requirement is met by taking three semester hours of either statistical research ( [STAT 381](#) or statistical consulting ( [STAT 385](#)).

Under both plans, students must have or acquire knowledge of the material in [STAT 211](#): Statistical Methods I. The student is expected to participate in the colloquium series of the Program and in the Statistics Student Association Journal Club. The student must pass the comprehensive examination which covers knowledge acquired in the core courses of the program. Under the nonthesis option, students will be expected to take major responsibility for a comprehensive data analysis or methodological research project, and are encouraged to present the results from the project.

## Affiliations

- Colleges and Schools:[College of Engineering and Mathematical Sciences](#),[Graduate College](#),[College of Arts and Sciences](#).
- Departments and Programs:[Mathematics and Statistics Department](#) .

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Colleges and Schools > Graduate College > Academic Offerings > Curriculum and Instruction (M.A.T.)

## Curriculum and Instruction (Master of Arts in Teaching)

### Overview

The **Master of Arts in Teaching program for middle level and secondary teachers** is designed for those students who aspire to earn both a master's degree and a license to teach in public middle or secondary schools. The program particularly welcomes students from UVM and northeastern colleges and universities majoring in arts and sciences, agriculture and natural resources who have completed majors in social sciences, science, mathematics, etc. Students will prepare for licensure to teach in grades five through nine or seven through twelve in one summer and academic year.

### Accelerated Master of Arts in Teaching

UVM students who are in their third year of study for a Bachelor's degree may apply to the Accelerated Master of Arts in Teaching program. These students, when accepted, may complete nine semester hours of graduate level coursework, six of which may be counted towards both the minimum requirements for the Master of Arts degree, as well as toward the undergraduate degree. Requests for further information and application forms may be obtained by contacting the Middle Level or Secondary Education Program Coordinator, 405A Waterman Building, (802) 656-1411. Qualified candidates will need a major in an approved licensing endorsement.

Inquiries regarding these programs should be addressed to the Middle Level and Secondary Education support person at (802) 656-1411.

### Specific Requirements

No description available

### Affiliations

- [Colleges and Schools:College of Education and Social Services.Graduate College.](#)

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Colleges and Schools > Graduate College > Academic Offerings > Greek and Latin (M.A.T.)

## Greek and Latin (Master of Arts in Teaching)

### Overview

Current research interests include Homer; Mycenaean and Homeric Greece; Greek and Latin lyric and elegiac poetry; Greek drama; the Attic orators; ancient literary criticism; Greek and Roman philosophy and intellectual History; Greek and Roman historiography; Greek and Latin Prose; Cicero; Virgil; Latin epic; Petronius, satire; Greek and Roman technological authors; Roman history; Roman Imperial Families; Mythology; Archaeology; Medieval studies.

### Specific Requirements

#### Requirements for Admission to Graduate Studies in Latin and/or Greek for the Degree of Master of Arts in Teaching

A program in teaching of Latin and/or Greek leading to the degree of Master of Arts in Teaching and to licensure, is also offered in conjunction with the College of Education and Social Services. Satisfactory scores on the general (aptitude) Graduate Record Examination are prerequisite for acceptance to candidacy for this degree.

### Courses:

#### A. Thesis Option:

24 hours of graded course work plus at least six hours of thesis research (GKLT 391), and successful completion and defense of a Master's Thesis. The 24 hours of course work consist of: GKLT 300; 6 hours of GKLT 381; 9 additional hours of advanced courses in Greek and Latin; 6 additional hours in Greek, Latin, Classics, or approved hours in related fields.

• Continuing  
Education

• Graduate College

• Honors College

• School of Business  
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• The Rubenstein  
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## B. Non-thesis Option:

30 hours of graded course work. The 30 hours of coursework consist of: GKL T 300; 6 hours of GKL T 381; 15 additional hours of advanced courses in Greek, Latin, and Classics; 6 additional hours in Greek, Latin, Classics, or approved hours in related fields.

## Both Options

Comprehensive examinations in Greek, Latin, at least one modern foreign language, ancient history, and literature and philology are required. In addition to course work, students will have a list of ancient authors to be read in the original languages.

## Affiliations

- Colleges and Schools: [College of Arts and Sciences](#). [Graduate College](#).
- Departments and Programs: [Classics Department](#).

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- College of Nursing and Health Sciences

Colleges and Schools > Graduate College > Academic Offerings > Biology (M.S.T.)

## Biology (Master of Science for Teachers)

### Overview

Faculty research interests fall into two broad groupings: A) developmental biology/cell and molecular biology/physiology; and B) ecology/evolution/natural history. Current ongoing research projects include: A) molecular biology of receptors; cell biology; signal transduction and development; identification of novel muscle proteins by means of biochemical and genetic approaches; how molecular interactions define mechanical properties of muscles; genetics of chemoreception and chemotactic behavior of protozoa; electrophysiological basis of signal transduction; analysis of G protein signaling in *Drosophila* using genetic, molecular and immunohistochemical approaches; B) taxonomy and natural history of insects, particularly Rhysodid beetles; null models; community assembly; population and community ecology of carnivorous plants; parasite-host ecology; ecology and evolution of plant-animal interactions; population and community ecology of lizards; behavioral ecology; population genetics and molecular systematics in taxa such as Himalayan rodents, Polynesian black flies, and neotropical mosquitoes; genetic differentiation and evolution in structured populations; population genetics; cytoplasmically inherited reproductive incompatibility; evolutionary consequences of parasite-host interactions; physiological energetics of insects.

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science in Teaching

A bachelor's degree from an accredited institution and certification as a teacher of biology or an associated field. At least three years of secondary school teaching. Satisfactory scores on the Graduate Record Examination, general (aptitude) section.

### Minimum Degree Requirements

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

Thirty hours of course work to include a selection of courses in the Departments of Botany and Biology which will broaden and balance the undergraduate work in biology. At least two 200-level courses in each department. Courses in four of the five following areas: anatomy; morphology and systematics; genetics; developmental biology; and environmental biology. Up to 12 hours of 100-level courses may be used for the above requirements where approved by the advisor and the Dean. Appropriate courses in related science departments may be used to complete the required 30 hours. No thesis is required; however, each degree recipient must complete a written and oral examination.

### Affiliations

- Colleges and Schools:[College of Arts and Sciences](#).[Graduate College](#).
- Departments and Programs:[Biology Department](#).

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- College of Nursing and Health Sciences

Colleges and Schools > Graduate College > Academic Offerings > Mathematics (M.S.T.)

## Mathematics (Master of Science for Teachers)

### Overview

The Department of Mathematics offers programs towards the Master of Science, Master of Science for Teachers, and the Doctor of Philosophy in Mathematical Sciences. There are two areas of concentration: pure mathematics and applied mathematics. The programs emphasize the interaction between these two areas and the common role of scientific computation. Students can take courses common to both areas, enabling them to gain an appreciation of the mathematical techniques and the connections between theory and applications.

Department research interests include classical analysis, harmonic analysis, Fourier analysis, approximation theory, algebra, number theory, graph theory, combinatorics, fluid mechanics, biomathematics, differential equations, numerical analysis, and modeling.

### Specific Requirements

#### Requirements for Admission to Graduate Studies and Advancement to Candidacy for the Degree of Master of Science for Teachers

A bachelor's degree from an accredited institution. Certification as a teacher of mathematics or experience teaching secondary school mathematics. Satisfactory scores on the Graduate Record Examination.

#### Minimum Degree Requirements for the Degree of Master of Science for Teachers

Thirty hours of course work in mathematics. With the approval of their advisor, students may choose courses from the 100-level or from closely related fields. The student must pass an oral comprehensive examination. No thesis is required.

• Continuing  
Education

• Graduate College

• Honors College

• School of Business  
Administration

• The Rubenstein  
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## Affiliations

- Colleges and Schools:[College of Engineering and Mathematical Sciences](#).[Graduate College](#).[College of Arts and Sciences](#).
- Departments and Programs:[Mathematics and Statistics Department](#) .

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Colleges and Schools > Graduate College > Academic Offerings > Curriculum and Instruction (M.Ed.)

## Curriculum and Instruction (Master of Education)

### Overview

The Curriculum and Instruction master's program is designed to develop leadership in such educational settings as teaching, curriculum theory, curriculum development, and related areas of research for elementary and secondary public and private school settings. Areas of focus within the M. Ed., in addition to those described in detail below, include elementary or secondary education, information technology, and health/physical education. The program is also appropriate for those with instructional roles in human services agencies.

Programs are developed to provide a comprehensive background in fields basic to instruction and curriculum development as well as the application of that knowledge to a specialized field. They include courses aimed at the examination and improvement of instructional practices in elementary and secondary schools, and understanding of curriculum theory and the application of curriculum development. Opportunities for independent study and research are encouraged in all specializations.

Inquiries regarding these programs should be addressed to Cheryl Schneck (Cheryl Schneck@uvm.edu) or (802) 656-3356.

### General Requirements

- [Requirements for the Master of Education Degree](#)

### Specific Requirements

Work at the graduate level draws upon other divisions of the University, thus enabling the College to develop strong programs of professional education which include academic offerings in the various teaching fields in elementary and secondary education. Degree concentrations, in addition to those listed below, can be developed on an interdisciplinary

• Continuing Education basis responding to student strengths and needs.

• Graduate College

Courses in professional education include: 207, 209, 211, 217, 218, 225, 226, 227, 228, 241, 244, 245, 248, 256, 257, 259, 261, 270, 271, 321, 333, and 343.

• Honors College

### **Affiliations**

• School of Business Administration

- Colleges and Schools:[College of Education and Social Services](#).[Graduate College](#).
- Departments and Programs:[Education Department](#).

• The Rubenstein School of Environment and Natural Resources

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Colleges and Schools > Graduate College > Academic Offerings > Educational Leadership (M.Ed.)

## Educational Leadership (Master of Education)

### Overview

The Master's Degree in Educational Leadership is a nationally recognized program by the National Council for Accreditation for Teacher Education (NCATE). The program is designed to cultivate leaders who can apply knowledge toward leading and building learning communities designed to make a positive difference in the lives of children, youth, families, adults, and communities. The program prepares public and private school leaders, curriculum leaders, teacher leaders, leaders of educational and social service agencies, and leaders for other educational organizations. The program is designed to prepare leaders to think and act creatively, responsibly, and effectively in leadership roles.

### Conceptual Framework

The Masters Degree Program in Educational Leadership is guided by its Conceptual Framework which is grounded in respect for diversity, social justice, and democratic community. The program is committed to the preparation of leaders who are reflective practitioners, instructional leaders, and change agents who can collaborate with other professionals to make a positive difference in schools, human service agencies, communities and in the lives of all learners. The program is directed toward preparing competent and caring professionals who:

- have the knowledge, skills, and professional dispositions to promote the success of all students and/or members of their educational and human service organizations.
- understand alternative perspectives on leadership that support the development of more just, humane, and diverse organizations.
- construct effective ways to demonstrate caring and collaborative leadership and understand how to partner with families and other community members, responding to diverse community interests and needs, and assets.

- Continuing Education
  - create networks which support leadership and change and cultures of learning.
  - advance educational and human environments that advance social justice, equity , and democracy.
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

The program's Conceptual Framework is guided by several principles which are aligned with the Vermont Standards for Professional Educators and the Interstate School Leaders Licensure Consortium (ISLLC) created by the National Policy Board for Educational Administration and the Educational Leadership Constituents Council (ELCC Standards for Advanced Programs in Educational Leadership. The program is grounded in:

### **Constructivism**

Knowledge is socially constructed through dialogue and community-based practice (constructivism).

### **Collaboration**

Teachers and other school professionals work collaboratively to problem-solve with stakeholders (collaboration, inter-professional practice, reflective practice, excellence.

### **Human Development & Empowerment**

Education facilitates development of human potential (developmentally appropriate practice, strengths perspective, empowerment

### **Inclusion**

All students can learn and have value in their communities (inclusion.

### **Multiculturalism/Culturally Responsible Pedagogy**

Learning communities demonstrate respect for and honor diversity; pursue knowledge and affirmation of our diverse cultures (multiculturalism, culturally responsive pedagogy , equity).

### **Equity & Justice**

Education should advance social justice and democracy (equity).

### **Program Areas of Concentration**

While the program is designed within the broad concept of leadership, two major strands of concentration are available. The areas of concentration are:

#### **STRAND I: School Leader with Administrative Endorsement**

- Educational
- Administration Curriculum
- Leadership Teacher Leadership

#### **STRAND II: Human Service, Organizational and Community Leadership**

- Leadership in Private or Nonprofit Educational Organizations
- Leadership in human service agencies and other community/public agencies

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## General Requirements

- Requirements for the Master of Education Degree

## Specific Requirements

The program requirements include:

- 30-36 credit hours distributed among courses, summer seminars, independent study, action research, clinical field experiences, and internships.
- fifteen of the 30-36 credits comprise the core curriculum, with the remainder making up the student's individual concentration. Students desiring the Vermont Administrative Licensure will take a majority of their electives in areas required through licensure standards as defined by Vermont Competencies for Administrative Endorsement and Vermont Standards for Professional Educators.
- a leadership portfolio which marks the final requirement of the program. Portfolios are presented as part of the Master's Comprehensive Orals at the completion of each student's degree program.

The M.Ed. program for administrative licensure requires 30 to 36 credit hours of courses including seminars, clinical field work, internships, and research experiences.

For students who already have a master's degree there is a Certificate of Advanced Study (C.A.S.) available. The program requirements are identical to the master's degree program and require 30 credit hours of course work, leading to Vermont Administrative Endorsement.

Courses with an administration/planning focus include: EDLP 264, EDLP 266, EDLP 268, EDLP 280, EDLP 291, EDLP 295, EDLP 319, EDLP 332, EDLP 334, EDLP 335, EDLP 336, EDLP 337, EDLP 352, EDLP 353, EDLP 354, EDLP 355, EDLP 356, EDLP 358 and EDLP 387.

### Transfer of Credit

A maximum of nine (9) semester hours may be accepted in transfer into the program. Transfer credit may be completed prior to admission to the Masters of Education Program provided that the credit is approved by the student's Studies Committee and that the credit conforms to all other Graduate College requirements.

### Application Process

There are two application deadlines. Applications are due **November 15th** for admission the following spring and **April 1st** for admission the following summer and fall. The process for application is as follows:

- Students apply to the Graduate College through electronic submission of the application materials. Materials are available on the Web Site for the University of Vermont, Graduate College.
- Applicants will be required to interview with the Masters Program Coordinator or program faculty member.

Applicants will receive written notification of the status of their application from the Graduate College. Applicants are responsible for making sure all application materials have been submitted to the Graduate College.

- Once accepted, applicants will receive a letter of acceptance from the Program Coordinator and will be assigned an advisor.

### Affiliations

- Colleges and Schools:[College of Education and Social Services](#).[Graduate College](#).
- Departments and Programs:[Education Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Educational Studies (M.Ed.)

## Educational Studies (Master of Education)

### Overview

The Foundations of Education faculty offer graduate courses in foundations of education and a master's degree in Educational Studies. The degree program is a research and scholarship based program for students from a diversity of educational fields including instruction, administration, policymaking and analysis, social services, state departments of education, allied educational professions (counselors, health care personnel, journalists), school boards, and international education. Students study past, present, and future educational problems and practices from the perspectives of the several disciplines; and they make cross disciplinary connections to discover the themes common to all the disciplines as well as to the theory and practice of education. Students study the process of making professional judgments about educational practice that include ethical, political, historical, literary, cultural, and social considerations. They strive to understand more profoundly not only the "what" and the "how" of the education professions, but the "why" as well.

Students in this program learn how to become competent scholars and researchers in the field of education by knowing the pertinent literature, staying abreast of the latest policy developments in the field, and communicating this information effectively to various audiences through competent, discipline-based research, publication, and teaching. Students also strive to acquire the values, understandings, and skills necessary to advance a conception of the good society which includes respect for human dignity, a belief in human rights, and an ethic of service to others.

Inquiries regarding this program should be addressed to Professor David Shiman.

### General Requirements

- [Requirements for the Master of Education Degree](#)

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

## Specific Requirements

The master's degree in Educational Studies is tailored to the intellectual and professional interests of the student. Students plan their course of study with a faculty advisor in the program. Students are urged to elect courses and organize their research around problems of interest to them.

Courses applicable to the Educational Studies Program include: 204, 205, 206, 209, 255, 295, 302, 303, 304, 309, 314, 322, 347, 348, 352, 354, 369, 377, 380, 391, 397.

## Affiliations

- Colleges and Schools: [College of Education and Social Services](#), [Graduate College](#).
- Departments and Programs: [Education Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Higher Education and Student Affairs Administration (M.Ed.)

## Higher Education and Student Affairs Administration (M.Ed.) (of Education)

### Overview

The graduate program in Higher Education and Student Affairs Administration educates professionals who apply human development, organizational, and administrative principles to their work with students in higher education. Graduates of the master's degree program possess knowledge in administration and planning, organizational development, higher education policy and practice, and student affairs professional principles. Graduates further the goals of colleges and universities by serving as policy makers, student affairs educators, student service advisors, and administrators.

Pluralism is a primary curricular foundation of the Higher Education and Student Affairs program. Pluralism, a reality of American life and U.S. higher education, is expressed through course and experiential opportunities emphasizing the diversity of people, experiences, perspectives, and structures. The curriculum, including courses, practica internships, graduate assistantships, and volunteer opportunities with the University and local institutions integrate conceptual theory with administrative practice. Students gain an understanding of the student affairs profession, multiculturalism, college student development, history of and trends within U.S. higher education, organizational theory, and professional ethics.

An array of 60 practicum internships and 35 graduate assistantship (e.g., clinical internship) placements help students integrate their conceptual knowledge with student affairs and higher education practice. Assistantships are housed in University offices such as alumni affairs, the provost's office, admissions, judicial affairs, development, and residential life. The assistantship application process is separate from the admissions process but interviews for both are held concurrently in March of each year. Practica experiences (three selections during the course of the degree) are available

within University and local college offices.

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

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## General Requirements

- [Requirements for the Master of Education Degree](#)

## Specific Requirements

Students are urged to hold either a full-time position in college and/or student affairs administration, if a part-time student, or a 20 hours per week graduate assistantship, if a full-time student. Assistantship stipends cover tuition for 20 credit hours of study each year and a bimonthly stipend.

Courses required for the M. Ed. degree in Higher Education and Student Affairs (EDHI include: [EDHI 297](#), [EDHI 360](#), [EDHI 361](#), [EDHI 362](#), [EDHI 375](#), [EDHI 383](#), [EDHI 385](#), [EDHI 395](#), and [EDHI 396](#). Forty credit hours are required for the M.Ed. degree.

There is also a Higher Education concentration in the Educational Leadership and Policy Studies doctoral degree (Ed.D.) that requires core courses (see Educational Leadership Ed.D. and a program of studies focusing on the administration in higher education.

(Please visit our [Web Site](#)  for HESA program information.)

Inquiries regarding this program should be addressed to Professor Deborah Hunter, 208 Mann Hall, University of Vermont, Burlington, Vermont 05405.

## Affiliations

- Colleges and Schools: [College of Education and Social Services](#). [Graduate College](#).
- Departments and Programs: [Integrated Professional Studies Department](#).

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- College of Education and Social Services
- College of Engineering and Mathematical Sciences
- College of Medicine
- College of Nursing and Health Sciences

Colleges and Schools > Graduate College > Academic Offerings > Interdisciplinary (M.Ed.)

## Interdisciplinary (Master of Education)

### Overview

This degree program is for students who wish to pursue an individually designed, integrated program of study . The program draws primarily from graduate courses in Educational Leadership, Counseling, Higher Education and Student Affairs Administration, and Educational Studies but may include courses from other departments within the College and the University.

Applicants should have a clear understanding of how the Interdisciplinary Program will serve their career goals. For this reason, major emphasis in admissions is placed upon the applicant's Statement of Purpose. Applicants are strongly encouraged to contact Professor Robert Nash ( [Robert.Nash@uvm.edu](mailto:Robert.Nash@uvm.edu)) prior to making application for admission. Detailed information about the program and admissions criteria will be supplied upon request.

### General Requirements

- [Requirements for the Master of Education Degree](#)

### Specific Requirements

A minimum of 36 credit hours is required for completion of the program. The program is ideally suited for persons whose personal and professional development requires a combination of course work not readily available in other graduate programs, or for individuals who plan to assume new or emerging roles in the fields of education or social and human services.

### Affiliations

- [Colleges and Schools:College of Education and Social Services.Graduate College.](#)

- Continuing Education
  - Departments and Programs:[Integrated Professional Studies Department](#).
  - [\[Location\]](#)
- Graduate College
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Colleges and Schools > Graduate College > Academic Offerings > Reading and Language Arts (M.Ed.)

## Reading and Language Arts (Master of Education)

### Overview

The purpose of this program area is to prepare teachers and specialists in the field of reading. Classroom teachers, reading specialists or consultants, supervisors, administrators are responsible for developing programs which will enable every student to attain their maximum proficiency in the use of reading and language. To meet this end, several courses have been devised which focus on classroom reading instruction and reading difficulties. Through the Reading Clinic, students also have opportunities for laboratory experiences as well as for research and study in reading, literature, and language arts.

Inquiries regarding this program should be addressed to Professor Marjorie Lipson.

### General Requirements

- [Requirements for the Master of Education Degree](#)

### Specific Requirements

Courses in reading and language arts include: 222, 223, 234, 246, 375, 376, 378, 379, and 385. Various independent study and special topic courses are also available.

### Affiliations

- Colleges and Schools: [College of Education and Social Services](#), [Graduate College](#).
- Departments and Programs: [Education Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Special Education (M.Ed.)

## Special Education (Master of Education)

### Overview

This master's program is designed to prepare students to collaborate with families, educators, and other professionals and service agencies in the development, implementation and evaluation of instructional programs and supports for learners with disabilities in integrated school and community settings. The program requires that students have appropriate professional experience.

Three primary areas of emphasis within the program are Consulting Teacher/Learning Specialist, Early Childhood Special Education and Intensive Special Education. All three areas have State of Vermont approved licensure endorsement tracks, and successful completion leads to a licensure endorsement for special education in Vermont.

- *Consulting Teacher/Learning Specialist:* Students are prepared to collaborate with families, educators and other professionals in the design, implementation and evaluation of instruction for learners with mild to moderate disabilities in integrated regular elementary, middle or high school classrooms.
- *Early Childhood Special Education:* Students are prepared to provide individualized, family-centered special education services to young children with disabilities and their families through both direct and collaborative delivery systems coordinated with social service agencies in integrated home, preschool and community settings in rural areas.
- *Intensive Special Education:* Students are prepared to provide direct and collaborative instruction to learners with moderate to severe disabilities on the basis of identified activities, skills, adaptations and transitions needed for learners to function in current and future integrated school, home and other community environments, with services involving learners' parents and a variety of professional disciplines.

In addition, a Certificate of Advanced Study (Post-Master's Certificate) with a usual total



• Continuing  
Education

of 36 credit hour program may be arranged for applicants who have already earned a Master's degree.

• Graduate College

Additional information on the above should be requested from the Program Coordinator .

• Honors College

### General Requirements

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### Specific Requirements

Specific courses are required for each area (Consulting Teacher/Learning Specialist, Early Childhood Special Education or Intensive Special Education), as well as a full year internship. Students seeking admission to a licensure endorsement track must meet additional requirements. Contact the Special Education Program for assistance with questions on admissions requirements.

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- Colleges and Schools:College of Education and Social Services.Graduate College.
- Departments and Programs:Education Department.Integrated Professional Studies Department.

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Colleges and Schools > Graduate College > Academic Offerings > Business Administration (M.B.A.)

## Business Administration (Master of Business Administration)

### Overview

Management is the art of applying principles of the mathematical and social sciences to decision making in an organizational environment characterized by uncertainty and limited resources. The program is designed (1) to develop the individual's ability to practice the art and (2) to build a foundation that will facilitate and encourage the continuation of this development beyond a formal university setting. Courses in the program emphasize the understanding and critical evaluation of conceptual and theoretical principles relevant to the decision process in the functional areas of business.

Upon completion of the program, students will have been exposed to each functional area, will have been required to demonstrate an ability to engage in individual and group research projects, and will have demonstrated capacity to present coherently and defend their views orally and in writing.

The MBA program is accredited by [AACSB](#)  - The Association to Advance Collegiate Schools of Business.

### Specific Requirements

#### Requirements for Admission to Graduate Studies and for Advancement to Candidacy for the Degree of Master of Business Administration

The MBA program consists of prerequisite (basic skills, Core, and Advanced (beyond the core) courses. A student can be admitted to the Graduate College before completion of prerequisite courses, but all prerequisites must be completed before the student is admitted to candidacy for the MBA degree.

All applicants must meet the general requirements for admission to the Graduate College. In addition to transcripts of prior undergraduate and graduate work, the

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applicant is required to submit scores on the GMAT, the Graduate Management Admission Test. Scores from alternative tests, such as the GRE, are also acceptable. Students are selected for admission based on high promise of academic achievement in the MBA program. That promise will be judged by previous academic work, test scores, relevant work experience, writing ability, and recommendations. Accepted students are also expected to be fluent in the Microsoft Office Professional group of applications. They may obtain this through course instruction, work experience or self-instruction.

### Minimum Degree Requirements

Students must complete all of the courses listed. Each prerequisite course normally will be satisfied by completion of an appropriate three hour undergraduate level course. Prerequisite courses must be completed before enrollment in Core courses. Enrollment in Advanced courses is restricted to students who have completed the appropriate Core course in that functional area.

### Prerequisite Courses

1. Macroeconomic Principles
2. Microeconomic Principles
3. Differential Calculus
4. Statistics

### Core Courses (18 credits)

1. BSAD 305 Fundamentals of Marketing Management
2. BSAD 306 Fundamentals of Accounting
3. BSAD 307 Organization and Management Studies
4. BSAD 308 Corporate Finance
5. BSAD 309 Fundamentals of Legal Environment of Business
6. BSAD 340 Production and Operations Management

### Advanced Courses (30 credits)

(Of the 30 credits in this category, at least 18 must be in 300-level courses.)

#### I. Functional Area Courses (one selected from each area):

1. Accounting and Finance ([BSAD 260](#), [BSAD 261](#), [BSAD 262](#), [BSAD 263](#), [BSAD 264](#), [BSAD 266](#), [BSAD 267](#), [BSAD 268](#), [BSAD 282](#), [BSAD 285](#), [BSAD 360](#), [BSAD 365](#), [BSAD 380](#), Special Topics)
2. Economic and Political Environment (Special Topics)
3. Human Resources Management ([BSAD 222](#), [BSAD 226](#), [BSAD 331](#), [BSAD 375](#), [BSAD 376](#), [BSAD 379](#), Special Topics)
4. Marketing ([BSAD 251](#), [BSAD 252](#), [BSAD 258](#), [BSAD 352](#), Special Topics)
5. Management Information Systems ( [BSAD 345](#), Special Topics)
6. Production and Operations Management and Quantitative Methods ([BSAD 270](#), [BSAD 293](#), Special Topics)

- II. Electives: Nine credits of graduate business courses
- III. BSAD 396 Business Policy

A normal course load for full-time students is 12 credits per semester . Part-time students typically take six credits per semester . Substantially all Core courses must be completed before enrollment in Advanced courses. Business Policy will be taken during the student's last semester in the MBA program. Successful completion of the BSAD 396 course will be considered as fulfilling the Graduate College requirement that all master's degree students pass a comprehensive examination in their field of specialization.

Students who have received undergraduate degrees in business within the past five years from schools accredited by the AACSB are allowed to waive the Core courses and may complete the program in one year by taking 15 credits of course work per semester . Other students with academic or career experience covering material in particular Core courses may waive such courses upon successful completion of qualifying examinations.

## Curriculum

### Course Sequencing

For full-time students needing to complete all Core (18 credits and Advanced (30 credits) courses, the usual sequencing of courses is as follows:

- First Year - Fall Semester
  - BSAD 305
  - BSAD 306
  - BSAD 307
  - BSAD 340
- First Year - Spring Semester
  - BSAD 308
  - BSAD 309
  - 2 Functional Area Courses
- Second Year - Fall Semester
  - 2 Functional Area Courses
  - 2 Elective Courses
- Second Year - Spring Semester
  - 2 Functional Area Courses
  - Elective Course
  - BSAD 396

For full-time students needing to complete only the Advanced (30 credits) courses, a typical course sequencing is as follows:

- Fall Semester
  - 3 Functional Area Courses
  - 2 Elective Courses
- Spring Semester
  - 3 Functional Area Courses

- Elective Course
- BSAD 396

As an alternative, some students may choose to complete two Advanced courses during the summer session (if available, since summer offerings are limited) in order to reduce their regular semester program to 12 credits.

### Affiliations

- Colleges and Schools: [Graduate College](#). [School of Business Administration](#) .

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Colleges and Schools > Graduate College > Academic Offerings > Public Administration (M.P.A.)

## Public Administration (Master of Public Administration)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Public Administration

A sound academic record, including a baccalaureate degree from an accredited undergraduate institution, satisfactory scores on the general aptitude section of the Graduate Record Examination, three letters of recommendation attesting to the candidate's academic potential for graduate work and motivation for pursuing the MPA. Pas experience in public service will be considered. Persons currently employed in administrative positions are encouraged to apply . In addition, a student must have completed these prerequisite courses: Economics, American Government and Statistics.

NOTE: The application deadlines for the MPA Program are March 1 for fall funding consideration. Open enrollment for others.

- TOEFL iBT = 79 - 80 minimum

#### Requirements for Advancement to Candidacy for the Degree of Master of Public Administration

Successful completion of 36 credit hours, including core courses [PA 301](#) , 302, 303, 305 and 306, and an approved sequence of elective courses which may include up to nine credits of coursework from approved disciplines related to public administration. Pre-service students (those without substantial public administration experience) are required to complete an approved three-credit internship as part of their approved sequence of courses beyond the core courses.

Satisfactory completion of the written Comprehensive Examination, an evaluative device and capstone experience, offered two times per year (January and March) for students in

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their final semester of study in the UVM-MP A program.

• Graduate College

### Affiliations

• Honors College

- Colleges and Schools:[College of Agriculture and Life Sciences](#).[Graduate College](#).
- Departments and Programs:[Community Development and Applied Economics Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Social Work (M.S.W.)

## Social Work (Master of Social Work)

### Overview

The Master of Social Work program at the University of Vermont prepares students for advanced social work practice with individuals, families, groups, organizations, and communities in the post-modern environment. Our curriculum emphasizes strengths-oriented, relational practice guided by principles of social justice and human rights and a conceptual framework of critical social construction. The Maser of Social Work Program is fully accredited by the Council on Social Work Education (CSWE).

The professional foundation curriculum is designed to assist students to explore and develop generalist knowledge, values, and skills for professional practice. Students take 30 credits of foundation course work, including one elective. The curriculum is comprised of coursework in five areas: Human Behavior in the Social Environment (HBSE), Social Welfare Policy, Social Work Practice, Field Practica, and Research.

The concentration year curriculum is designed to provide students with knowledge, values, and skills for advanced practice in an identifiable area through the choice of a concentration. All core curriculum courses in the concentration year are considered advanced practice courses in the area of concentration, in that all emphasize the development of social work roles and methods. The MSW program at UVM offers two concentration choices: Children and Families and Health/Mental Health. Concentrations consist of two advanced practice courses, a field practicum, and two concentration electives. Additionally, students take three courses which bridge both concentration areas: Advanced Social Welfare Policy Analysis and Practice, Critical Applications of Human Behavior and the Social Environment, and Advanced Social Work Research. To fulfill the UVM Graduate College comprehensive exam requirement, Concentration students complete a final project which provides integration and closure to their educational experience.

The Department of Social Work offers a full time and part time course of study towards



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the MSW degree. An Advanced Standing option is also available for eligible students who have completed an undergraduate degree in social work from a bachelor's program accredited by CSWE within 7 years of admission.

To request a program bulletin or additional information, please contact the Department of Social Work at 802-656-8800 or visit the program's home page at <http://www.uvm.edu/~socwork/msw/>.

## Specific Requirements

### General Requirements for Admission:

- A baccalaureate degree completed in good standing from an accredited college or university.
- No minimum grade point average (GPA) is required; however, the applicant must show evidence of academic ability to undertake graduate study in social work. The applicant's GPA is one indicator of performance and will be considered in the review process.
- Evidence of a strong liberal arts background, with a minimum of 18 credits in general liberal arts course work that supports graduate education in social work.
- An approved course in statistical methods must be completed, within the past 10 years and with a grade of C- or higher, prior to enrollment.
- Graduate Record Examination (GRE) Scores (no minimum score is required).
- Prior work or volunteer experience in human services is preferred.
- International students must submit TOEFL scores of 550 (213 computer based) or higher.

### Requirements for Advanced Standing:

- A BSW degree earned from a Bachelors in Social Work Program accredited by CSWE (Council on Social Work Education) within 7 years of admission to the MSW program.
- Prior academic performance that supports graduate study in social work.
- Satisfactory undergraduate social work field practicum evaluations.

## How to apply

The following materials are required for application:

- Completed application form (online).
- Written Statement of Purpose that describes the applicant's preparation and goals for pursuing graduate study in Social Work (submit online).
- Scores from appropriate GRE tests (Verbal, Quantitative, and Analytic Writing) taken within 5 years of the date of application.
- Official transcripts from each college or university attended.
- Resume of work and professional experience.
- Three (3) letters of recommendation and completed recommender forms (Recommendations from at least one academic source and one from human

service related employment are strongly encouraged).

- Non-refundable application fee of \$40.00 for online application.

### Minimum Degree Requirements for the Master of Social Work

The Maser of Social Work degree requires 60 credits of graduate study , unless students are admitted with Advanced Standing status. Advanced Standing status is granted solely to students who have earned a Bachelor's degree in a program accredited, or acknowledged as being equivalent to a Bachelor's in Social Work, by the Council on Social Work Education, and allows for a shorter course of study at 39 credits. Both regular track and advanced standing students must complete all required and three of their nine elective credits in social work courses. At least six of the elective credits must be taken during the concentration year of the MSW Program at UVM.

*The policies and standards for maintaining program accreditation do not permit the granting of academic credit toward graduation for life experience.*

### Curriculum

#### Curriculum for Regular Track MSW

Foundation Courses	Credits
SWSS 212 - Social Work Practice I	3
SWSS 213 - Social Work Practice II	3
SWSS 216 - Theoretical Foundations of HBSE* I	3
SWSS 217 - Theoretical Foundations of HBSE II	3
SWSS 220 - Social Welfare Policies and Services I	3
SWSS 221 - Social Welfare Policies and Services II	3
SWSS 227 - Foundations of Social Work Research	3
SWSS 290 - Field Practicum I	6
An approved elective**	3
Concentration Year Courses	Credit
SWSS 301 - Social Work in Health (and)	3
SWSS 302 - Social Work in Mental Health (or)	3
SWSS 310 - Social Work with Children and Families I (and)	3
SWSS 311 - Social Work with Children and Families II	3
SWSS 316 - Critical Applications of HBSE	3
SWSS 320 - Advanced Social Welfare Policy Analysis and Practice	3
SWSS 327 - Advanced Social Work Research	3
SWSS 390 - Field Practicum II	6
SWSS 398 - Final Project	3
Two approved electives**	6

\*\* Electives require advanced approval of faculty advisors.

**Curriculum for Advanced Standing MSW**

<b>Summer Session Courses</b>	<b>Credits</b>
SWSS 280 - Perspectives on Social Work	4
Foundation Elective**	3
Concentration Elective**	3
<b>Concentration Year (Fall and Spring) Courses</b>	<b>Credit</b>
SWSS 301 - Social Work in Health (and)	3
SWSS 302 - Social Work in Mental Health (or)	3
SWSS 310 - Social Work with Children and Families I (and)	3
SWSS 311 - Social Work with Children and Families II	3
SWSS 316 - Critical Applications of HBSE	3
SWSS 320 - Advanced Social Welfare Policy Analysis and Practice	3
SWSS 327 - Advanced Social Work Research	3
SWSS 390 - Field Practicum II	8
SWSS 398 - Final Project	3
One approved elective**	3

\*\* Electives require advanced approval of faculty advisors.

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- Colleges and Schools:[College of Education and Social Services](#).[Graduate College](#).
- Departments and Programs:[Social Work Department](#).

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## Dietetics (Master of Dietetics)

### Overview

The Master of Science in Dietetics (MSD Program at the University of Vermont provides a graduate degree in dietetics coordinated with supervised practice where planned learning experiences result in the application of knowledge, understanding, and theory to real-life situations. The program provides a community health and nutrition emphasis area. The MSD provides coursework in clinical, community, and management practice, ethics, statistics, research, and public and community health administration. Upon satisfactory completion of the program, students will receive a verification statement of eligibility to write the national registration examination to become a Registered Dietitian.

The Maser of Science in Dietetics Program at the University of Vermont is currently granted Provisional Accreditation by the Commission on Accreditation for Dietetics Education of the American Dietetics Association, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, (312) 899 0040 ext. 5400.

The program is a two-year or three-year Maser of Science in Dietetics Program that includes a non-thesis evidence based research project. Students will take graduate level courses throughout the University of Vermont as well as advanced nutrition courses offered by the Department of Nutrition and Food Sciences, housed in the College of Agriculture and Life Sciences. Please see program mission, goals, and outcome measures as well as additional information available on the Department of Nutrition and Food Science web site at <http://nutrition.uvm.edu/nfs-new/WEB-MSD2007.doc>.

The MSD has affiliated with Fletcher Allen Health Care (FAHC; many community hospitals; long-term care facilities; and public health, community health and advocacy, and food service organizations in Vermont for supervised practice experiences. Students will be required to comply with all prerequisites for placements in the affiliations. Students are also required to carry professional liability insurance and to provide their own transportation to all sites.

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## General Requirements

- Requirements for the Masters Degree

## Specific Requirements

### Requirements for Admission to Master of Science in Dietetics

Minimum GPA of 3.0 in college level courses with an overall science GPA of 2.5 in required courses with no required science grade less than 2.0. Satisfactory scores on the Graduate Record Exam, general (aptitude) portion. Specific prerequisite admission requirements for the two-year and three-year programs are provided at <http://nutrition.uvm.edu/nfs-new/WEB-MSD2007.doc>. The application deadline is December 15 of each year.

### Minimum Degree Requirements for the Master of Science in Dietetics

Satisfactory completion of 30 credits of graduate level courses including research methods, statistics, evidence-based project, ethics, and dietetics practice in addition to all supervised practice requirements.

### Affiliations

- Colleges and Schools:College of Agriculture and Life Sciences.Graduate College.
- Departments and Programs:Nutrition and Food Sciences Department.

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Colleges and Schools > Graduate College > Academic Offerings > Educational Leadership and Policy Studies (Ed.D.)

## Educational Leadership and Policy Studies (Doctor of Education)

### Overview

A Doctor of Education (Ed.D.) degree is offered in Educational Leadership and Policy Studies. This is an applied research based program for professionals serving in educational management positions in schools and school-related organizations; e.g. state departments of education, professional associations, higher education, and human service agencies.

Program emphases include: the design and implementation of educational research; policy studies; adaptation of theoretical constructs and models related to leadership and change in educational and social service settings; knowledge and skills in inter-organizational relationships; budget and strategic planning and program evaluation.

This program has been designed to respond to the expanding demands placed on leaders in educational and human service organizations where leaders are increasingly expected to design and supervise local research and varied evaluative studies; interpret and apply recent national research findings; analyze and apply governmental regulations and court decisions; develop organizational responses to emerging social expectations; organize and lead staff development programs; understand and apply broad-based economic principles and social and fiscal policy; develop and manage budgets; assess and respond to the psychological needs of educational consumers; employ effective interpersonal management and decision-making skills.

### General Requirements

- Requirements for the Doctor of Education Degree

### Specific Requirements

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## Prerequisites for Admission to Graduate Studies

Applicants must possess a master's degree or equivalent, from an accredited institution and a cumulative grade-point average of 3.00 for previous graduate study . Other requirements include three letters of recommendation, a representative scholarly writing sample and a resume. Students applying for graduate fellowships and/or assistantships are required to demonstrate satisfactory scores on the Graduate Record Examination (GRE).

Students admitted to graduate studies must complete successfully a core of study consisting of courses in research, foundational, and policy studies, and organizational change and leadership. Upon such completion and submission of a qualifying paper, students will be considered for candidacy for the degree. Students must also pass a written comprehensive examination prior to the award of the degree of Doctor of Education.

## Prerequisites for Acceptance to Candidacy for the Degree of Doctor of Education

Satisfactory completion of

- all core course requirements (21 credits);
- the comprehensive examination;
- the qualifying paper.

All course credit hours beyond the core are distributed in educational leadership, research, critical perspectives, organizational change and selected specialty content areas.

## Transfer of Credit

A maximum of nine (9 semester hours may be accepted in transfer from an accredited graduate program. Transfer credit may be completed prior to admission to the Doctor of Education Program provided that the credit is approved by the student's Studies Committee and that the credit conforms to all other Graduate College requirements.

## Residency Requirement

A minimum of 56 semester credits of doctoral studies completed at UVM following formal admission to the program with the following distribution:

- 21 credits in the core courses (minimum)
- 15 credits general distribution (minimum)
- 20 credits of dissertation research (minimum)

For further requirements concerning Studies Committees, Research and Dissertation, and the Dissertation Defense Examination Committee, refer to General Requirements for the Degree of Doctor of Philosophy.

Application deadline: February 1.

Detailed information on the course of study is available from Program Director , Susan Hasazi, Professor, The University of Vermont, College of Education and Social Services, 499B Waterman Bldg., Burlington, VT 05405-0160, and on the program [Web page](#) .

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Colleges and Schools > Graduate College > Academic Offerings > Animal, Nutrition and Food Science (Ph.D.)

## Animal, Nutrition and Food Science (Doctor of Philosophy)

### Overview

An interdisciplinary program leading to the Ph.D. degree in Animal, Nutrition and Food Science is offered under the direction of a committee composed of faculty members drawn from the Departments of Animal Science, and Nutrition and Food Sciences. The goal of this interdisciplinary program is to provide advanced education and research training in mammalian physiology and endocrinology, mammary gland biology, basic and applied nutrition and food microbiology and technology. While all PhD students will complete a common core of courses, they will choose from one of three tracks for specialized study: nutrition, food sciences, or animal science. The program provides flexibility necessary for students to gain competence in the area of their choice. The extensive research facilities of the participating departments are available to all graduate students enrolled in the program.

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

Satisfactory scores on the general (aptitude Graduate Record Examination) must be presented.

#### Requirement for Advancement to Candidacy for the Degree of Doctor of Philosophy

The applicant must satisfy the prerequisites of the Graduate College and complete one

• Continuing  
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semester with satisfactory performance in graduate courses or courses prescribed by the Graduate Committee.

• Graduate College

### Minimum Degree Requirements

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The candidate must meet all the requirements as prescribed by the Graduate College for the degree of Doctor of Philosophy. The candidate is required to attend and participate in [ANFS 301](#), Graduate Journal Club and [ANFS 302](#), Graduate Seminar every semester that the courses are offered. The candidate must also participate in one semester of [ANFS 303](#), Research Proposal Writing. In addition, all courses and seminars as established by the Studies Committee must be satisfactorily met. The student is expected to meet with their committee within the first two semesters and then at least annually until the doctoral research is completed and an acceptable dissertation written and defended. It is also expected that a Ph.D. student will have at least two publications ready to submit, or already submitted, to an appropriate scientific journal. All doctoral students will be provided the opportunity to participate in their respective Department's undergraduate teaching program. Proficiency in a modern foreign language or computer language and programming is optional at the discretion of the Studies Committee.

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- Colleges and Schools: [College of Agriculture and Life Sciences](#). [Graduate College](#).
- Departments and Programs: [Animal Science Department](#). [Nutrition and Food Sciences Department](#).

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- Departments and Programs

Satisfactory score on the Graduate Record Examination. Subject (advanced) portion not required but helpful. In addition: Year courses in organic chemistry, physical chemistry, and physics (equivalent to [CHEM 141/CHEM 142](#) or [CHEM 143](#); [CHEM 144](#), [CHEM 162](#) and [PHYS 015/PHYS 016](#)); quantitative chemistry; mathematics preferably through differential and integral calculus, a year course in a biological science. If a physical chemistry course has not been taken previously, a PhD student must take Physical Chemistry ([CHEM 162](#)) in their first year (for which they do not receive credit toward the PhD degree).

Colleges and Schools

### Requirement for Advancement to Candidacy for the Degree of Doctor of Philosophy

Successful completion of a Phase I, II and III exams are required for advancement to candidacy.

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### Minimum Degree Requirements

A total of 75 credits, including 23 credits from graduate courses offered by the Department of Biochemistry including [BIOC 301](#), [BIOC 302](#), [BIOC 309](#), and [BIOC 310](#), and participation every semester in the biochemistry seminar [BIOC 381](#), three upper level courses selected from [BIOC 351](#), [BIOC 352](#), [BIOC 353](#) or [BIOC 370](#). Three credits from an upper level (200 and above) courses offered by the Department of Chemistry; six additional credits in the physical or biological sciences; 35 hours of doctoral dissertation research [BIOC 491](#).

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See [Department of Biochemistry](#)  for more details.

### Affiliations

- Colleges and Schools: [College of Engineering and Mathematical Sciences](#), [College of Medicine](#).
- Departments and Programs: [Biochemistry Department](#).

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## Biology (Doctor of Philosophy)

### Overview

Faculty research interests fall into two broad groupings: A) developmental biology/cell and molecular biology/physiology; and B) ecology/evolution/natural history. Current ongoing research projects include: A) molecular biology of receptors; cell biology; signal transduction and development; identification of novel muscle proteins by means of biochemical and genetic approaches; how molecular interactions define mechanical properties of muscles; genetics of chemoreception and chemotactic behavior of protozoa; electrophysiological basis of signal transduction; analysis of G protein signaling in *Drosophila* using genetic, molecular and immunohistochemical approaches; B) taxonomy and natural history of insects, particularly Rhysodid beetles; null models; community assembly; population and community ecology of carnivorous plants; parasite-host ecology; ecology and evolution of plant-animal interactions; population and community ecology of lizards; behavioral ecology; population genetics and molecular systematics in taxa such as Himalayan rodents, Polynesian black flies, and neotropical mosquitoes; genetic differentiation and evolution in structured populations; population genetics; cytoplasmically inherited reproductive incompatibility; evolutionary consequences of parasite-host interactions; physiological energetics of insects.

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

Satisfactory completion of: college level courses appropriate for science majors including

• Continuing  
Education

a year of mathematics, a year of physics, organic chemistry , at least one year of biology; the Graduate Record Examination, general (aptitude) section; and acceptability to the faculty member with whom the candidate wishes to do dissertation research.

• Graduate College

Deficiencies in prerequisites may be made up after entering the program.

• Honors College

### **Requirement for Advancement to Candidacy for the Degree of Doctor of Philosophy**

• School of Business  
Administration

The diagnostic examination prior to registration for the first semester; the comprehensive exam; minimum requirement course work of 30 hours and additional courses as required by the advisor and Studies Committee; at least one academic year of graduate study at The University of Vermont.

• The Rubenstein  
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### **Minimum Degree Requirements**

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Of the 75 credit hours required for the degree, at least 30 hours must be earned in courses suitable for graduate credit and must include six hours of Graduate Colloquia. The selection of courses will be designated for each student by his/her advisor and Studies Committee. At least 20, but not more than 45, credits must be earned in dissertation research. Each candidate must participate in the teaching of at least one undergraduate course.

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### **Affiliations**

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Colleges and Schools > Graduate College > Academic Offerings > Cell and Molecular Biology (Ph.D.)

## Cell and Molecular Biology (Doctor of Philosophy)

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

Biology (three semesters, including genetics, chemistry through organic, mathematics through calculus, physics (two semesters, physical chemistry). Satisfactory scores (60 percentile) on general (aptitude) Graduate Record Examination. Students who do not have all of the courses listed but who have a good academic record will be considered for admission to the program. Deficiencies may be made up after matriculation.

#### Requirement for Advancement to Candidacy for the Degree of Doctor of Philosophy

Completion of any deficient admission requirements including one semester of physical chemistry equivalent to chemistry 160.

#### Minimum Degree Requirements

6 credits of Cell Biology ([CLBI 301](#) & [CLBI 302](#)), 3 credits of Genetics, 6 credits of Biochemistry ([BIOC 301](#) & [CLBI 302](#)), 2 credits of [CLBI 381](#) Seminar, 3 credits of Quantitative/Analytical Biology and 4 credits of Literature-Based Seminar. All Ph.D. candidate are to complete at least 30 course credits, and 20 research credits. The remaining 25 credits are to be completed in combination of research and course credits. Studies committee and advisor will guide student in course selection.

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
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All students must demonstrate satisfactory progress; finish minimum course work within three years; and finish cumulative exam within prescribed times limits; participate in seminar program.

### Affiliations

- Colleges and Schools:[Graduate College](#).
- Departments and Programs:[Cell and Molecular Biology Program](#).

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Colleges and Schools > Graduate College > Academic Offerings > chemistry (Ph.D.)

## Chemistry (Doctor of Philosophy)

### Overview

Current research in organic chemistry includes design and synthesis of peptide mimics, applications of molecular diversity to catalyst design, syntheses of medicinally valuable natural products, biomimetic syntheses, preparation of benzomorphans and their analogues which have chemotherapeutic potential, synthesis and reactions of hybrid organic-inorganic polymers, synthesis and properties of carbon-rich organic materials, mechanistic studies of organic chemical reactions, and development of novel synthetic methodologies.

Physical chemistry research projects include hydrogen absorption by metals, alloys, and intermetallic compounds with a view toward storage of hydrogen as a fuel, and the use of various types of molecular spectroscopy, such as fluorescence, magnetic resonance, and IR/Raman, to address questions of structure, bonding, and dynamics in chemical and biophysical systems.

Research in inorganic chemistry includes investigations of the syntheses, structure, and spectroscopic properties of main-group ring systems and polymers with an emphasis on phosphazenes and borazines, electrochemical control of the structure and reactivity of transition metal complexes, solid state structure by x-ray diffraction, complexes of polydentate ligands, physical inorganic and organotransition metal chemistry. Additional research areas include materials chemistry, solid state chemistry, mesoporous materials, biomineralization, and chemical vapor deposition.

Research in analytical chemistry includes electrochemical studies of transition metal complexes and organometallic complexes, electron spin resonance studies of materials in unusual oxidation states, novel reaction of reactive compounds generated electrochemically under high vacuum, studies of factors influencing heterogeneous electron transfer process in nonaqueous media, studies of transient, imploding plasmas as solid sample atomizers for atomic spectroscopy, the development of instrumentation

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- Graduate College
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and techniques suitable for elemental analysis of nonconducting solid samples via atomic spectrometry, the development and use of analytical methods using stable isotopically labeled tracers and kinetic models to answer questions of human physiology and biochemistry, and the simultaneous physical and chemical analysis of individual aerosol particles, leading to the rapid, on-line and in situ determination of the physico-chemical makeup of the aerosol.

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

An undergraduate major in an appropriate field. Satisfactory scores on the Graduate Record Examination general (aptitude section for those requesting financial assistance).

#### Requirement for Advancement to Candidacy for the Degree of Doctor of Philosophy

It is expected that a student will ordinarily complete the following requirements for admission to candidacy by the end of the second year of residence: (1) at least 15 credits of research ([CHEM 491](#)); (2) satisfactory performance in the cumulative examinations in the specialty field; (3) demonstration of basic competence in four fields of chemistry (analytical, inorganic, organic, and physical through the biannual qualifying examinations or completion of prescribed courses at the University of Vermont; (4) three hours of teaching; (5) one year of residence; (6) the following courses are required: [CHEM 381](#) (two credits), three semester hours of credit of advanced level work in three of the following five areas: analytical chemistry, inorganic chemistry, organic chemistry, physical chemistry, and related science. The remainder of each student's program will be determined by a departmental studies committee on the basis of qualifying examination performance, background, and research interests. In the normal course of events a student should expect to devote much of the first year to formal course work; (7) maintenance of an overall point-hour ratio of 3.25.

#### Minimum Degree Requirements

In addition to the above requirements a student must: (1) complete a doctoral research project, write an acceptable dissertation, and defend it; (2) present a total of 75 hours of credit in course work and dissertation research, and (3) make an oral and written presentation of an original research proposal, [CHEM 388](#) (at least six months prior to the submission of the dissertation).

#### Affiliations

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- Departments and Programs:[chemistry](#)

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Colleges and Schools > Graduate College > Academic Offerings > Civil and Environmental Engineering (Ph.D.)

## Civil and Environmental Engineering (Doctor of Philosophy)

### Overview

Graduate programs in Civil and Environmental Engineering that lead to the Maser of Science and Doctor of Philosophy degrees are offered. The curricular and research programs emphasize engineering related to environmental issues and intelligent transportation systems; in addition, geotechnical, and structural studies are also possible at the master's level.

Research includes: groundwater contamination, modeling and remediation including optimal remediation design; environmental restoration and ecological engineering; hydrological processes; indoor air pollution and related health effects; mathematical modeling of contaminant transport in the environment, chemical and mechanical processes in human tissues, and dynamic behavior of structures; intelligent transportation systems; and information technology applications in civil and environmental engineering.

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

An undergraduate degree in an appropriate field of study and demonstrated academic performance as measured by grades and satisfactory scores on the Graduate Record Examination general (aptitude) section. Applicants whose native language is not English or who have not received their education in English must present satisfactory results from the TOEFL examination. Completed applications are due February 1.

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- Graduate College
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## Requirements for Advancement to Candidacy for the Degree of Doctor of Philosophy

It is ordinarily expected that a student will complete the following requirements for advancement to candidacy prior to the end of the second year in the program: (1) one year of residency at UVM; (2) teaching experience in one course; (3) at least 12 credit hours of research; (4) at least 15 credit hours of course work at the graduate level acceptable to the student's Studies Committee; (5) satisfactory performance on a comprehensive examination that includes a written part and an oral part; and (6) satisfactory record of performance in courses and in teaching and research assignments.

## Minimum Requirements for the Degree of Doctor of Philosophy

In addition to advancement to candidacy, the student must (1) present at least 75 credit hours in approved course work and research (including those required for advancement to candidacy), of which at least 35 credit hours are in research and six credit hours are in course work in disciplines ancillary to Civil and Environmental Engineering; and (2) write and successfully defend an acceptable dissertation.

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Colleges and Schools > Graduate College > Academic Offerings > Computer Science (Ph.D.)

## Computer Science (Doctor of Philosophy)

### Overview

The Department of Computer Science offers graduate programs towards the Maser of Science (MS) and the Doctor of Philosophy (Ph.D.). The interdisciplinary Ph.D. program in Computer Science offers study in both traditional and cross-disciplinary areas such as bioinformatics and ecological modeling.

Our faculty in Computer Science is involved in the forefront of research in knowledge and data engineering (such as data mining, database systems, pattern recognition, and knowledge-based systems, software engineering and verification (including programming languages), and computational sciences (comprising computational biology, discrete modeling, and numerical methods).

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

A Bachelor's degree and satisfactory scores on the Graduate Record Examination general section are required of all applicants. Applicants will be evaluated based on their potential for excellence in research, as judged from their academic background, test scores, relevant experience and letters of recommendation. Applicants who have strong academic records in a different discipline and lack an acceptable computer science background (normally including at least courses in Data Structures, Computer Organization and Programming Languages) may be accepted provisionally. Provisionally accepted students will be required to complete an approved program of remedial work

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within their first year of study. Applicants whose native language is not English or who have not received their education in English must present satisfactory results from the TOEFL examination. Completed applications are due February 1 (if financial aid is requested and April 1 (otherwise).

### Requirements for Advancement to Candidacy for the Degree of Doctor of Philosophy

Before advancing to candidacy, the student must:

- Demonstrate satisfactory performance in a schedule of courses of at least 15 credit hours of graduate coursework as approved by the student's studies committee, including three credits of the Graduate Seminar (CS 381), Pass a written comprehensive exam in areas approved by the student's studies committee,
- Successfully propose a thesis topic in a public presentation, and
- Pass an oral exam before the student's studies committee.

### Minimum Requirements for the Degree of Doctor of Philosophy

A minimum of 75 credits of graduate study must be approved by the studies committee and successfully completed, including a minimum of 30 credits of research.

The student must describe the completed research in a written dissertation and defend the research in a public presentation of the results.

Beyond research and course work, the student must gain appropriate experience in three distinct activities, approved by the student's studies committee: teaching, programming, and communicating technical ideas, both orally and in writing.

### Affiliations

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Colleges and Schools > Graduate College > Academic Offerings > Electrical Engineering (Ph.D.)

## Electrical Engineering (Doctor of Philosophy)

### Overview

Master of Science and Doctor of Philosophy programs are offered. Typically candidates have obtained the Bachelor of Science degree in Electrical Engineering prior to application but other applicants are encouraged to consider the program if they have extensive background in mathematics and the basic sciences. In such cases, it may be necessary for a student to complete the entrance qualifications without receiving credit toward graduate studies. The general requirements for admission as outlined under the Regulations of the Graduate College must be met. Areas of research expertise are biomedical engineering, computer engineering, solid state physical electronics, electro-optics, information processing, communication-theory, semiconductor materials, devices and integrated-circuits (VLSI).

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

A master's degree in electrical engineering or the equivalent.

#### Requirements for Advancement to Candidacy for the Degree of Doctor of Philosophy

Successful completion of Ph. D. comprehensive examinations.

The majority of students will have completed a core program comprising graduate



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courses before taking the comprehensive examination.

### Minimum Degree Requirements for the Degree of Doctor of Philosophy

At least 45 credit hours in courses and seminars and 20 credit hours in dissertation.

Four courses are to be chosen from a major area of concentration and two from a minor. The requirements specified under the Policies of the Graduate College must also be met. A total of 75 credit hours is required.

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- Colleges and Schools:[College of Engineering and Mathematical Sciences](#).[Graduate College](#).
- Departments and Programs:[Electrical Engineering Program](#).

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Colleges and Schools > Graduate College > Academic Offerings > Materials Science (Ph.D.)

## Materials Science (Doctor of Philosophy)

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

An accredited master's degree (or equivalent) in physics, chemistry, metallurgy, engineering, mathematics, or materials science.

#### Requirements for Advancement to Candidacy for the Degree of Doctor of Philosophy

Successful completion of a Ph.D. comprehensive examination in Materials Science and demonstrated competence in computer programming. The comprehensive examination includes the areas of quantum mechanics, solid state theory, applied mathematics, thermodynamics, and materials properties of solids.

#### Minimum Degree Requirements

In addition to the above, the following are required:

A minimum of 75 graduate credit hours including a minimum of 20 in dissertation research. An overall grade-point average in graduate courses of 3.25 or better. Completion of at least one three-credit hour course in each of the following categories: solid state theory, quantum mechanics, applied mathematics, thermodynamics and kinetics, and one course in each of two categories dealing with materials properties of solids. Satisfactory completion of a Ph.D. dissertation including its defense at an oral

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Colleges and Schools > Graduate College > Academic Offerings > Mathematical Sciences (Ph.D.)

## Mathematical Sciences (Doctor of Philosophy)

### Overview

The Department of Mathematics offers programs towards the Master of Science, Master of Science in Teaching, and the Doctor of Philosophy in Mathematical Sciences. There are two areas of concentration: pure mathematics and applied mathematics. The programs emphasize the interaction between these two areas and the common role of scientific computation. Students can take courses common to both areas, enabling them to gain an appreciation of the mathematical techniques and the connections between theory and applications.

Department research interests include classical analysis, harmonic analysis, Fourier analysis, approximation theory, algebra, number theory, graph theory, combinatorics, fluid mechanics, biomathematics, differential equations, numerical analysis, and modeling.

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

Because of the breadth of pure and applied mathematics, it is recognized that applicants for admission will have diverse backgrounds. Admission requirements are therefore flexible. Applicants should have demonstrated strength in either pure or applied mathematics, a bachelor's degree with a major in mathematics or a closely related discipline, and satisfactory scores on both the general and subject (mathematics) sections of the Graduate Record Examination.

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## Requirements for Advancement to Candidacy for the Degree of Doctor of Philosophy

Successful completion of four qualifying examinations, three written and one oral, in one of the areas of concentration.

## Minimum Degree Requirements for the Degree of Doctor of Philosophy

Each student must complete the four qualifying exams and an approved plan of study including at least 75 credit hours in course work or dissertation research. The student is required to write a doctoral dissertation and pass a final oral defense of that dissertation. The Department requires two semesters of college-teaching experience. Students are expected to demonstrate appropriate proficiency in the use of computers. There is no formal language requirement.

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Colleges and Schools > Graduate College > Academic Offerings > Mechanical Engineering (Ph.D.)

## Mechanical Engineering (Doctor of Philosophy)

### Overview

Master of Science and Doctor of Philosophy programs are offered. Candidates holding degrees other than those in Mechanical Engineering are encouraged to apply. In such cases, it is typically necessary for students to complete some preparatory course work in addition to the graduate studies. In all courses, general requirements for admission, as outlined under the Regulations of the Graduate College, must be met. Areas of research interest include: applied mechanics, biomechanics, fluid mechanics, fuel science, heat transfer, mechatronics, microelectromechanical systems (MEMS, precision engineering, smart structures, tissue engineering, vibrations.

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

An accredited bachelor's or master's degree in mechanical engineering or closely related discipline is required.

#### Requirements for Advancement to Candidacy for the Degree of Doctor of Philosophy

Successful completion of the Ph. D. comprehensive examination.

#### Minimum Degree Requirements for the Degree of Doctor of Philosophy

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- Graduate College
- Honors College
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The degree of Doctor of Philosophy requires of candidates a minimum of 75 credit hours to be earned in course work and in dissertation research. The 75 credit hours must be distributed in such a way that at least 40 credit hours must be earned in courses and seminars and a minimum of 25 credit hours must be earned in dissertation research. All Ph. D. candidates complete a doctoral thesis consisting of original research and of sufficient quality to merit publication in an archival journal.

### Affiliations

- Colleges and Schools:[College of Engineering and Mathematical Sciences, Graduate College.](#)
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Colleges and Schools > Graduate College > Academic Offerings > Microbiology and Molecular Genetics (Ph.D.)

## Microbiology and Molecular Genetics (Doctor of Philosophy)

### Overview

Research activities include: Mutagenic mechanisms in human populations; the enzymology and regulation of cellular DNA replication and repair; molecular mechanisms of genetic recombination; structural biology of proteins and nucleic acids; cell cycle control of transcription and DNA replication in eukaryotes; regulation and enzymology of RNA polymerase II transcription; enzymology and atomic structure of mammalian cell mRNA processing factors; molecular basis of tRNA recognition; ribozyme structure and enzymology; signaling networks that regulate morphogenesis in yeas; isolation and regulation of mating type genes in Schizophyllum; plant growth and development; molecular mechanisms of bacterial adhesion and pathogenesis; molecular and cellular mechanisms of hos-pathogen interactions; and bacterial transformations of organic pollutants.

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Either the Maser of Science or the Doctor of Philosophy Degree

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 . One year of biological science; one year physics (equivalent of [PHYS 011](#) and [PHYS 012](#)); one year of inorganic chemistry and one year of organic chemistry (equivalent of [CHEM 001](#), [CHEM 002](#), [CHEM 141](#) and [CHEM 142](#)),



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mathematics through calculus (equivalent of MATH 019 and MATH 020); additional courses required by the Department depending on the aims of the student. A student may be admitted pending satisfactory completion of one or two of the above courses during the first semester(s) of graduate study. Satisfactory scores on the general aptitude portion of the Graduate Record Examination. Subject GRE tests are recommended but not mandatory.

### **Requirements for Advancement to Candidacy for the Degree of Doctor of Philosophy**

Completion of one full year of graduate study at The University of Vermont, satisfactory performance on teaching assignments, successful completion of the Department core curriculum and qualifying exam, and approval of the student's thesis advisor and Studies Committee, the Faculty of the Department of Microbiology and Molecular Genetics, and the Dean of the Graduate College.

Academic Policies and General Information

### **Minimum Degree Requirements for the Degree of Doctor of Philosophy**

Faculty and Administration

Seventy-five total credits to include at least 30 credit hours of Dissertation Research ([MMG 491](#)) and at least 30 course credits, including the Microbiology and Molecular Genetics core curriculum (six course credits each in Biochemistry, Genetics, and Microbiology; at least four credits in Current Topics in Molecular Genetics ([MMG 310](#)); other approved courses such that at least 20 course credits are taken from courses offered by the Department of Microbiology and Molecular Genetics; teaching assignments as arranged by Department; proficiency in computer applications; qualifying exam; successful completion of dissertation.

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### **Combined Medical College and Graduate College Degree Programs**

Qualified students, following acceptance into the medical college, may simultaneously enroll in the Graduate College for a Master of Science or Ph. D. degree program in Microbiology and Molecular Genetics. The program would be developed with concurrence of the Dean for Student Affairs in the College of Medicine.

### **Affiliations**

- Colleges and Schools: [Graduate College](#), [College of Agriculture and Life Sciences](#), [College of Medicine](#).
- Departments and Programs: [Microbiology and Molecular Genetics Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Molecular Physiology and Biophysics (Ph.D.)

## Molecular Physiology and Biophysics (Doctor of Philosophy)

### Overview

The Department offers a highly flexible program of doctoral study (biophysics track and molecular physiology track) for individuals embarking on a career in biomedical research and teaching. Students can study crucial biological processes using state of the art biophysical techniques in a unique setting. Biological research interest: Cytokinesis and cell division; heart failure, insect flight, and various muscle-dependent processes; structure and function of metabolic enzymes, structural biology and biophysics of contractile and cytoskeletal proteins, structure and function of bacterial adhesins. Biophysical Techniques: cell imaging (time lapse, confocal microscopy, fluorescence spectroscopy, high resolution electron microscopy (3D, single particles, tomography), single molecule detection techniques (optical trap, TIRF, AFM, X-ray crystallography).

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Doctor of Philosophy Degree

MPBP usually only accepts students applying for the Ph.D. program. Applicants must demonstrate excellent undergraduate academic performance in physical and biological sciences and satisfactory scores on the general aptitude portion of the Graduate Record Examination (GRE). Foreign students must also show good proficiency in the English language (TOEFL). Students with outstanding performance on either physical or biological sciences but lacking the necessary background to successfully fulfill the common core requirements might be accepted. These students will be required to

• Continuing Education

successfully complete the necessary remedial courses (MATH 021 / MATH 022; CHEM 141/CHEM 142; [BCOR 011](#) /[BIOC 012](#) or [MPBP 019](#) / [MPBP 020](#) during their first year of graduate studies

• Graduate College

### Requirements for Advancement to Candidacy for the Degree of Doctor of Philosophy

• Honors College

• School of Business Administration

Students will be advanced to candidacy if they have successfully completed core course requirements; have performed satisfactorily on their teaching assignments and have favorably completed the departmental comprehensive examination. Students will select a Thesis advisor and a Thesis Committee will be assembled, both approved by the Faculty of the Department.

• The Rubenstein School of Environment and Natural Resources

Students who are not admitted to candidacy for the doctoral degree will be permitted to complete studies for the master's degree if requirements for that program are met.

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Academic Policies and General Information

### Minimum Degree Requirements for the Degree of Doctor of Philosophy

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Faculty and Administration

Seventy-five credit hours are required to confer the Doctor of Philosophy Degree with at least 20 credit hours of dissertation research ([MPBP 491](#)). Molecular Physiology and Biophysics graduate students are required to take a minimum of 31 course credits: 16 fulfilled with the common core courses ([MPBP 301](#), [MPBP 303](#), [ANNB 327](#), [MPBP 323](#); [BIOC 301](#)) and the additional 15 depending on the chosen track, either molecular physiology or biophysics. Elective courses will be determined for each individual after consultation with the Studies Committee. Students should also fulfill their teaching assignments, oral presentation requirements, and successfully complete the comprehensive examination and Thesis dissertation ([MPBP 499](#)).

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### Affiliations

- Colleges and Schools:[College of Agriculture and Life Sciences](#).[Graduate College](#).[College of Medicine](#).
- Departments and Programs:[Molecular Physiology and Biophysics Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Natural Resources (Ph.D.)

## Natural Resources (Doctor of Philosophy)

### Overview

The Ph.D. program provides the opportunity for focused, in-depth research in any of the specialties of the school, while fostering an interdisciplinary appreciation and perspective through course work and interactions with ecological, physical, and social scientists in an integrated academic setting. Students can develop programs in areas such as pollution ecology, recreation and tourism, conservation biology, and environmental policy, as well as any of the traditional natural resource disciplines featured in our Master's program. In addition, formal course work and practical experience in college-level teaching are an important component of the doctoral curriculum.

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate studies for the Degree of Doctor of Philosophy

Satisfactory scores on the General Test of the Graduate Record Examination. Acceptability to a potential faculty advisor holding an appointment in The Rubenstein School of Environment and Natural Resources and the Graduate College. While an undergraduate degree in a discipline appropriate to the field of study will be considered, applicants with a Maser of Science degree are preferred.

#### Requirements for Advancement to Candidacy for the Degree of Doctor of Philosophy

It is ordinarily expected that a student will complete the following requirements for

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

advancement to candidacy prior to the end of the second year in the program: (1) one year of full-time graduate study in residence at The University of Vermont; (2) at least 12 credit hours of research; (3) at least 15 credit hours of course work at the graduate level acceptable to the student's Studies Committee; (4) satisfactory performance on a comprehensive examination; (5) delivery of a public proposal seminar; and (6) a dissertation proposal accepted by the student's Studies Committee.

### Minimum Degree Requirements

After advancing to candidacy, a student must (1) present at least 75 credit hours in approved course work and research, including not less than 20 and not more than 35 credit hours in research; (2) have a reading knowledge of a foreign language or an experience living in or working with another foreign or domestic culture (approved by the RSENR Graduate Standards Committee); (3) complete their teaching requirement satisfactorily; and (4) satisfactorily complete and defend their dissertation.

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Academic Policies and General Information

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- Colleges and Schools: [Graduate College](#), [The Rubenstein School of Environment and Natural Resources](#).
- Departments and Programs: [Natural Resources Program](#).

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Colleges and Schools > Graduate College > Academic Offerings > Neuroscience (Ph.D.)

## Neuroscience (Doctor of Philosophy)

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

Bachelors Degree in a biological science, chemistry, physics, engineering, psychology, mathematics, communication sciences or computer science. Additional courses with better than average grades in calculus, chemistry, organic chemistry, physics, and biopsychology or biology are recommended. Research experience not necessary, but favorably considered.

GRE General Test scores required, and scores on the Subject Test in Biology, Biochemistry, Cell and Molecular Biology, or Psychology are highly recommended. Applicants whose native language is not English must submit scores from Test of English as a Foreign Language (TOEFL).

3 letters of reference are required. Letters from research advisors or supervisors are highly desirable attesting to applicant's abilities to work independently in an academic setting. A complete application for fall admission must be received by **December 15**.

#### Requirement for Advancement to Candidacy for the Degree of Doctor of Philosophy

Satisfactory completion of required courses and research rotations. Approval of the written and oral portions of the qualifying comprehensive examination.

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
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## Minimum Degree Requirements

BIOL 261 - Neurobiology, 3 credits (if no neurobiology); CLBI 301 - Cell Biology, 3 credits, OR GRMD 353 - Cell and Molecular Biology, 3 credits; GRMD 354 - Human Structure/Function, 6 credits; PSYC 303 - Biobehavior Proseminar, 3 credits; GRMD 357 - Neural Science, 6 credits; PSYC 340 - Advanced Statistical Methods I, 3 credits OR STAT 308 - Applied Biostatistics, 5 credits; 6 credits in Advanced Neuroscience Selectives; ANNB 327/PATH 327 - Responsible Conduct in Research or BIOL 381a - Integrity in Science.

## Affiliations

- Colleges and Schools: College of Arts and Sciences. Graduate College. College of Medicine.
- Departments and Programs: Anatomy and Neurobiology Department. Neuroscience Program.

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Colleges and Schools > Graduate College > Academic Offerings > Pharmacology (Ph.D.)

## Pharmacology (Doctor of Philosophy)

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

Year courses in biology, organic chemistry, physics, analytic geometry and calculus; physical chemistry and/or a reading knowledge of one foreign language may be additional prerequisites, depending on the requirements of the research supervisor; and acceptable scores on the general (verbal, quantitative) section of the Graduate Record Examination.

#### Minimum Requirements for the Doctor of Philosophy Degree

[BIOC 301](#), [BIOC 302](#); [GRMD 354](#); [PHRM 301](#), [PHRM 302](#), [PHRM 303](#), [PHRM 328](#), [PHRM 381](#), [PHRM 491](#); [STAT 308](#). Total of 75 credits, to include 35 from graded coursework and 20 from Doctoral Dissertation Research. Pass oral and written qualifying exams and pre-thesis proposal. Successful Dissertation Defense.

### Affiliations

- Colleges and Schools: [Graduate College](#), [College of Medicine](#).
- Departments and Programs: [Pharmacology Department](#).

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- College of Medicine
- College of Nursing and Health Sciences

Colleges and Schools > Graduate College > Academic Offerings > Plant and Soil Science (Ph.D.)

## Plant and Soil Science (Doctor of Philosophy)

### Overview

Current research projects are concerned with the solution of horticultural and agronomic problems with special emphasis on environmental physiology, soil chemistry, pasture management, plant nutrition, and pest management. Areas of research include winter hardiness of fruits, and woody and herbaceous ornamentals; cultural and environmental interrelationships as they affect plant growth, crop adaptation, and variety; pasture production and marginal land utilization; crop establishment and soil productivity; mycorrhizal fungi; soil chemistry of the rhizosphere; redox reactions in soils; the behavior of heavy metals; compost and organic matter research; behavior of nitrogen in the soil; nutrient availability to plants; agricultural waste management; biological control of insects, disease, and weeds; integrated pest management for control of insects, diseases, and weeds. A student's thesis research will be an integral part of the on-going research efforts of the department.

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

A Master of Science degree in an appropriate agricultural, environmental, biological, or physical science. Satisfactory scores on the Graduate Record Examination, general (aptitude section).

#### Requirements for Advancement to Candidacy for the Degree of Doctor of

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

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Academic Policies and General Information

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## Philosophy

Satisfactory completion of two academic years of graduate study in the Department of Plant and Soil Science at The University of Vermont. With the approval of the Dean of the Graduate College and the Department of Plant and Soil Science, a master's degree may be accepted in partial fulfillment of this requirement.

Satisfactory completion of a written and oral qualifying doctoral examination as prescribed by the Department.

## Minimum Degree Requirements for the Degree of Doctor of Philosophy

The course requirements are as follows: a total of at least 40 credit hours of which a minimum of 30 must be taken in Plant and Soil Science and closely related disciplines (e.g. botany, chemistry, forestry, microbiology, biochemistry or geology. Satisfactory participation in seminars during residency is required. All master and doctoral students must take part in the Department's undergraduate teaching program.

## Affiliations

- Colleges and Schools: [College of Agriculture and Life Sciences](#). [Graduate College](#).
- Departments and Programs: [Plant and Soil Science Department](#).

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Colleges and Schools > Graduate College > Academic Offerings > Plant Biology (Ph.D.)

## Plant Biology (Doctor of Philosophy)

### Overview

The Plant Biology Department has ongoing research programs in: ecology and evolution including physiological ecology of aquatic plants, effects of acid depositions on forest ecosystems, physiological ecology of acid depositions, systematics and evolution of vascular plants, biogeography; physiology including morphogenesis and developmental biology of embryonic plant systems, mineral nutrition, growth and development, translocation, cellular electrophysiology, membrane function, amino acid transport, aluminum effects on cell membranes; and cell and molecular biology including molecular genetics; recombinant DNA of fungi and plant molecular development.

The Plant Biology Department participates actively in the Cell and Molecular Biology Program which provides opportunities for interdisciplinary research with other life science departments.

The Plant Biology Department offers a multidisciplinary non-thesis program leading to the degree of Master of Science, Field Naturalist Option. Enrollment is limited to a small number of mature, highly talented individuals who have demonstrated sustained interest in field aspects of the natural sciences. The program is designed to provide students with: (1) a solid grounding in field-related sciences; (2) the ability to integrate scientific disciplines into a coherent whole at the landscape level; (3) the ability to evaluate sites from a number of perspectives and/or criteria; (4) the ability to translate scientific insights into ecologically sound decisions; and (5) the ability to communicate effectively to a wide range of audiences.

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

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## Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

The equivalent of a UVM major or minor in a natural or physical science. Satisfactory scores on the Verbal and Math sections of the Graduate Record Examination.

## Requirement for Advancement to Candidacy for the Degree of Doctor of Philosophy

Completion of one academic year in graduate study at The University of Vermont; completion of any language required by the student's studies committee. The candidate must demonstrate ability to comprehend the contents of articles in the biological sciences in a modern foreign language appropriate to the student specialty and approved by the Studies Committee.

## Minimum Degree Requirements

A total of 75 credits of course work and dissertation research. A minimum of 40 credits of course work should be in botany, other natural sciences and supporting fields, and at least 20 credits should be in dissertation research. In addition, each candidate must participate in six semester hours of supervised teaching.

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- Colleges and Schools: [College of Agriculture and Life Sciences](#). [Graduate College](#).
- Departments and Programs: [Plant Biology Department](#).

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- College of Medicine
- College of Nursing and Health Sciences

Colleges and Schools > Graduate College > Academic Offerings > Psychology (Ph.D.)

## Psychology (Doctor of Philosophy)

### Overview

Additional clinical, research, and adjunct faculty supervise students in clinical and research placements.

The Ph. D. Program in General/Experimental psychology admits students in three broad areas of concentration ("clusters"): Biobehavioral Psychology; Developmental/Social Psychology; and Behavioral Psychopharmacology.

The Ph. D. program in Clinical Psychology places equal emphasis on research and clinical training. The clinical program is fully accredited by the American Psychological Association.

Further information about both programs can be obtained [electronically](#) , or by requesting a department graduate studies brochure from the Department of Psychology . Both contain details of requirements, funding opportunities, clinical and research facilities, specialty areas, ongoing research, and faculty, as well as general information about the University and the area.

Applicants must apply for the Ph. D. degree only . Students whose goal is a terminal master's degree are not accepted. The application deadline for admission is December 1.

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

### Requirements for Admission to Graduate Studies for the Degree of Doctor of

- Continuing Education
- Graduate College
- Honors College
- School of Business Administration
- The Rubenstein School of Environment and Natural Resources

## Philosophy

A major or its equivalent in undergraduate psychology including courses in statistics and experimental psychology; satisfactory scores on the Graduate Record Examination, including the subject studies in Psychology . A telephone interview is required of top applicants to the Clinical Program.

## Requirements for Advancement to Candidacy for the Degree of Doctor of Philosophy

For the General/Experimental Program, satisfactory completion of minimum degree requirements for Master of Arts degree or equivalent; for the Clinical Program, satisfactory performance of the Ph. D. comprehensive examination.

## Minimum Degree Requirements for the Degree of Doctor of Philosophy

Both the General/Experimental and the Clinical Program require a minimum of 75 credit hours. However, each program requires proficiency in several specific areas. In order to achieve such proficiency, most students must complete a total of 79 to 83 credit hours. A minimum of 20 credits must be accumulated in dissertation research and the remainder in course credits numbered in the PSYC 200 through PSYC 400 sequences of the psychology curriculum, or acceptable courses at the PSYC 200 or PSYC 300 level from other curricula. Detailed information on courses of study is available from the Department. Satisfactory performance on the department final oral examination. There is no foreign language requirement. Both programs have a required preliminary examination.

## Affiliations

- Colleges and Schools:[College of Arts and Sciences](#).[Graduate College](#).
- Departments and Programs:[Psychology Department](#).

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Academic Offerings > Counseling (Post-Master's Certificate)

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Counseling Post-Master's Certificate

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The Certificate of Advanced Study in Counseling is designed for an individual with a Master's Degree in Counseling to develop further professional skills in a specialized area. Program planning is done with the help of a faculty advisor, but the C.A.S. candidate retains primary responsibility for determining objectives and designing appropriate learning experiences. Requirements for the Certificate of Advanced Study include:

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- A to Z Listing
- Undergraduate Degrees
- Undergraduate Minors
- Graduate Degrees and Certificates
- Departments and Programs

1. A Master's Degree in Counseling,
2. Acquisition of thirty-six credit hours beyond the Master's Degree,
3. Completion of the certificate within five years,
4. Maintenance of a 3.0 GPA.

To receive an application or inquiries about the CAS, should be directed to: The Counseling Program, Mann Hall, 208 Colchester Avenue, University of Vermont, Burlington, VT 05405-1757, (802) 656-3888 or [counseling.program@uvm.edu](mailto:counseling.program@uvm.edu), <http://www.uvm.edu/~cslgprog/>.

Colleges and Schools

### Specific Requirements

([Click here](#))

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### Affiliations

- Colleges and Schools: [College of Education and Social Services](#).
- Departments and Programs: [Integrated Professional Studies Department](#).

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Academic Offerings > Educational Leadership (Post-Master's Certificate)

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## educational leadership post-master's certificate

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A Certificate of Advanced Study (C.A.S.) is a certificate program designed for those who already have completed a master's degree, but who are interested in leadership development. The C.A.S. is a parallel program to the Master's Degree in Educational Leadership and is designed to cultivate leaders who can apply knowledge toward leading and building learning communities designed to make a positive difference in the lives of children, youth, families, adults, and communities. The program prepares public and private school leaders, curriculum leaders, teacher leaders, leaders of educational and social service agencies, and leaders for other educational organizations. The program is designed to prepare leaders to think and act creatively, responsibly, and effectively in leadership roles. Participants learn to:

Academic Offerings

- A to Z Listing
- Undergraduate Degrees
- Undergraduate Minors
- Graduate Degrees and Certificates
- Departments and Programs

- understand alternative perspectives on leadership that support the development of more just, humane, and diverse organizations.
- construct effective ways to demonstrate caring and collaborative leadership.
- create networks which support leadership and change.

Colleges and Schools

While the program is designed within the broad concept of leadership, three major strands of concentration are available. The areas of concentration are:

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### STRAND I: School Leader with Administrative Endorsement

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- Educational Administration
- Curriculum Leadership

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### STRAND II: Organizational/Community Leadership



- Leadership in Private or Nonprofit Educational Organizations
- Teacher Leadership

### STRAND III: Human Services Leadership

- Collaboration across communities, human service agencies, and schools
- Using evaluation for enhancing program outcomes

### Specific Requirements

The program requirements include:

- a minimum of 30 credit hours distributed among courses, summer seminars, independent study, action research, and internships.
- fifteen of the 30-36 credits comprise the core curriculum with the remainder making up the students individual concentration. Students desiring the administrative licensure endorsement by the state of Vermont will take a majority of their electives in areas required through licensure standards.
- an action research project
- a leadership portfolio which marks the final requirement of the program. Portfolios are presented at each student's culminating oral examination.

The Certificate of Advanced Study (C.A.S.) Program requires 30 credit hours of study.

Courses with an Administration/planning focus include: [EDLP 264](#), [EDLP 266](#), [EDLP 268](#), [EDLP 280](#), [EDLP 332](#), [EDLP 333](#), [EDLP 334](#), [EDLP 335](#), [EDLP 336](#), [EDLP 337](#), [EDLP 353](#), [EDLP 354](#), [EDLP 355](#), [EDLP 356](#), and [EDLP 358](#).

**There are two application deadlines. Applications are due November 15th for admission the following spring and April 1st for admission the following fall.**

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- Colleges and Schools: [College of Education and Social Services](#).
- Departments and Programs: [Education Department](#).

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Integrated Studies Post-Master's Certificate

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Courses

A Certificate of Advanced Study (sixth-year certificate), a 30- to 36-graduate credit hour program beyond the master's degree, is offered in Integrated Studies.

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The program is designed for students who have completed their master's degree and are interested in exploring a self-designed, integrated program of study drawing upon graduate level experiences currently provided by departments of Integrated Professional Studies and Education of the College of Education and Social Services. The program does not lead to any type of state licensure.

- A to Z Listing

- Undergraduate Degrees

- Undergraduate Minors

- Graduate Degrees and Certificates

### Specific Requirements

[\(Click here\)](#)

- Departments and Programs

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## Special Education Post-Master's Certificate

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The Program in Special Education offers the Certificate of Advanced Study to students with appropriate master's degrees in the following areas: consulting teacher/learning specialist, early childhood special education, and intensive special education. A minimum of 30 credit hours of course work is required.

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- A to Z Listing
- Undergraduate Degrees
- Undergraduate Minors
- Graduate Degrees and Certificates
- Departments and Programs

### Specific Requirements

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- Colleges and Schools: [College of Education and Social Services](#).
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The Postbaccalaureate Teacher Preparation Program is designed for individuals who have a bachelor's degree from an accredited four-year institution and who want to become licensed to teach in Vermont. The basic program fulfills the professional education requirements for state licensure. Areas and levels of licensure include:

Academic Offerings

- A to Z Listing

- Undergraduate Degrees

- Birth-Grade 3: Early Childhood
- Grades PreK-12: Art, Music, Physical Education
- Grades K-6: Elementary
- Grades 5-9: Middle-Level
- Grades 5-12: Family and Consumer Sciences
- Grades 7-12: Secondary [English, Foreign Language (French, German, Latin, and Spanish), Mathematics, Science (Animal Sciences\*, Biological Science, chemistry, Earth Science, and Physics), Social Studies (Economics, Geography, History, and Political Science)]

- Undergraduate Minors

- Graduate Degrees and Certificates

- Departments and Programs

\* Animal Sciences is an alternate route for Biology Endorsement.

Colleges and Schools

### Admissions Requirements

Academic Policies and General Information

Applicants to the Postbaccalaureate (Postbac) Teacher Preparation Program must meet the following entrance criteria:

Faculty and Administration

1. Hold a bachelor's degree from an accredited institution of higher education.
2. Possess a general education background based on those studies known as liberal arts which embrace the broad areas of social and behavioral sciences, mathematics, biological and physical sciences, the humanities, and the arts.
3. Demonstrate a commitment to the teaching profession.
4. Have a minimum overall GPA of 2.5 (Elementary and Secondary Education)

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- require 2.75 minimum) in undergraduate course work.
5. For art candidates: Previous course work must include 36 credit hours of appropriate studio art and 12 hours of art history.
  6. For elementary candidates: Previous course work must include 30 semester hours in a single liberal arts discipline.
  7. For middle-level candidates: Previous course work must include two approved areas of concentration, with 18 credits in each.
  8. For secondary candidates: Previous course work must include a minimum of 30 semester hours with a minimum GPA of 3.0 in one of the academic areas to meet Vermont state licensure requirements for the major academic concentration.

Middle Level and Secondary Education also have a Master of Arts in Teaching option offered jointly by the College of Education and Social Services and the Graduate College.

*Secondary Majors:* Biological Science, chemistry, Earth Science, Economics, English, French, Geography, German, History, Latin, Mathematics, Physics, Political Science and Spanish.

*Middle Level* students are required to have at least 18 credit hours in each of two disciplines with at least one area being Highly Qualified Teacher (HQT) approved.

The Post-Baccalaureate curriculum includes both undergraduate and graduate courses. Nine graduate credits may apply toward the M.Ed. degree at UVM, contingent on acceptance into the Graduate College.

Applications to the graduate licensure programs in Secondary Education and Middle-Level Education are reviewed monthly from January through May or until the programs have reached capacity. Course work begins during the summer or fall, depending upon the area of licensure. Applications are accepted and considered only once each year with updated informational materials and application forms available in January. Requests for further information about the Middle Level and Secondary Education PBTP Program and application forms may be obtained by contacting the PBTP Coordinator, Middle Level or Secondary Education Program, 405 Waterman Building, (802) 656-1411.

Requests for further information about the Physical Education PBTP program and application forms may be obtained by contacting the Physical Education Program, 208 Patrick Gymnasium, (802) 656-4456.

Applications for qualified applicants for the Elementary Education Postbaccalaureate Teacher Preparation Program are reviewed on an ongoing basis. Acceptance to begin in a given semester is based on availability of courses and placements at field sites. Requests for further information about the PBTP Elementary Education Certification Program and application forms may be obtained by contacting the Elementary Education PBTP Coordinator, Elementary Education Program, 533 Waterman Building, (802) 656-3356.

The Art Education PBTP application is available online at the [Student Services Office](#)  web page.

### Specific Requirements

No description available

[Location]

| Burlington, VT 05405 | (802) 656-3131 | [Contact UVM](#) © 2018

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Colleges and Schools > Graduate College > Departments and Programs > Cell and Molecular Biology Program

## Cell and Molecular Biology Program

### Contact Information

University of Vermont  
 Cell and Molecular Biology Program  
 E 100 Given Courtyard E  
 Burlington, VT 05405

Phone: (802) 656-9673

Email: [cmb@uvm.edu](mailto:cmb@uvm.edu)

[Web Site](#)

### Overview

The Cellular and Molecular Biology (CMB) graduate program was founded in 1971 to meet the growing need to train scientists in the latest research techniques in a multidisciplinary setting. Today, Markus Thali, CMB Director & Assistant Professor in the Department of Microbiology & Molecular Genetics, coordinates over 60 faculty in departments from the College of Agriculture and Life Sciences, The College of Arts and Sciences, The College of Nursing and Health and The College of Medicine. Graduate education at UVM is characterized by a close and collegial environment that stresses active mentorship and scientific excellence.

The central theme of the CMB program is to provide a rich experience at the forefront of modern biology focusing on collaborative research between students and investigators across the UVM campus. Currently the CMB program has over 40 students, most of whom are enrolled in the Ph.D. program.

CMB is unique in its multi- and interdisciplinary nature that is not constricted by the boundaries of a typical size department-based program. The curriculum is designed to

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- Continuing Education
- Graduate College
- Honors College
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- The Rubenstein School of Environment and Natural Resources

provide flexibility and specialization in course work. The numbers of courses are kept to a minimum yet still provide access to an array of courses that a multidisciplinary program provides to tailor the curriculum to the student according to his or her interests. Please visit our courses website at <http://www.uvm.edu/cmb/courses.php>. This is one of the ways we provide the best possible training to prepare the student to succeed in their future endeavors.

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## Cell and Molecular Biology (Master of Science)

### General Requirements

- [Requirements for the Masters Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

Biology (three semesters, including genetics), chemistry through organic, mathematics through calculus, physics (two semesters), physical chemistry. Satisfactory scores (60 percentile) on general (aptitude) Graduate Record Examination. Students who do not have all of the courses listed but who have a good academic record will be considered for admission to the program. Deficiencies may be made up after matriculation.

#### Requirements for Advancement to Candidacy for the Degree of Master of Science

Completion of any deficient admission requirements.

Masters candidates are required to take 6 credits of Cell Biology (CLBI 301 & 302), 6 credits of Biochemistry (BIOC 301 & 302), 2 credit hours of CLBI 381 Seminar and 6 research credits. The remaining 9 credits are to be completed in combination of at least one course credit and 8 research credits. Studies committee and advisor will guide student in course selection.

All students must demonstrate satisfactory progress; finish minimum course work within three years; and finish cumulative exam within prescribed times limits; participate in seminar program.

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## Cell and Molecular Biology (Doctor of Philosophy)

### General Requirements

- [Requirements for the Doctor of Philosophy Degree](#)

### Specific Requirements

#### Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy

Biology (three semesters, including genetics), chemistry through organic, mathematics through calculus, physics (two semesters), physical chemistry. Satisfactory scores (60 percentile) on general (aptitude) Graduate Record Examination. Students who do not have all of the courses listed but who have a good academic record will be considered for admission to the program. Deficiencies may be made up after matriculation.

#### Requirement for Advancement to Candidacy for the Degree of Doctor of Philosophy

Completion of any deficient admission requirements including one semester of physical chemistry equivalent to chemistry 160.

### Minimum Degree Requirements

6 credits of Cell Biology ([CLBI 301](#) & [CLBI 302](#)), 3 credits of Genetics, 6 credits of Biochemistry ([BIOC 301](#) & [CLBI 302](#)), 2 credits of [CLBI 381](#) Seminar, 3 credits of Quantitative/Analytical Biology and 4 credits of Literature-Based Seminar. All Ph.D. candidate are to complete at least 30 course credits, and 20 research credits. The remaining 25 credits are to be completed in combination of research and course credits. Studies committee and advisor will guide student in course selection.

- Continuing Education

All students must demonstrate satisfactory progress; finish minimum course work within three years; and finish cumulative exam within prescribed times limits; participate in seminar program.

- Graduate College

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## Courses in Cell Biology

### CLBI 295 - Special Topics

Credit as arranged.

Credits: 1-6.

### 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, PBIO 301.

Credits: 3.

### 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.

### CLBI 381 - Seminar

One hour.

Credits: 1.

### CLBI 391 - Master's Thesis Research

Credit as arranged.

Credits: 1-12.

### CLBI 395 - Special Topics

Credit as arranged.

Credits: 0-3.

### CLBI 491 - Doctoral Dissertation Research

Credit as arranged.

Credits: 1-12.

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Colleges and Schools > Graduate College > Departments and Programs > Neuroscience Program

## Neuroscience Program

### Contact Information

*Neuroscience Graduate Program Office*  
*University of Vermont*  
*Given Building D401B,*  
*89 Beaumont Avenue*  
*Burlington, VT 05405*

*Director: Rae Nishi, PhD, Professor, Anatomy and Neurobiology*  
*Program Assistant: Emily McLaughlin*

Phone: (802) 656-1178

Fax: (802) 656-8704

Email: [Emily.McLaughlin@uvm.edu](mailto:Emily.McLaughlin@uvm.edu)

[Web Site](#)

### Overview

The Neuroscience Graduate Program at the University of Vermont is a multidisciplinary, PhD granting program that has more than 50 faculty mentors across 9 departments and two colleges. This program emphasizes rigorous training in neuroscience-related research and prepares students for a variety of science related careers in addition to tenure-stream academic careers.

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## Neuroscience Program Academic Offerings

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## Approved Courses for Graduate Credit (Neuroscience Program)

[ANNB 320](#) Developmental Neurobiology (may be co-listed with [BIO 295](#) Special Topics; 2 credits)

[ANNB 323](#) Neurochemistry (2 credits)

[ANNB 326](#) Basic Science of Neurological Disease (2 credits)

[ANNB 327](#) Responsible Conduct in Research (1 credit)

[ANNB 328](#) Techniques in Optical Microscopy (3 credits)

[ANNB 329](#) Topics in Excitable Membranes (2 credits)

[ANNB 330](#) Comparative Neurobiology (2 credits)

[BIOL 261](#) Neurobiology (3 credits)

[BIOL 262](#) Neurobiology Techniques (4 credits)

[BIOL 301](#) Cell Biology

[BIOL 381](#) Integrity in Science

[CLBI 301](#) Cell & Molecular Biology (3 credits)

[CMSI 281](#) Cognitive Neuroscience (3 credits)

[CMSI 386](#) Adult Neuropathology (3 credits)

[GRMD 354](#) Human Structure/Function (4 credits)

[GRMD 357](#) Neural Science (6 credits)

[NSCI 391](#) Master's Thesis Research

[NSCI 491](#) Doctoral Dissertation Research

[PATH 327](#) Responsible Conduct in Research

[PHRM 272](#) Toxicology (3 credits)

[PHRM 290](#) Topics Molecular & Cellular Pharmacology (3 credits) [PHRM 328](#) Introduction to Medicinal chemistry (3 credits)

- Continuing Education
  - [PSYC 303](#) Biobehavioral Proseminar
  - [PSYC 305](#) Seminar in Learning Theory (3 credits)
  - [PSYC 320](#) Animal Minds (3 credits)
- Graduate College
  - [PSYC 322](#) Neurobiology of Learning and Memory (3 credits)
- Honors College
  - [PSYC 323](#) Neuropsychopharmacology (3 credits)
  - [PSYC 340](#) Biostatistics
- School of Business Administration
  - [PSYC 380](#) Contemporary Topics (3 credits)
  - [STAT 308](#) Applied Biostatistics
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### **NSCI 491 - Doctoral Dissertation Research**

Credits: 1-18.

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## Requirements for the Doctor of Education Degree

Please consult the program description for specific degree requirements.

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Colleges and Schools > Graduate College > Requirements > Requirements for the Doctor of Philosophy Degree

## Requirements for the Doctor of Philosophy Degree

In addition to the requirements described below, individual programs may have their own specific requirements. Students must consult and familiarize themselves with their program requirements.

### Credit Hours

The degree of Doctor of Philosophy requires a minimum of 75 credit hours earned in courses and in dissertation research. A minimum of 15 hours in courses used in compilation of the grade-point average must be taken in residence at The University of Vermont. Consult individual programs for additional information. Generally, the first year of each doctoral program consists of required courses. With the prior approval of their department and the Graduate College, doctoral students may apply two 100/200-level, three-credit courses towards their graduate programs. A student's advisor must petition the Graduate College for approval before the student enrolls in the course. Consult individual programs for further limitations. Under no circumstances will a course numbered below 100 be applicable to a doctoral program.

### Minimum Residence Requirements

Candidates for the doctoral degree must satisfactorily complete a minimum of 51 hours in residence. The residency requirement is completed by courses that (1) are taken for graduate credit through The University of Vermont either in the academic year or summer on the main campus or at off-campus locations, and (2) are taken after the student has been admitted to the Graduate College. Some programs may require more than the above minimum hours in residence.

### Teaching Requirement

All doctoral candidates must acquire appropriate teaching experience in their chosen fields prior to the award of the degree. The nature and amount of teaching, for which no

- Continuing Education academic credit is allowed, will be determined by each candidate's program.

- Graduate College

### Language Requirement

- Honors College

Demonstration of competency in foreign languages is required in some programs. The requirement may be fulfilled by an examination administered by the program or in conjunction with the appropriate language department. Enroll for the examination as GRAD 485. There is no fee for taking the exam. The examination is awarded the grade of "S" (Satisfactory) or "U" (Unsatisfactory). It may be taken more than once if a grade of "U" is awarded.

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If department policy permits, the language requirement may be fulfilled through competence in computer literacy, either by completing appropriate Computer Science courses with a grade of B (3.00) or better, or by satisfactorily completing an examination.

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### Studies Committee

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It is the responsibility of the Studies Committee to supervise the graduate student's program and to review progress at regular intervals. A Studies Committee consisting of at least four regular members of the Graduate Faculty is appointed by the department chairperson or designated departmental representative and approved by the Dean of the Graduate College soon after first enrollment in the Graduate College, unless the student's department employs an alternative approved procedure. The Chairperson of the Studies Committee serves as the student's academic advisor and also as the dissertation advisor or supervisor. Only a regular member of the Graduate Faculty can serve as an advisor of a doctoral dissertation. On occasion, it may be appropriate for a professional other than a regular member of the Graduate Faculty to serve as a member of a Studies Committee. In such cases, written approval must be obtained from the Dean of the Graduate College prior to the student's beginning dissertation research.

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### Comprehensive Examination

A written comprehensive examination in the field of study must be passed by the candidate at least six months before the dissertation is submitted. The examination must be prepared by the program concerned, in consultation with the candidate's Studies Committee. Only one reexamination is permitted. Success in the written comprehensive examination is prerequisite to standing for the Dissertation Defense Examination. All examinations are taken on The University of Vermont campus in Burlington. Some programs also require an oral comprehensive examination.

Students must enroll in GRAD 497: Doctoral Comprehensive Examination prior to taking the comprehensive examination. There is no fee. A grade of "S" or "U" is recorded.

### Research and Dissertation

Each candidate, while in residence at The University of Vermont, must complete an acceptable original research project which contributes new knowledge or techniques in an academic field. Each candidate must enroll in a minimum of 20 credits of dissertation

research. Only a member of the Graduate Faculty may supervise dissertation research for the Ph.D.

### **Dissertation Defense Forms**

Defense Committee Membership and Defense Notice forms must be submitted to the Graduate College by the designated deadlines. A Public Notice of the defense is required in order to defend. The Intent to Graduate form must be submitted to the candidate's department before the List of Potential Graduates is due.

### **Dissertation Format**

Students are required by the Graduate College to use a computer software program appropriate to the discipline to create the Table of Contents and the Lists of Tables and Figures from the dissertation text headings.

A dissertation must be prepared and submitted in compliance with the "Guidelines for Writing a Thesis or Dissertation" available from the Graduate College Office and the program. A formatted copy of the dissertation must be submitted to the Graduate College for a Format/Record Check at least three weeks prior to the scheduled oral defense. Each student must also provide defensible copies of the dissertation to members of the Dissertation Defense Examination Committee at least two weeks before the scheduled examination. Individual departments may require earlier deadlines.

Students must enroll in GRAD 499: Dissertation Defense prior to defending their thesis.

The oral defense of a dissertation can be scheduled only after successful completion of the comprehensive examination and the submission of an original copy of the dissertation to the Graduate College for a Format/Record Check.

### **Dissertation Defense Examination Committee**

Upon receipt of a completed dissertation, the Dean of the Graduate College will appoint a Dissertation Defense Committee based upon nominations submitted by the candidate's advisor. The Dissertation Defense Committee consists of a minimum of four University of Vermont faculty members, all regular members of the Graduate Faculty. At least two Graduate Faculty members must be from inside the department. The Chairperson must be both a member of the Graduate Faculty and from outside the candidate's department and program. The Chairperson will be designated by the Graduate Dean upon nomination by the dissertation advisor. Individual programs may require more than four committee members or have other specific membership requirements.

The Chairperson of the Dissertation Defense Committee has the responsibility for ensuring proper conduct of the examination, appropriate documentation of the results, and that the signatures of endorsement are added to the acceptance page of the dissertation following a successful defense.

The acceptability of the dissertation is determined by the Dissertation Defense Committee. A grade of "S" or "U" is awarded. If a student's Defense Examination



performance is not satisfactory, then one reexamination, and one only, is permitted.

After a successful dissertation defense, candidates must forward an original and three copies of the corrected dissertation to the Graduate College within the time period specified by the Dissertation Defense Committee and/or the Graduate College.

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## Requirements for the Master of Education Degree

The graduate program of each student admitted to candidacy for the degree of Master of Education is planned and supervised by an advisor in the respective program area. Program planning is based upon the student's undergraduate curriculum, professional experience, and aims and purposes in pursuing the master's degree. Before the degree is awarded, the candidate must have completed one year of successful teaching experience or other educational service. This requirement may be fulfilled by satisfactory completion of student teaching, an internship, or a practicum.

Each program must include a minimum of 30 approved credits (Higher Education and Student Affairs, 40; Interdisciplinary Studies, 36;). Contingent on a candidate's background and interests and on program specification, additional credit hours may be required. If a student's preparation is inadequate to begin study at the graduate level, additional undergraduate courses will be required. Normally, each Master of Education degree program must include a minimum of six semester hours of graduate work in the foundations of education unless this requirement or its equivalent has been met previously. Graduate courses which currently fulfill this requirement include: [EDFS 204](#), [EDFS 205](#), [EDFS 206](#), [EDFS 209](#), [EDFS 255](#), [EDFS 302](#), [EDFS 303](#), [EDFS 309](#), [EDFS 314](#), [EDFS 322](#), [EDFS 347](#), [EDFS 348](#), [EDFS 352](#), [EDFS 354](#), and [EDFS 369](#), [EDFS 377](#), [EDFS 380](#).

To insure effective planning of a graduate program for the degree of Master of Education, no more than nine hours credit will be accepted in partial fulfillment of degree requirements for courses taken prior to acceptance to the Graduate College.

### Comprehensive Examination

A comprehensive examination is required. However, it may be written, oral, or both. The choice of the examination format will be made by faculty members in the area of specialization after consultation with the advisor and the candidate.

- Continuing Education

1. The written comprehensive examination will cover the field of education with emphasis on the area of specialization.

- Graduate College

2. The oral comprehensive examination will emphasize the area of specialization.

- Honors College

All examinations are taken on the University campus in Burlington. Only one re-examination is permitted for any final comprehensive examination. It is the responsibility of the candidate to schedule the required examination with the College of Education and Social Services. Since each program has different options for meeting the oral and written comprehensive requirements, candidates must contact the respective program chairperson or advisor regarding program policy.

- School of Business Administration

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### Thesis Option

If the thesis option is elected, there must be an oral or written comprehensive examination prior to the oral examination in defense of the thesis.

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### Requirements for Admission to Graduate Studies for the Degree of Master of Education

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Eighteen credits of Education and related areas or appropriate professional certification. The Education courses prerequisites may not apply to the Higher Education and Student Affairs Administration, Educational Leadership, or Interdisciplinary Major Program in the Department of Integrated Professional Studies. This is particularly true of persons seeking positions which do not require public school certification.

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### Minimum Degree Requirements

Eighteen credits in courses in Education numbered above 200, including a minimum of six graduate credits in the foundations of education,\* 12 additional credits in approved courses or six additional credits and thesis research; a year of successful experience in teaching or in a related educational activity.

\* This requirement no longer applies to the program in Special Education.

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## Requirements for the Masters Degree

In addition to the requirements described below, individual programs may have their own specific requirements. Students must read and familiarize themselves with their program's requirements. Some of them are detailed in this catalogue under individual program listings and other requirements are available from the director or chairperson of each program.

### Credit Hours

Master's degrees require a minimum of 30 hours of credit; some programs require more. A minimum of 15 graded credits used in compilation of the graduate GPA must be taken in residence at UVM. Consult individual program descriptions for exceptions. In programs that require a thesis, the number of credit hours earned in thesis research may vary between six (minimum) and 15 (maximum). Thesis credit is included as part of the 30-hour minimum. Consult individual programs for specific information. With the prior approval of their department and the Graduate College, students may apply one 100/200 level, three-credit undergraduate course towards their graduate program. A student's advisor must petition the Graduate College for approval before the student enrolls in the course. Consult individual programs for further limitations. Under no circumstances will a course numbered below 100 be applicable to a master's program.

### Minimum Residence Requirements

Candidates for the master's degree must satisfactorily complete 21 hours in residence. The residency requirement is completed by courses that (1) are taken for graduate credit through The University of Vermont either in the academic year or summer on the main campus or at off-campus locations, and (2) are taken after the student has been admitted to the Graduate College. Some programs may require more than the above minimum hours in residence. Consult with the individual program.

- Continuing Education
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- Honors College
- School of Business Administration
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## Comprehensive Examination

All master's degree students are required to pass a written and/or oral comprehensive examination in their field of specialization. If both formats are used, satisfactory completion of the written examination is prerequisite to standing for the oral examination. All comprehensive examinations are taken on The University of Vermont campus in Burlington. One re-examination only is permitted for any failed comprehensive examination. The comprehensive examination is not the same as the oral thesis defense, and must be passed satisfactorily before defending the thesis. Consult individual program descriptions for specific information.

When students plan to take their comprehensive examination they must enroll in GRAD 397: Master's Comprehensive Examination. There is no fee. A grade of "S" or "U" is recorded.

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## Research and Thesis

Consult the program description to determine whether or not a thesis is required. If a thesis is required, the candidate for the master's degree undertakes a problem of original research under the supervision of a faculty member in the department of specialization. At the conclusion of the research, the student must present a thesis which embodies the results of the work and demonstrates the capability for independent research.

## Thesis Defense Forms

Defense Committee Membership and Defense Notice forms must be submitted to the Graduate College by the designated deadlines. A Public Notice of the defense is required in order to defend. The Intent to Graduate form must be submitted to the candidate's department before the List of Potential Graduates is due.

## Thesis Format

Students are required by the Graduate College to use a computer software program appropriate to the discipline to create the Table of Contents and the Lists of Tables and Figures from the thesis text headings.

The thesis must be prepared and submitted in compliance with the "Guidelines for Writing a Thesis or Dissertation" available from the Graduate College Office. A formatted copy of the thesis must be submitted to the Graduate College for a Format/Record Check at least three weeks prior to the scheduled defense. Students must also provide defendable copies of the thesis to members of their Thesis Defense Examination Committee at least two weeks before the scheduled examination. Individual departments may require earlier deadlines.

Students must enroll in GRAD 399: Thesis Defense prior to defending their thesis.

The oral defense of a thesis may be scheduled only after successful completion of the comprehensive examination and the submission of an original copy of the thesis to the Graduate College for a Format/Record Check.

## **Thesis Defense Examination Committee**

The Thesis Defense Committee consists of at least three University of Vermont faculty members, at least two of whom must be regular members of the Graduate Faculty. Ordinarily, two committee members will be from the candidate's program, including the thesis advisor. The third member, who acts as chair of the committee, must be a member of the Graduate Faculty, must be from a different program and department than the candidate, and must be approved by the Graduate Dean upon nomination by the thesis advisor.

The Chairperson of the Thesis Defense Committee has the responsibility for ensuring proper conduct of the examination, appropriate documentation of the results, and that the signatures of endorsement are added to the acceptance page of the thesis following a successful defense.

The acceptability of the thesis is determined by the Thesis Defense Committee. A grade of "S" or "U" is awarded. If a student's Defense Examination performance is not satisfactory, then only one reexamination is permitted.

After a successful thesis defense, candidates must forward an original and two copies of the corrected thesis to the Graduate College within the time period specified by the Thesis Defense Examination Committee, and/or the Graduate College.

## **Options within Master of Arts Programs**

At least 21 hours of graduate credit, including credit for the thesis and research leading to the thesis, must be earned in the field of specialization. All course credit included in these 21 hours must be earned in courses which have been approved for graduate credit. Students may wish to include in their programs up to nine hours of graduate level courses outside their fields of specialization. These courses must be approved in advance by the student's advisor or studies committee.

## **Additional Requirements for the Master of Arts in Teaching**

The MAT degree is intended for people who are already licensed as secondary school teachers or who will complete teacher licensure requirements before graduation. For already licensed teachers, the program requires a minimum of 30 credit hours of course work; at least 21 hours in the field of specialization and at least six in education. For those seeking teacher licensure, the program requires at least 30 credit hours of education course work and at least 21 hours in the field of specialization. The individual program of study for each MAT student must be approved by their faculty advisor in their field of specialization and their faculty advisor in the Department of Education.

In addition to the comprehensive examination in the field of specialization, students must also take a comprehensive examination in the field of education. Consult specific program listings for additional requirements for this degree program.

## **Additional Requirement for the Master of Science for Teachers**

Applicants for the Master of Science for Teachers must be licensed teachers. Students in a Master of Science for Teachers program may apply more than one three-hour, 100-level course toward their degree. Consult specific department listings for additional requirements and policies related to this degree program.

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### Admissions for Graduate Students

Admissions criteria, procedures and deadlines for graduate programs varies by individual program. Current information about graduate admissions can be found on the [Graduate College Admissions](#)  page on the Graduate College Web site.

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### Change of Graduate Program

If an admitted student wishes to change to a different program offered at UVM, a request must be made by the student, in writing, to the Dean of the Graduate College. Upon receipt of the request, the student's file will be forwarded to the desired program for review. If both the faculty of the desired program and the Dean of the Graduate College approve, the formal transfer of program is made in the Graduate College Office with notification to the former program, new program, student, and Registrar. The time limit for completion of the degree runs from the date of matriculation in the new program. All credits applied to the degree must be earned within 7 years of degree completion for master's students and 9 for doctoral students.

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### Concurrent Master's and Doctor of Philosophy Credit

Up to 24 credits of course work for which graduate credit is earned at UVM in a master's degree program, whether a master's degree is received or not, may be applied toward a Ph.D. at UVM, provided that the credit is appropriate for the Ph.D. program.

No provision is made for a person to employ the same credit to satisfy two master's degrees.

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### Conferral of Graduate Degrees

Degrees are conferred only in October, February, and May of each year. Diplomas are issued only in May.

It is the graduate student's responsibility to make sure that their name has been submitted by their department or program to the Graduate College Dean's Office for Graduation.

Departments with graduate programs must submit a "List of Potential Graduating Students" along with an "Intent to Graduate" form for each student by July 1, November 1, and January 1 for the October, February, and May graduation deadlines.

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### Continuous Graduate Registration

Students who have completed all credits required for the degree but have not completed all graduation requirements must enroll each semester for Continuous Registration (GRAD 900) and pay a \$100 Continuous Registration fee each semester until all degree requirements are completed, including removing incomplete grades; passing the comprehensive examination; or completing a thesis or dissertation.

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### Deactivation and Reactivation in Graduate Programs

Deactivation is equivalent to withdrawal from a graduate program. Students who do not enroll in their program following the termination of a leave of absence will be deactivated from the Graduate College. Students who, prior to completing enrollment for all credit requirements for a graduate program, do not enroll for one or more credits for a period of one calendar year and are not on an approved leave of absence will be deactivated from the College.

Reactivation into a program requires the approval of the program and the Graduate College. Students seeking reactivation must complete the Reactivation Form and pay a \$25 Reactivation fee and, if reactivation is approved, all other outstanding fees, including current and back Continuous Registration fees, if applicable.

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### Enrollment Policies and Procedures for Graduate Students

#### Health Record

The University requires that all students file a personal health and immunization record with the Center for Health and Wellbeing Student Health/Medical Clinic at the time of first enrollment. Appropriate forms are sent directly to newly enrolled students. They are also available at the Student Health/Medical Clinic, 425 Pearl Street.

#### Registration

Consult the [Academic Calendar](#) and the [Registration Schedule](#) for registration dates. Students register for courses at the time and in the manner designated by the University Registrar. Early registration is encouraged for presently enrolled graduate students.

Students should consult with their program advisor before using web registration. All charges for the ensuing semester must be paid, or otherwise provided for, before registration is completed.

#### Graduate Course Levels

Courses which may apply towards a graduate program are numbered 200 and above. Not all 200 level courses are for graduate credit; check the [Courses Approved for Graduate Credit](#). Courses numbered 400 or above are limited to candidates for doctoral degrees; courses numbered 300 to 399 are limited to graduate students unless special permission is given by the appropriate department or program.

#### Course Loads

Normally, full-time nonfunded graduate students enroll for nine to 12 credit hours per

semester; full-time funded students, six to twelve hours, depending upon funding. Maximum enrollment is 15 hours per semester and nine hours summer. Enrollment in excess of the normal full-time course load requires written approval from the advisor and the Dean of the Graduate College.

### Auditing Classes

Courses may be taken for audit; however, tuition for the credit hours is charged as for courses for credit. Under no circumstances will graduate credit or a grade be allowed for audited courses. A student wishing to audit a course must meet minimum levels of performance set by the instructor at the time of registration in order to receive an audit grade on a transcript. **Tuition scholarships funded by the Graduate College do not cover tuition for audited courses.**

### Physical Education Classes

Students may not enroll in physical education classes without prior approval by the Dean of the Graduate College. Graduate College tuition scholarships do not cover tuition or any fees for physical education activities.

### Add/Drop

Courses may be added or dropped, using the web, or a paper form, only during the first ten days of instruction of the semester. Add/drop forms are available from the Registrar's Office. After the first week of classes an instructor may refuse admission to a course if material (such as laboratories) cannot be made up and the loss of this work would seriously affect the quality of the educational experience of the student seeking to enter the course. Faculty are not required to give make-up examinations, papers, or quizzes. No drops are allowed after the second week of classes except in cases where a student is enrolled by administrative error and has not attended the course.

### Withdrawal from Courses

From the end of the tenth day to the end of the ninth week of classes, students may withdraw from courses. Students who wish to withdraw fill out the course withdrawal form, consult with their advisor, and submit the form to the instructor for signature. The student is then responsible for delivering 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. The instructor also records the withdrawal grade (W) on the final grade sheet which is submitted to the Registrar.

Between the ninth week and the last day of classes, withdrawal requires students to petition the Dean of the Graduate College explaining that they are unable to continue in the course due to circumstances beyond their control. Such a petition must contain conclusive evidence, properly documented, of the situation which prevents completion of the course. Acceptable reasons do not include dissatisfaction with performance in a course or with an expected grade, with the course or the instructor, or the desire to



change a major or program. If the petition is approved, the withdrawal procedure follows the process described above.

### **Accelerated Master's Degree Programs (AMPs)**

Highly qualified UVM undergraduates may be accepted into some UVM graduate programs prior to their senior year of undergraduate study. This Accelerated Master's Program (AMP) option is available for admission to UVM graduate programs in Animal Sciences, Biology, Biostatistics, Computer Science, Curriculum and Instruction, Electrical Engineering, History, Materials Science, Mathematics, Mechanical Engineering, Microbiology and Molecular Genetics, Nursing, Physics, Public Administration, and Statistics. Students must apply formally and be accepted to the AMP prior to taking courses that will count to the master's degree. Please consult the program listings for details.

### **Undergraduate Enrollment for Graduate Credit (non-Accelerated Master's students)**

UVM senior undergraduates may enroll for graduate credit at UVM under the following circumstances: the course must be available for graduate credit; total enrollment including the graduate course must not exceed 12 credit hours in the semester in which the course is taken; the course must not be computed as part of the bachelor's degree; permission to seek such graduate credit must be requested of the Dean of the Graduate College in writing by the Dean of the undergraduate college or school prior to enrollment for such credit. Such graduate credit is limited to six hours. It can be used only at UVM if and when the student is admitted to a UVM graduate program and only if the course is judged appropriate by the student's advisor for the graduate program. Generally, other institutions will not accept such credit, earned before award of the bachelor's degree, in transfer to their graduate programs.

### **Grading Policies**

Letter grades are used to indicate levels of performance in courses as follows: A, excellent; B, good; C, fair; F, failure. (Graduate students do not receive a grade of D.) 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.

A candidate for a graduate degree must complete the program with a minimum overall grade-point average of 3.00. For the purpose of determining a grade-point average, the following applies: A+, 4.00; A, 4.00; A-, 3.67; B+, 3.33; B, 3.00; B-, 2.67; C+, 2.33; C, 2.00; C-, 1.67; F, 0.00. A course may be repeated for credit only when failed and only once; only the second grade is then considered. Both grades remain on the student's transcript.

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.

The designation "Inc" or "I" applies to work of acceptable quality when the full amount is not completed because of illness or emergency. It can be awarded only with the prior permission of the Dean of the Graduate College. The Dean may set the limit of time when the work of the course is to be completed. In no case shall this time be set longer than the beginning of the corresponding semester of the next academic year.

The grade of XC (Extended Course) is awarded at the end of the semester to a student who is enrolled in an identified course the nature of which makes it unreasonable or impossible for the student to complete the required work within the regular semester.

Students who withdraw from a course will receive the grade of W - withdrawn. The grade W does not enter into the grade-point average (GPA).

Graduate students may elect to take an undergraduate course on a satisfactory (S) - unsatisfactory (U) basis provided permission is obtained, prior to enrollment, from the department or program and the Dean of the Graduate College and a letter grade is not required by the Studies Committee for purposes of evaluation. Courses at the 200 level or above other than Seminar or Thesis/Dissertation Research may not be taken on a satisfactory (S) - unsatisfactory (U) basis for graduate credit.

A grade, other than Inc/I or XC, may be changed only if there was an error in its calculation. In cases in which a student requests reconsideration of a grade for a course already taken, the grade change, if any, must be made by the instructor and approved by the Dean by the end of the first month of the following semester unless an extension has been granted by the Dean within that time.

### Dismissal

Students whose academic progress is deemed unsatisfactory at any time may be dismissed from the Graduate College by the Dean upon consultation with the student's department or program. In addition, students may be dismissed if (a) they receive two grades or more below a B (3.00), or (b) they receive a U (Unsatisfactory) in Thesis or Dissertation Research or Seminar.

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### Fellowships, Assistantships, Traineeships, Stipends, and Grants for Graduate Students

Students who wish to be considered for fellowships as well as admission must submit completed applications, with supporting materials, by March 1 of the academic year preceding that for which application is made, or the program's application deadline, whichever is earlier. Any applicant requesting fellowship, assistantship, or traineeship support must submit an official copy of the Graduate Record Examination score report.

Application for fellowships is normally made by completing the appropriate section on the application form. No separate form is required except where indicated in the descriptions below.

Tuition scholarships accompanying Graduate Teaching, College, Research, and Student Affairs Assistantships do not cover physical education activity courses, nor do they cover courses numbered below 200, except upon prior approval of the Dean of the Graduate College.

#### Graduate College Fellowships

The Graduate College offers ten fellowships in support of master's degree programs in the social sciences and humanities. Five fellowships provide a one-year stipend (currently \$7,500) and a full tuition scholarship (48-credit hour maximum) for the degree program (two years maximum). The remaining five fellowships provide the tuition scholarship only.

The fellowships are open to prospective students in the social sciences and humanities when they apply to graduate study. Holders of Graduate College Fellowships are required to carry full-time enrollment towards an advanced degree. The fellowships are not renewable.

## Graduate Teaching Assistantships and Graduate Research/Teaching Assistantships

Graduate Teaching Assistantships are awarded by many of the departments offering graduate work. Graduate Teaching Assistants are generally appointed for nine months with stipends averaging \$15,000 for 2008-2009. Normally, Teaching Assistants enroll for a minimum of six to a maximum of twelve credit hours per semester. In addition to the stipend, the assistantship award includes a tuition scholarship covering the number of credit hours specified in the award letter, not to exceed twelve per semester, during the period of the assistantship. Doctoral students funded fully as Graduate College Teaching Assistants during the academic year will receive a summer stipend of \$1,500 the following summer to support research towards degree completion.

Graduate Research/Teaching Assistantships are awarded in some of the science departments offering graduate work. Research/Teaching Assistants may be appointed for nine or 12 months with stipends generally ranging from \$15,000 to \$23,000 and a tuition scholarship (see limits in Teaching Assistantship description). Approximately 20 hours of research and teaching effort per week is required of Graduate Teaching and Research/Teaching Assistants, and Assistants must expect that more than one academic year will be necessary to complete the requirements for the master's degree. If a Teaching or Research/Teaching Assistant is a candidate for the doctoral degree, at least four calendar years must be anticipated for completion of the academic program. Generally, assistants are appointed in the departments in which they are doing graduate work.

## Student and Campus Life Graduate Assistantships

Within the Division of Student Affairs, a number of assistantships are made available annually. Each assistantship provides graduate students a professional opportunity to support and develop the Division's goals and activities in its work with students. The candidates selected to fill these positions are assigned administrative and advisory positions in the residence halls, departments within the Division, and in other student services areas. Graduate students who hold Student Affairs Assistantships will gain valuable experience in the areas of group advising, Administration, personnel advising, and educational programming. Such positions are open to either married or single students who have been accepted for graduate work in any of the academic programs of the University. The majority of graduate students are enrolled in the Higher Education and Student Affairs graduate program. Selection is based upon academic record, character, recommendations, and quality of related experiences. A personal interview is required. Requests for applications and additional information should be addressed to Student and Campus Life Graduate Assistantships, UVM, Nicholson House, 41 South Prospect Street, Burlington, VT 05405-0094. Questions can also be directed via e-mail: [DeanofStudents@uvm.edu](mailto:DeanofStudents@uvm.edu). Completed applications must be received by January 1 for full consideration. Applications received after January 1 will be considered only for unanticipated openings. Appointments will be announced on or about April 1.

## Graduate Assistantships

Graduate Assistantships are generally available when a faculty member receives a grant from a source external to the University. The range of payments for 12-month appointments for 2008-2009 is \$21,500 to \$30,000; assistants on 9-month appointments receive proportionately reduced payments. Part of the salary is for tuition at the in-state rate with a maximum enrollment of ten credit hours each semester and nine credit hours during the summer session (12-month appointments).

Approximately 20 hours of effort per week on the project is required of graduate assistants, and more than one academic year will be necessary for the completion of the master's degree, and more for completion of the doctoral degree. For information on the availability of assistantships, contact the chairperson of the department.

### **Graduate Fellowships/Traineeships**

Graduate Fellowships/Traineeships are available in some departments through grants from various state and federal agencies. Fellowships/Traineeships generally include both a stipend and tuition scholarship.

### **UVM Opportunity Fellowships**

The Graduate Dean's Office administers fellowships to increase campus diversity in graduate programs. Opportunity Fellowships, which are generally funded at a level equivalent to Graduate Teaching Assistantships, are available to students in all UVM graduate programs. Please indicate interest in these fellowships on the application form.

### **Summer Research Stipends**

To promote graduate scholarship and to assist students in completing their programs in a timely and successful manner, the Graduate College provides a limited number of summer research stipends to graduate students. The stipends, awarded competitively, are designed to help students devote the summer to their dissertation, thesis, or final research project. Details about the stipends are available at the Graduate College Web site, <http://www.uvm.edu/~gradcoll/> .

### **Travel Mini-Grants**

The Graduate College provides mini-travel grants to help students underwrite the cost of attending conferences where they will present papers or posters based upon their research. The Mini-Grants Program is administered by the Graduate Student Senate. Funds are awarded three times per year. The student's home department must provide a match. Further information on the Mini-Grants Program is available at the Graduate College Web site, <http://www.uvm.edu/~gradcoll/> .

### **Other Fellowships**

Fellowships established by private donors are available periodically in some departments.

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### Financial Aid for Graduate Students

Limited amounts of need based financial aid are available for students enrolled in the UVM Graduate College. Much of the available aid consists of low interest student loans, repayable after graduation or withdrawal from the University. Those students with financial need who do not receive supplemental assistance in the form of assistantships or fellowships may find that their need based financial assistance is insufficient to meet their entire cost of attendance. It is important, therefore, for graduate students to fully assess their costs and resources before making a final decision about attendance.

The University provides, through the Office of Financial Aid, long-term loans and /or work study jobs for students based upon demonstrated need remaining after all assistantships, fellowships, traineeships, tuition grants, and any other sources of financial assistance are considered.

1. U.S. citizenship (or permanent resident status).
2. At least half-time enrollment (6 credit hours).
3. Financial need as determined by federal eligibility requirements.

#### Application for Financial Aid

Application for financial aid should be made as soon after application for admission to the University as possible. In order to apply for aid, graduate students are required to complete the Free Application for Federal Student Aid (FAFSA). The priority deadline for filing a FAFSA is March 1 of each year. Applications completed after that date will be reviewed according to the date of submission. The UVM Title IV School Code is 003696. This number is required on the FAFSA. Applicants may also be asked to provide copies of prior year income tax returns and other supporting documentation by the financial aid office. If you are starting your graduate program in the summer, it is important for you to contact your service team to determine what FAFSA you need to complete for summer

financial aid. After admission to the University and upon submission of required documentation, applicants will be notified of financial aid eligibility.

### For Additional Information

More detailed information about the financial aid opportunities and procedures may be obtained from the UVM Office of Student Financial Services located in 221 Waterman Building:

Phone: 802-656-5700 ☐

Fax: 802-656-4076 ☐

[studentfinancialservices@uvm.edu](mailto:studentfinancialservices@uvm.edu)

Please visit the [Student Financial Services Web site](#) ☐ for additional information on financial aid.

### 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 [Tuition Refund Schedule](#). However the course will remain on the student's record. Financial aid will be reviewed and adjusted for any changes to the course load.

### Satisfactory Academic Progress for Financial Aid Recipients

In order to maintain eligibility for 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 per cent 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.

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 financial aid will be withdrawn until the student has met the required standard.

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 the Office of Financial Aid. The decision to withhold aid eligibility will be reviewed by an appeals committee for



circumstances which warrant special consideration. Such circumstances may include but are not limited to medical emergencies or family crises which resulted in the student's not meeting the stated requirements.



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#### Federal Family Education Loan Programs

##### Federal Stafford Loan Program

The Federal Stafford Loan Program is available for needy graduate students. Graduate students are eligible to borrow a maximum \$8,500 per year, depending upon the level of their need. (The balance of the \$8,500 may be borrowed under the Unsubsidized program listed below.) A cumulative loan limit of \$65,500 is allowed for a combination of graduate and undergraduate Stafford Loan borrowing. Federal Stafford Loans are interest free while the student is enrolled at least half-time in a degree program. Thereafter, the interest rate is fixed at 6.80 per cent; repayment begins six months after leaving school or reducing enrollment to less than half-time.

##### Federal Unsubsidized Stafford Loan Program

The Federal Unsubsidized Stafford Loan Program provides loan funding up to a maximum of \$18,500 per year (less any Federal Stafford subsidized loan listed above). There is a cumulative total of \$73,000 (including any undergraduate borrowing). Payments on the loan principal may be deferred until after graduation. Repayment of interest (the rate is fixed at 6.80 per cent) may be made on a quarterly basis to the lender or may be capitalized and added to the principal.

##### Federal Perkins Loan Program

A very limited number of Perkins Student Loans are available for graduate students and are administered by the University of Vermont. The amount of the loan will depend upon available funds. Federal Perkins loans are interest free while the student is enrolled at least half-time in a degree program. The interest rate thereafter is 5 per cent and

repayment begins nine months after leaving school or reducing enrollment to less than half-time.

### **Graduate/Professional PLUS Loan Program**

Graduate/Professional PLUS loans are an option if you are enrolled at least half-time in a graduate or professional program. You can borrow up to the total cost of your education, minus any other aid for which you are eligible. To qualify, you must meet the requirements for federal financial aid. You must also complete the PLUS Master Promissory Note (MPN). Loans are disbursed in two or more payments. The interest rate is fixed at 8.5% and interest begins to accrue immediately. Repayment starts within 60 days of the loan's last disbursement for the school year, though Graduate/Professional borrowers may be eligible for in-school deferments.

### **Job Programs**

#### **Federal Work-Study Program**

A limited amount of Federal Work-Study funding is available for needy graduate students. The Federal Work-Study Program provides financial assistance through employment with both on-campus and with off-campus agencies which have agreements with UVM. Students have the opportunity to select jobs in their field of study, interest and/or skills. The Work-Study Coordinator is located in Career Services.

The Career Services office also assists students in locating other part-time job opportunities. Student should contact Career Services, E Building, Living/Learning Complex. The phone number is (802)-656-3450.

### **Veterans Benefits**

The University provides support and information 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.

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.

### **New England Regional Student Program**

An opportunity for qualified legal residents of New England states to enroll at reduced rates for some programs which are not offered by the home state university but are offered in another New England state is available under an arrangement entitled the New England Regional Student Program. A list of the available graduate programs is listed in the "Apple Book" and may be examined in the Graduate College Admissions Office or obtained from the New England Board of Higher Education, 45 Temple Place, Boston,

MA 02111.

Applicants must indicate clearly, both in their initial inquiries and on their application forms, that they are seeking admission under the terms of the New England Regional Student Program. In cases where the program of study is clearly unique or distinctive to the out-of-state institution, the UVM Graduate College Dean's Office will certify directly the applicant's eligibility to apply under the New England Regional Student Program. In cases where an apparently similar program of study is available at both institutions involved, the graduate deans of the two institutions will determine whether regional student status is appropriate.

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### GRADNET

GRADNET is the electronic forum where graduate students, faculty, and staff discuss issues, research topics, graduate student life, and announcements that pertain to the graduate community. Information on subscribing is provided at Graduate Student Orientation and at the Graduate College. For more information, visit the [Graduate College Web Site](#) .

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### Graduate Admission Tests

Information about admission tests is available from the [GRE web site](#)  or from the Educational Testing Service, P.O. Box 6103, Princeton, NJ 08541-6103 for the Graduate Record Examinations Test, or from the [GMAT Customer Service Web site](#)  for the Graduate Management Admission Test. Those considering application to a graduate program must remember that it can take four to six weeks for the Graduate College to receive the results of test scores.

Applicants must consult the listing of the program to which they are applying to determine exactly which test scores are required. Students who are seeking financial aid in the form of assistantships or fellowships are required to submit GRE or GMAT scores. Scores must be from tests taken within five years of the date of application.

If your native or first language is not English, you must submit scores from the Test of English as a Foreign Language (TOEFL). Minimum acceptable scores for admission to the Graduate College at the University of Vermont - Internet based = 80, Computer based = 213, and Paper based = 550. Minimum acceptable scores for a student receiving funding at the University of Vermont - Internet based = 100, Computer based = 250 and Paper based = 600. Institution Code for test scores for UVM is 3920. Questions about the TOEFL examination may be directed to TOEFL/TSE Services, ETS, Box 6154, Princeton, NJ 08541-6154; telephone, 609-771-7100.

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### Honors and Awards

#### Graduate Teaching Assistant Award

Each year, a number of graduate students who serve as Graduate Teaching Assistant are recognized for their teaching excellence; one of those is named Graduate Teaching Assistant of the Year. The 2008 recipient of the Graduate Teaching Assistant of the Year Award is Derek Strong, Anatomy and Neurobiology.

#### UVM Student Research Conference

In the spring each year, the Graduate College recognizes formally the research undertaken by graduate students. A full day is devoted to talks and poster presentations by students from all of the disciplines. The entire University community has the opportunity to see and hear about the high quality research that graduate students conduct.

#### University Scholar Awards

The University Scholar Awards program was established by the Graduate College to recognize outstanding and sustained contributions of University faculty to research and scholarship in their disciplines. Each year, four faculty members are selected for this award. For the academic year 2008-2009 the recipients are Jeffrey Dinitz,, Mathematics and Statistics; Marjorie Lipson, Elementary Education; Benjamin Littenberg, Medicine; Robert Rodgers, Classical Languages and Literature.

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### Leave of Absence for Graduate Students

A leave of absence suspends the time limit for degree completion for the duration of the leave. It does not suspend the time limit for the completion of individual courses.

#### Eligibility

Only students who have not enrolled for all course credit requirements may request a leave of absence. The maximum leave is one year. Students who have enrolled for all required credits but have not completed all degree requirements, such as passing the comprehensive examination or completing a thesis or dissertation, are not eligible for a leave of absence but must register for Continuous Registration.

#### Procedure

Students request a leave of absence from their program director or chairperson. If the program approves the request, the chairperson or director completes the Leave of Absence form available on the [Graduate College Web site](#)  and forwards it to the Dean for approval. A leave of absence does not take effect until after approval has been received from both the program chairperson or director and the Dean of the Graduate College.

Any student who does not enroll following termination of a leave of absence will be deactivated from the Graduate College.

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### Rights and Responsibilities of Graduate Students

Students have the responsibility to familiarize themselves with the policies and procedures of the University, the Graduate College, and their department or program. Students are primarily responsible for knowing the degree requirements and following the policies that govern their academic program. If students have questions or concerns about individual policies and procedures, they may contact their advisor, their program or department chairperson, or the Graduate College Office, which is the ultimate arbiter of policies and procedures.

University policies and those of the Graduate College are contained in [The Cat's Tale](#)  and the Catalogue, respectively. In cases of conflict, the Graduate Catalogue supersedes academic policies in The Cat's Tale.

#### Advising

Unless a department or program employs an alternative approved procedure, each graduate student will have a faculty advisor to advise on matters of course selection, research direction, and overall guidance from admission to the Graduate College to completion of degree requirements. The initial advisor is assigned by the Department Chairperson or the Graduate Program Coordinator prior to or shortly after enrolling in the Graduate College. If an initial advisor is not assigned by either of the above parties within two weeks after the initiation of course work in a given graduate program, the student is encouraged to contact the Graduate College. Many times, one faculty member serves as an initial advisor for several students, and the advisor may change as the student's program and research interests develop.

Another common model, especially in doctoral programs, is a Studies Committee comprised of faculty who share a student's scholarly and professional interests. The committee meets regularly to discuss the student's progress and consult with the student



regarding academic development.

While there are a variety of advising models, in each case students have the right to consult regularly with their academic advisor or studies committee.

### **Professional Ethics and Academic Honesty**

Graduate students are required to adhere to the highest standards of professionalism as students, researchers, and teachers, and the University, in order to encourage a positive atmosphere in all phases of academic learning, teaching and research, created specific guidelines and policies regarding academic honesty. They are outlined in The Cat's Tale and are also available from the Office of the Provost.

### **Sexual Harassment**

No member of the University community may sexually harass another. Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment when:

- a. submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or education;
- b. submission to or rejection of such conduct by an individual is used as the basis for academic or employment decisions affecting that individual; or
- c. such conduct has the purpose or effect of substantially interfering with an individual's academic or professional performance or creating an intimidating, hostile, or offensive employment, educational, or living environment.

Any University of Vermont student having a complaint of sexual harassment should notify the Office of Affirmative Action and Equal Opportunity; students may also contact the Vice President for Student Affairs. If a student has personal concerns regarding sexual harassment, confidential counseling can be arranged through the Counseling and Testing Center. Policies and procedures governing complaints of sexual harassment are available in the office of each dean, department head, and chairperson as well as in the Bailey/Howe Library.

### **Discrimination**

The University community will not tolerate discrimination. Information and resources may be found at [\*\*The Affirmative Action and Equal Opportunity Office\*\*](#) website.

### **Appeals**

The Graduate College is ultimately responsible for grievances regarding policies and procedures related to graduate education. A grievance properly begins within the student's department by an appeal to a program director or chair. If this does not resolve the grievance, the student can present the grievance in writing to the dean of the unit in which the program resides, and thereafter to the Dean of the Graduate College. Grievances must state clearly and precisely the basis for appeal and provide supporting

evidence that a student's rights have been jeopardized. The Dean may recommend that the grievance be reviewed by the Graduate College Executive Committee. The Dean is the final arbiter of Graduate College regulations. Students retain the right to appeal the Dean's decision to the Provost. Specifically excluded are grievances that contest grades on grounds other than due process, or grading that is arbitrary and capricious.

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### Sponsored and Institutional Research for Graduate Students

The University received over \$110 million in sponsored funding, over \$80 million of this total for research, during fiscal year 2007. UVM ranks nationally as one of the 100 leading universities in terms of federal grant support. In addition, there are a substantial number of faculty research projects supported, in part, by institutional research committees. Graduate students frequently serve as integral parts of faculty research projects in a wide range of disciplines.

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### Support Services for Graduate Students

The Graduate Student Senate (GSS) , comprised of graduate student representatives from various graduate programs, provides a forum for discussion of graduate student issues and assists the Dean and the Executive Committee in matters affecting graduate students. Issues considered by GSS include academic matters, professional development and student life. GSS sponsors occasional social events and conducts a mini-grants program to support, in part, expenses associated with student travel for professional purposes.

#### Center for Cultural Pluralism

The Center coordinates efforts to create a campus culture based on equality, respect for all members of our community, and appreciation of diversity. The Center is a highly visible, tangible symbol of commitment to inclusiveness and multicultural education. It provides a central meeting place for individuals and groups working on diversity issues and facilitates interaction and cooperation among students, faculty, and staff, and with members of the larger Burlington community as well.

The Center for Cultural Pluralism  is located in Allen House on the University Green at the corner of Main Street and South Prospect, (802) 656-8833. Visitors are welcome.

#### ALANA Student Center

The primary goal of the Center is to help meet the academic, cultural, social, and emotional needs of ALANA (African, Latino/a, Asian, and Native American) students by providing resources and support. The Center offers information and programs to promote a just multiracial campus climate. Several ALANA student groups (Alianza Latina, Asian American Student Union, Black Student Union, South Asian Sangam, and Urban Flava) meet at the Center. The Center has a small computer lab, meeting/study space, kitchen,

and television lounge.

The ALANA Student Center  is located in Blundell House on Redstone Campus, (802) 656-3819.

### Career Services

Career Services staff assist first year students through graduate students from all majors. They provide information and individual counseling on all aspects of career preparation and job search.

Career Services  is located at Living/Learning Center, E Building, 656-3450.  
Email:career@uvm.edu. Hours: Monday through Friday, 8:00 a.m. to 4:30 p.m.

### Center for Health and Wellbeing

The Center for Health and Wellbeing  is available to all students for primary and preventive health care (including: Medical, Women's and Sports Therapy Clinics; mental health counseling, nutrition counseling, psychiatry, drug and alcohol services, health promotion and education). Most of these services are covered by the health 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.

The Burlington area has a large and sophisticated medical community of which the Center for Health and Wellbeing is a part. Students requiring consultations are referred to specialists in the area. When necessary, hospitalization is usually arranged at the Fletcher Allen Hospital, a teaching hospital located on the edge of the main campus. Note: The University Health Center (UHC) is not the UVM Student Health/Medical Clinic (CHWB).

The University also 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, and all international students, will be required to purchase the University sponsored plan.

The Counseling Center is a campus resource which provides confidential counseling, consulting and educational outreach programs. Many graduate students consult the staff regarding academic stress, relationships, mental health issues and future planning.

The Counseling Center  is located on the corner of Main St. and So. Williams. Hours are from 8:00-4:30, Mon-Tue, 8:00-7:00, Wed-Thu, and 8:00-4:30, Fri, during the academic year and 8:00-4:30 during summer. The Counseling Center is part of the Center for Health and Wellbeing and is free to students who have paid the health fee or are registered for six credits or more.

### Services for Students with Disabilities

Services and accommodations for students with disabilities are coordinated by three

offices: [ACCESS](#)  (Accommodation, Consultation, Collaboration & Educational Support Services), certifies and coordinates services for students with physical disabilities, learning disabilities, and attention deficit disorders; the Counseling Center certifies and coordinates services for students with emotional disabilities; the Center for Health and Wellbeing certifies and coordinates services for students with ongoing medical conditions. Services to equalize opportunities in the classroom and course accommodations are arranged through these offices. Students are encouraged to inform the staff of the appropriate certifying office of any needed services or accommodations at least two weeks in advance of each semester. Current and comprehensive documentation of disability will be required.

The [ACCESS Office](#) , A170 Living/Learning Center, 656-7753, TTY 656-3865. The Counseling Center, 146 So. Williams St., 656-3340. Center for Health and Wellbeing, 425 Pearl St., 656-3350. ADA/504 Compliance, 428 Waterman, 656-8280.

### **Graduate College Workshops**

Each year the Graduate College and the Graduate Student Senate sponsor workshops designed to support the professional development of graduate students. Examples of topics considered include teaching techniques and student learning, personal writing and evaluating student writing, grant writing, developing web pages, mentoring, ethical conduct of research, and more.

### **Exercise and Wellness**

The University's extensive physical education facilities are available for recreational use by faculty, staff, and students during hours not devoted to specific instruction. Swimming, handball, skating, tennis, squash, and many other individual and group activities are available for interested participants.

In addition to the physical education facilities, the University has an active Outing Club. There are many opportunities in Vermont for participation on either an organized or informal level in such activities as hiking, camping, sailing, swimming, skiing, running, bicycling, and other outdoor activities.

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### Time Limits for Graduate Degree Completion

#### Master's Degree

Status	Time Limit
Full-Time Student	3 years
Part-Time Student	5 years

#### Doctoral Degree

Status	Time Limit
All Students	9 years

Individual departments may set deadlines within these time limits.



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### Transfer Credit and Credit by Examination for Graduate Students

A limited number of graduate course credits acquired elsewhere, at UVM prior to admission to a graduate program, or by credit by examination may be included as part of a student's program of study, with approval of the program faculty and the Dean of the Graduate College. Credit by examination is earned by arranging through a program faculty member to take an examination that tests the student's skills and knowledge in a particular UVM course appropriate for inclusion in the student's degree program.

**If credit is transferred, only the credit is transferred, not the grade.**

Graduate Credit earned at UVM after completion of the bachelor's degree but prior to admission to a graduate program is transfer credit and is subject to the requirements and limits that follow.

*Approval of credit:* Approval of credit is recommended by the graduate program and approved by the Graduate College based on the specific program requirements described in the Graduate College Catalogue, as well as (1) the number of credits requested, (2) the appropriateness of credit for inclusion in the degree program, and (3) the currency of the credit. These criteria are described below. Any exceptions must be approved by the program faculty and the Dean of the Graduate College.

*Number of credits:* Master's degree and Doctor of Education students are allowed nine hours of transfer credit, and/or credit by examination, and an additional six credits acquired from appropriate courses taken at UVM prior to admission to a degree program may also be transferred; Doctor of Philosophy students are allowed 24 credits, and an additional six credits acquired from appropriate courses taken at UVM. This means that all Master's students take at least 21 credits at The University of Vermont (at least 15 after admission); Doctor of Philosophy at least 51 credits (at least 45 after admission);



and Doctor of Education at least 47 credits (at least 41 after admission). For Master's programs that require more than 30 credits, program faculty may, in individual cases, recommend more transfer credits. In all cases, students must take at least one half of their degree credits at The University of Vermont after admission and adhere to all requirements stipulated by the graduate program.

*Appropriateness of credit:* Transfer credit and credit by examination must be approved by the program faculty as appropriate for inclusion as part of the student's degree requirements. Credit cannot be awarded for (1) courses taken prior to completion of an undergraduate degree program, (2) courses that would not receive graduate credit if taken at The University of Vermont, (3) courses with a grade lower than B (3.00), (4) thesis or dissertation research credits received at another institution, and (5) credit by examination given by another institution.

*Currency of credit:* Transfer credit and credit by examination must be taken within seven years of completion of the master's degree and within nine years of completion of the doctoral degree. Students wishing to apply for readmission to a program after deactivation must demonstrate currency of knowledge in the field of study to which they are applying. Currency of knowledge must be formally evaluated by the program faculty. In addition, the returning student must complete a program of study including at least two courses in the current program.

### **Concurrent Master's and Doctor of Philosophy Credit**

Up to 30 hours of course work for which graduate credit is earned at UVM in a master's degree program, whether a master's degree is received or not, may be applied toward a Ph. D. at UVM, provided that the credit is appropriate for the Ph. D. program. No provision is made for a person to employ the same credit to satisfy two master's degrees at The University of Vermont.

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### Tuition and Fees for Graduate Students

The tuition and fee charges listed here are for 2008-09 only and are subject to change in future years.

#### Application Fee

The application fee is \$40 for the on-line applications. All paper applications for admission must be accompanied by a \$55 application fee. This fee is nonrefundable. Paper applications will not be accepted after July 1, 2007.

#### Tuition

Rates for the 2008-09 academic year are as follows:

For Vermont residents, \$460 per credit hour; \$5,524 flat rate for 12 credits and \$460 per credit in excess of 12 credits. For out-of-state students, \$1,162 per credit hour; \$13,943 flat rate for 12 credits and \$1,162 per credit in excess of 12 credits.

The lower rates for Vermont residents are made possible by a subvention to the university from the state of Vermont.

#### Continuous Registration Fee: GRAD 900

A fee of \$100 per semester is charged each graduate student who has enrolled for all credits required in the degree program but who has not completed all degree requirements (e.g. comprehensive examination, thesis defense) in order to maintain continuous enrollment. Students who have not cleared grades of I or XC, but who have enrolled for all required course work must pay this fee.

#### Comprehensive Fee

Based on the number of credits enrolled per semester, Students pay a Comprehensive Fee each semester according to the following schedule: 1 credit - \$10, 2 credits - \$20, 3 credits - \$30, 4 credits - \$40, 5 credits - \$350, 6 credits - \$390, 7 credits - \$440, 8 credits - \$488, 9-11 credits - \$534, 12+ credits - \$808.

### **Student Health Fee**

A health fee is included in the full-time Comprehensive Fee for students enrolled in more than 12 credits. Students enrolled for fewer than 12 credit hours are eligible for University Health Services by paying a health fee of \$263.50 per semester.

### **Student Accident and Sickness Insurance**

Through an arrangement with a commercial insurance company, students are able to procure health insurance which is designed to provide coverage for services beyond those provided by the Center for Health and Wellbeing. There is an additional charge for this extended coverage beyond the student health fee. The 2008-09 cost for one year's coverage for single students is estimated at \$1,895. Married students may obtain coverage for their spouse and children. Further details are available from the Center for Health and Wellbeing. To participate in this insurance, the student health fee must be paid each semester as well as the additional insurance premium.

### **Credit by Examination**

A student may, under certain circumstances, receive credit for a course by taking an examination. A fee of \$50 per credit is charged for each examination. Any credit earned by examination applies to the total number of credit hours allowed for validation and transfer. Appropriate forms to initiate the process of credit by examination are available in the Registrar's Office.

### **Reactivation Fee**

Reactivation following withdrawal without an approved leave of absence requires payment of a \$25 reactivation fee.

### **Bill Adjustment**

A refund of 100 percent will be processed for enrollment reduction effected prior to the end of the second week of classes, a refund of 50 percent will be allowed for reductions during the third week of classes; a refund of 25 percent during the fourth week; no refund will be processed thereafter. At the end of the semester, an audit will be made of each student's record. If the audit reveals that total credit hour enrollment is greater than at the end of the specified drop period, the student will be financially liable for the total enrollment. Students will be charged for all hours as specified in policy statements regarding tuition.

### **Withdrawals**

A student may voluntarily withdraw from the University by notifying the Graduate Dean and the Registrar. The student will receive a refund in accordance with the bill adjustment policy. Date and time of withdrawal normally will be the date the withdrawal notice is received by the Registrar.

### **Dismissal**

If a student is suspended or dismissed, a refund will be processed according to the bill adjustment schedule.

### **Death**

In case of death of the student, tuition which has been paid for the semester during which the death occurs will be refunded fully.

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### Withdrawal from a Graduate Degree Program

Students must notify the Graduate Dean's Office in writing of their intent to withdraw from a degree program. However, if a student does not register at The University of Vermont for course work, thesis or dissertation research, or continuous registration for a period of more than one calendar year, and does not notify the department or the Graduate Dean's Office, in writing, the student will be considered to have withdrawn from the degree program. It will be necessary to apply for reactivation and pay a reactivation fee if the student wishes to resume the graduate program.

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<b>X</b>	<b>Y</b>	<b>Z</b>				

- [Abrams, Sarah Elise](#) - Associate Dean of the College of Nursing and Health Sciences, Associate Professor of Nursing
- [Achenbach, Thomas Max](#) - Professor of Psychiatry
- [Acquistio, Joseph T.](#) - Associate Professor of Romance Languages and Linguistics, Director of the Global Village Residential Learning Community
- [Ades, Philip A.](#) - Professor of Medicine - Cardiology
- [Aiken, Judith A.](#) - Associate Professor of Leadership and Developmental Sciences
- [Aleong, John](#) - Professor of Plant and Soil Science
- [Ali, Saleem Hassan](#) - Professor in the Rubenstein School of Environment and Natural Resources
- [Allen III, Gilman B.](#) - Associate Professor of Medicine - Pulmonary
- [Althoff, Robert](#) - Assistant Professor of Psychology, Associate Professor of Pediatrics, Associate Professor of Psychiatry
- [Anathy, Vikas](#) - Assistant Professor of Pathology
- [Archdeacon, Dan Steven](#) - Professor of Mathematics and Statistics

- [Arel, Barbara M.](#) - Associate Professor of Business Administration
- [Aronsson, David Douglas](#) - Professor of Orthopaedics and Rehabilitation, Professor of Pediatrics
- [Arslan, Abdullah Necip](#) -
- [Ashikaga, Takamaru](#) - Director of Medical Biosstatistics, Professor of Mathematics and Statistics
- [Aultman-Hall, Lisa M.](#) - Professor of Engineering, Professor of Transportation Research



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- [Bailly, Jacques A.](#) - Associate Professor of Classics
- [Baker, Daniel H.](#) - Assistant Professor of Community Development and Applied Economics
- [Ballif, Bryan A.](#) - Associate Professor of Biology
- [Barlow, John W.](#) - Assistant Professor of Animal Science
- [Barnaby, Andrew Thomas](#) - Associate Professor of English
- [Barrington, David Stanley](#) - Chairperson Acting of Plant Biology, Professor of Plant Biology
- [Bartlett, Robert V](#) - Chairperson of Political Science, Professor in the Rubenstein School of Environment and Natural Resources, Professor of Political Science
- [Baruth, Philip Edward](#) - Professor of English
- [Bateman, Erik Alan](#) - Research Associate Professor of Microbiology and Molecular Genetics
- [Bates, Jason H. T.](#) - Interim Director of the School of Engineering, Professor of Medicine - Pulmonary, Research Professor of Molecular Physiology and

Biophysics

- [Beatson, Jean E.](#) - Clinical Assistant Professor of Nursing
- [Beaudoin, Cathy A.](#) - Assistant Professor of Business Administration
- [Beckage, Brian](#) - Associate Professor of Plant Biology
- [Beer, Caroline Charlotte](#) - Associate Professor of Political Science
- [Belliveau, Cynthia L](#) - Dean of Continuing Education, Research Assistant Professor of Nutrition and Food Sciences
- [Benson, Daisy S.](#) - Library Associate Professor of Bailey Howe - Information and Instruction
- [Bentil, Daniel E.](#) - Associate Professor of Mathematics and Statistics, Associate Professor of Molecular Physiology and Biophysics
- [Berger, Christopher Lewis](#) - Assistant Professor of Biochemistry, Associate Professor of Molecular Physiology and Biophysics, Director of COM Graduate Education
- [Berlin, Linda](#) - Director of Extension - Sustainable Agriculture Center, Extension Assistant Professor of Nutrition and Food Sciences, Lecturer of Nutrition and Food Sciences
- [Bernard, Emily E.](#) - Associate Professor of English
- [Bernstein, Ira Mark](#) - Chairperson of Obstetrics, Gynecology and Reproductive Sciences, Professor of Obstetrics and Gynecology - Maternal Fetal, Senior Associate Dean of the College of Medicine for Research
- [Beynon, Bruce David](#) - Professor of Engineering, Professor of Orthopaedics and Rehabilitation
- [Bierman, Paul Robert](#) - Professor of Geology, Professor of the Rubenstein School of Environment and Natural Resources
- [Bishop, Penny A.](#) - Professor of Education
- [Bomblies, Arne](#) - Assistant Professor of Engineering
- [Bond, Jeffrey P.](#) - Professor of Microbiology and Molecular Genetics
- [Bond, Lynne Anne](#) - Professor of Psychology of the Psychology Department
- [Bongard, Joshua C.](#) - Associate Professor of Computer Science
- [Bonifield, Carolyn Marie](#) - Associate Professor of Business Administration [Bonney, Elizabeth Ann](#) - Professor of Obstetrics and Gynecology - General [Bose, Pablo Shiladitya](#) - Assistant Professor of Geography
- [Bosek, Marcia Sue](#) - Associate Professor of Nursing
- [Bosworth, Sidney Carl](#) - Extension Associate Professor of Plant and Soil Science
- [Botten, Jason W.](#) - Assistant Professor of Medicine - Immunobiology, Assistant Professor of Microbiology and Molecular Genetics
- [Bottoms, Gregory Todd](#) - Professor of English
- [Bouchard, Beth Ann](#) - Assistant Professor of Biochemistry
- [Bouchey, Heather Ann](#) - Assistant Professor of Psychology
- [Boumans, Roelof M.](#) - Lecturer I in the Rubenstein School of Environment and Natural Resources
- [Bouton, Mark Earhart](#) - Professor of Psychology
- [Bowden, William Breck](#) - Director of Water Resources and Lake Studies Center, Professor in the Rubenstein School of Environment and Natural Resources
- [Boyson, Jonathan E.](#) - Associate Professor of Surgery - Transplant

- [Braas, Karen Marie](#) - Research Associate Professor of Neurological Sciences
- [Brayden, Joseph Elliott](#) - Professor of Pharmacology
- [Brennan, Vicki L.](#) - Assistant Professor of Religion
- [Brewer, Matthias](#) - Associate Professor of chemistry
- [Brock, David W.](#) - Associate Professor of Rehabilitation and Movement Science
- [Brody, Alison Kay](#) - Professor of Biology
- [Brown, Dona L.](#) - Professor of History
- [Brummel-Ziedins, Kathleen E.](#) - Associate Professor of Biochemistry
- [Buchanan, Andrew N.](#) - Lecturer of History
- [Buck-Rolland, Carol L.](#) - Clinical Associate Professor of Nursing
- [Budd, Ralph Charles](#) - Professor of Medicine - Immunobiology
- [Bunn, Janice Yanushka](#) - Research Associate Professor of Mathematics and Statistics
- [Burford, Gale E.](#) - Professor of Social Work
- [Burke, John Patrick](#) - Professor of Political Science
- [Burke, John MacKenzie](#) - Professor of Microbiology and Molecular Genetics
- [Burt, Keith B.](#) - Assistant Professor of Psychology
- [Butenas, Saulius](#) - Associate Professor of Biochemistry
- [Buzas, Jeff Sandor](#) - Associate Professor of Mathematics and Statistics, Director of the Statistics Program

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- [Cahan, Sara Irene](#) - Associate Professor of Biology, Co-Director of Integrated Biological Science
- [Callas, Peter W.](#) - Research Associate Professor of Mathematics and Statistics
- [Cannizzaro, Michael S.](#) - Associate Professor of Communication Sciences, Director of Communication Sciences
- [Carmody, Pdraig R.](#) - Adjunct Assistant Professor of Geography
- [Carney, Jan Kirk](#) - Clinical Professor of Medicine, Professor of Medicine - Pulmonary
- [Carr, Frances Eileen](#) - Professor of Pharmacology
- [Carr, Jacqueline B](#) - Associate Professor of History
- [Carr, Jeanine M.](#) - Associate Professor of Nursing
- [Case, Martin Ashley](#) - Assistant Professor of chemistry
- [Cassen, Flora](#) - Assistant Professor of History
- [Casson, Peter R.](#) - Professor of Obstetrics and Gynecology - Reproductive Endocrinology and Infertility

- Cats-Baril, William Lawrence - Associate Professor of Business Administration, Director of the Computerized Expert Systems Applications and Research (CESAR) group
- Ceroni, Marta - Lecturer I of Plant Biology
- Chan, Sin-Yee - Associate Professor of Philosophy
- Chase, Lisa Cheryl - Assistant Professor in the Rubenstein School of Environment and Natural Resources, Extension Associate Professor
- Chen, Elizabeth S. - Assistant Professor of Clinical and Translational Science, Assistant Professor of Computer Science, Assistant Professor of Medicine - General Internal, Associate Director of the Biomedical Informatics Unit of the Center for Clinical & Translational Science
- Chiang, Kevin C. - Professor of Business Administration
- Chiu, Angeline C. - Associate Professor of Classics
- Chu, Kelvin - Associate Professor of Physics
- Cipolla, Marilyn Jo - Professor of Neurological Sciences, Professor of Obstetrics & Gynecology, Professor of Pharmacology
- Clark, Anne L. - Professor of Religion
- Clougherty, Dennis Paul - Chairperson of Physics, Professor of Physics
- Coffey, Jean S. - Adjunct Assistant Professor of Pediatrics, Assistant Professor of Nursing
- Cohen, Judith Ann - Professor of Nursing
- Cole, Bernard F. - Professor of Mathematics and Statistics
- Colletti, Richard B. - Professor of Pediatrics - Gastroenterology
- Colley, Binta M. - Assistant Professor of Education
- Comerford, Susan Ann - Associate Professor of Social Work
- Connolly, Declan A. - Professor of Education
- Cooper, Sheldon Mark - Professor of Medicine - Rheumatology
- Cope, Meghan S - Chairperson of Geography, Professor of Geography
- Cornbrooks, Carson Justis - Associate Professor of Neurological Sciences
- Costanza, Robert - Professor of Environment and Natural Resources
- Crock, John Gordon - Associate Professor of Anthropology, Director Consulting Archaeology Program of the Anthropology Dept.
- Cushman, Mary - Professor of Medicine - Hematology Oncology, Professor of Pathology

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- [D'Amico, Michael A.](#) - Associate Professor of Pediatrics - Gastroenterology
- [Dale, Rosemary Louise](#) - Chairperson of Nursing, Clinical Professor of Nursing
- [Damon, Deborah H.](#) - Research Associate Professor of Pharmacology
- [Danforth, Christopher M.](#) - Associate Professor of Mathematics and Statistics
- [Danigelis, Nicholas Louis](#) - Professor of Sociology
- [Danks, Cecilia Marie](#) - Associate Professor in the Rubenstein School of Environment and Natural Resources
- [Dann, Heather M.](#) - Adjunct Assistant Professor of Animal Science
- [Darby, Heather Marie](#) - Adjunct Assistant Professor of Plant and Soil Science, Extension Associate Professor
- [Delaney, Terrence Patrick](#) - Associate Professor of Plant Biology
- [Delay, Eugene Raymond](#) - Associate Professor of Biology, Associate Professor of Psychology, Director of Undergraduate Neuroscience Program
- [Delay, Rona J.](#) - Associate Professor of Biology, Associate Professor of Neurological Sciences

- Deming, Paula B. - Assistant Professor of Pathology, Associate Professor of Medical Laboratory and Radiation Sciences, Director of Medical Laboratory Science Program
- Dempsey, Stephen Jeffrey - Associate Professor of Business Administration
- Dennis, Donald Forrest - Adjunct Associate Professor in the Rubenstein School of Environment and Natural Resources
- Deslandes, Paul Raymond - Associate Professor of History, Chairperson of the History Department
- DeWitt, Rocki-Lee - Professor of Business Administration
- Dewoolkar, Mandar M - Associate Professor of Engineering, Director of Civil and Environmental Engineering
- Diehl, Sean A. - Assistant Professor of Medicine - Infectious Disease
- Dinitz, Jeffrey Howard - Professor of Computer Science, Professor of Mathematics and Statistics
- Diouf, Moustapha - Associate Professor of Sociology
- Dittus, Kim L. - Assistant Professor of Medicine - Hematology Oncology
- Dodds, Peter S. - Associate Professor of Mathematics and Statistics
- Donnelly, Catherine Wright - Professor of Nutrition and Food Sciences
- Donovan, Therese M. - Research Associate Professor of Environment and Natural Resources
- Dostmann, Wolfgang R. G. - Professor of Molecular Physiology and Biophysics, Professor of Pharmacology
- Doublet, Sylvie - Director of Undergraduate Biochemistry, Professor of Microbiology and Molecular Genetics
- Drizo, Aleksandra - Lecturer I of Plant and Soil Science
- Druschel, Gregory K. - Adjunct Associate Professor of Geology
- Dubief, Yves C. - Associate Professor of Engineering
- Dumas, Julie Anna - Associate Professor of Psychiatry
- Dummit, David Steven - Professor of Mathematics and Statistics
- Dupigny-Giroux, Lesley-Ann - Associate Professor of Geography, Associate Professor of Geology
- Dutton, Richard W. - Adjunct Professor of Medicine

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- [Eckenstein, Felix](#) - Professor of Neurological Sciences, Professor of Neurological Sciences
- [Elder, Glen Strauch](#) -
- [Emery, Marla](#) - Adjunct Assistant Professor of Geography
- [Emery, Meaghan Elizabeth](#) - Associate Professor of Romance Languages and Linguistics
- [Eppstein, Margaret Jean](#) - Associate Professor of Biology, Associate Professor of Computer Science, Chairperson of Computer Science
- [Ergene, Bogac A.](#) - Associate Professor of History
- [Erickson, Jon D.](#) - Interim Dean of the Rubenstein School of Environment and Natural Resources, Professor in the Rubenstein School of Environment and Natural Resources
- [Escaja, Tina Fernandez](#) - Professor of Romance Languages and Linguistics
- [Esselstrom, Erik W.](#) - Associate Professor of History
- [Evans, John Newton](#) - Professor of Molecular Physiology and Biophysics



- [Evans, Mark Francis](#) - Assistant Professor of Pathology
- [Everse, Stephen Jay](#) - Associate Professor of Biochemistry
- [Ewald, Alec C.](#) - Associate Professor of Political Science

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<a href="#">X</a>	<a href="#">Y</a>	<a href="#">Z</a>				

- [Falls, William A.](#) - Chairperson of Psychology, Professor of Psychology
- [Fanslow, Yolanda H.Chen](#) - Assistant Professor of Plant and Soil Science
- [Farley, Joshua C.](#) - Professor of Community Development and Applied Economics
- [Fenton, Elizabeth A.](#) - Associate Professor of English
- [Field, Sean Linscott](#) - Associate Professor of History
- [Finette, Barry Alan](#) - Associate Professor of Microbiology and Molecular Genetics, Professor of Pediatrics
- [Fletcher, Douglas G.](#) - Professor of Engineering
- [Fobare Erickson, Patricia Ann](#) - Senior Lecturer of Animal Science
- [Fondacaro, Karen Marie](#) - Clinical Professor of Psychology
- [Foote, Richard Martin](#) - Professor of Mathematics and Statistics
- [Forehand, Cynthia Jean](#) - Interim Dean of Graduate College, Professor of Biology, Professor of Neurological Sciences
- [Forehand, Rex L.](#) - Director of the Clinical Psychology Program, Professor of Psychology

- [Fothergill, Alice](#) - Associate Professor of Sociology
- [Fox, Kathryn Joan](#) - Associate Professor of Sociology
- [Francklyn, Christopher Steward](#) - Professor of Biochemistry, Professor of Microbiology and Molecular Genetics
- [Franklin, John C](#) - Associate Professor of Classics
- [Frankowski, Barbara Louise](#) - Professor of Pediatrics
- [Freeman, Kaley](#) - Assistant Professor of Pharmacology, Assistant Professor of Surgery
- [Frolik, Jeff L.](#) - Associate Professor of Engineering
- [Fukagawa, Naomi Kay](#) - Professor of Medicine - Gerontology Geriatrics
- [Furis, Madalina Ioana](#) - Associate Professor of Physics

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- [Galbraith, Richard A.](#) - Associate Dean of the College of Medicine - Patient-Oriented Research, Director of the Center for Clinical and Translational Science, Professor of Medicine - Clinical Pharmacology
- [Garavan, Hugh P.](#) - Associate Professor of Psychiatry, Associate Professor of Psychology
- [Gause III, Francis Gregory](#) - Professor of Political Science
- [Gedeon, Shirley Jean](#) - Associate Professor of Economics
- [Geroski, Anne M.](#) - Associate Professor of Leadership and Developmental Sciences
- [Gerstl-Pepin, Cynthia I.](#) - Associate Dean of the College of Education and Social Services, Professor of Leadership and Development Science
- [Giangreco, Michael Francis](#) - Professor of Education
- [Gibson, William Arch](#) - Professor of Economics
- [Gierzynski, Anthony Gerard](#) - Professor of Political Science
- [Gilmartin, Gregory Michael](#) - Associate Professor of Microbiology and Molecular

Genetics

- [Ginger, Clare A.](#) - Associate Professor in the Rubenstein School of Environment and Natural Resources, Director of the Natural Resources Program
- [Goldberg, Joel Michael](#) - Associate Dean of the College of Arts and Sciences, Associate Professor of chemistry
- [Golden, Kenneth Ivan](#) - Professor of Engineering, Professor of Mathematics and Statistics, Professor of Physics
- [Goldhaber, Jeanne D.](#) - Associate Professor of Education
- [Goodnight, Charles James](#) - Professor of Biology
- [Gordon, Robert James](#) - Professor of Anthropology
- [Gorman, Mark J.](#) - Professor of Neurological Sciences
- [Gorres, Josef H.](#) - Associate Professor of Plant and Soil Science
- [Gotelli, Nicholas James](#) - Professor of Biology
- [Gouli, Vladimir V.](#) - Research Assistant Professor of Plant and Soil Science
- [Grant, Richard J.](#) - Adjunct Professor of Animal Science
- [Grasso, Domenico](#) - Professor in the Honors College, Professor of Engineering
- [Green, John Thomas](#) - Associate Professor of Psychology
- [Greene, Elizabeth Ann](#) - Extension Professor of Animal Science
- [Griffin, Robert Stanley](#) - Professor of Leadership and Developmental Sciences
- [Gross, Kenneth Irwin](#) - Professor of Mathematics and Statistics
- [Grove, J. Morgan](#) - Adjunct Associate Professor of Environment and Natural Resources
- [Guber, Deborah Lynn](#) - Associate Professor of Political Science
- [Guitar, Barry Estill](#) - Director of Communication Sciences, Professor of Communication Sciences, Professor of Psychology
- [Guo, Ming Ruo](#) - Professor of Nutrition and Food Sciences
- [Gustafson, Melanie Susan](#) - Associate Professor of History
- [Gutman, Stanley T.](#) - Professor of English

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- [Hamel-Bissell, Brenda Pauline](#) - Professor of Nursing
- [Hammack, Sayamwong E](#) - Associate Professor of Psychology
- [Harder, Valerie Susan](#) - Assistant Professor of Psychiatry
- [Harp, Randall](#) - Assistant Professor of Philosophy
- [Harrington, Susan M.](#) - Director of Writing in the Disciplines, Professor of English
- [Harris, Jeanne M.](#) - Associate Professor of Plant Biology
- [Harvey-Berino, Jean Ruth](#) - Associate Professor of Medicine, Associate Professor of Medicine - General, Chairperson of Nutrition and Food Sciences, Professor of Nutrition and Food Sciences
- [Haynes, Laura M](#) - Adjunct Associate Professor of Medicine
- [Heading-Grant, Wanda Renarda](#) - Clinical Associate Professor of Social Work
- [Headrick, Randall L.](#) - Professor of Physics
- [Heil, Sarah H.](#) - Associate Professor of Psychiatry, Research Assistant Professor of Psychology
- [Heintz, Nicholas H.](#) - Director of the Cellular, Molecular and Biomedical Sciences

Graduate Program, Professor of Microbiology and Molecular Genetics, Professor of Pathology

- [Helms, Kenneth Ray](#) - Research Assistant Professor of Biology
- [Henry, Sharon Margaret](#) - Professor of Orthopaedics and Rehabilitation, Professor of Rehabilitation and Movement Science
- [Heppner, Thomas Jon](#) - Assistant Professor of Pharmacology
- [Hession, William Culliton](#) - Adjunct Associate Professor of Engineering
- [Higgins, Stephen Thomas](#) - Associate Chairperson of Psychiatry, Director of the Center for Substance Abuse Research and Treatment, Professor of Psychiatry
- [Hill, Jane E.](#) - Assistant Professor of Engineering
- [Hill-Eubanks, David Cameron](#) - Assistant Professor of Pharmacology
- [Hines, Paul D.](#) - Assistant Professor of Engineering
- [Hitt, Darren Lee](#) - Professor of Engineering
- [Holmen, Britt A.](#) - Associate Professor of Engineering
- [Holmes, Chris Elaine](#) - Associate Professor of Medicine - Hematology Oncology
- [Hondal, Robert J.](#) - Associate Professor of Biochemistry, Associate Professor of chemistry
- [Hood, Virginia Louise](#) - Professor of Medicine - Nephrology
- [Hovey, Russell Charles](#) - Assistant Professor of Pathology
- [Howe, Alan K](#) - Associate Professor of Pharmacology
- [Hoza, Betsy](#) - Professor of Psychology
- [Huber, Sally Ann](#) - Professor of Pathology
- [Hudspeth, Thomas Richard](#) - Professor in the Rubenstein School of Environment and Natural Resources
- [Hudziak, James Joseph](#) - Director of Psychiatry, Professor of Medicine, Professor of Pediatrics, Professor of Psychiatry
- [Huener, Jonathan D.](#) - Associate Professor of History
- [Hughes, Jeffrey Winston](#) - Associate Professor in the Rubenstein School of Environment and Natural Resources, Associate Professor of Plant Biology
- [Hughes, John M.](#) - Professor of Geology
- [Hughes, John Russell](#) - Professor of Family Medicine, Professor of Psychiatry
- [Hughes, Susan Boedeker](#) - Associate Professor of Business Administration, Director of the School of Business Administration
- [Huh, Jinny](#) - Assistant Professor of English
- [Hunter, Deborah Ellen](#) - Associate Professor of Leadership and Developmental Sciences, Chairperson of Leadership and Developmental Sciences
- [Hurley, Jennifer Jo](#) - Associate Professor of Education
- [Hurley, Sean M.](#) - Assistant Professor of Leadership and Developmental Sciences
- [Huston, Christopher D.](#) - Associate Professor of Medicine - Infectious Disease, Associate Professor of Microbiology and Molecular Genetics
- [Huston, Dryver R.](#) - Professor of Engineering, Professor of Orthopaedics and Rehabilitation

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- [Iatridis, James C.](#) - Assistant Professor of Orthopaedics and Rehabilitation, Professor of Engineering
- [Irvin, Charles G.](#) - Assistant Dean of Medicine, Professor of Medicine - Pulmonary, Professor of Molecular Physiology and Biophysics
- [Ivakhiv, Adrian J](#) - Associate Professor in the Rubenstein School of Environment and Natural Resources, Interim Director of the Rubenstein School of Environment and Natural Resources



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<a href="#">X</a>	<a href="#">Y</a>	<a href="#">Z</a>				

- [Jacobs, Jesse V.](#) - Assistant Professor of Rehabilitation and Movement Science
- [Jaffe, Dale J.](#) - Professor of Sociology
- [Janssen-Heininger, Yvonne M.W.](#) - Professor of Pathology
- [Jaworski, Diane Marie](#) - Professor of Neurological Sciences
- [Jefferys, William H.](#) - Adjunct Professor of Mathematics and Statistics, Lecturer I of Mathematics and Statistics
- [Jenemann, David](#) - Associate Professor of English, Director of Film and Television Studies
- [Jenkins, Jennifer Caroline](#) - Adjunct Assistant Professor in the Rubenstein School of Environment and Natural Resources
- [Jetton, Thomas Lawrence](#) - Associate Professor of Medicine - Endocrinology
- [Jewiss, Jennifer Lynn](#) - Research Assistant Professor of Leadership and Developmental Sciences
- [Jiron, Haley Woodside](#) - Associate Professor of Education
- [Johnson, Douglas Ian](#) - Director of the CALS Honors Program, Professor of

Microbiology and Molecular Genetics

- Johnson, Rachel K - Professor of Nutrition and Food Sciences, Professor of Pediatrics
- Johnson, Robert Jonathan - Professor of Orthopaedic Surgery Emeritus
- Jones, David A - Associate Professor of Business Administration

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- [Kaelber, Lutz F.](#) - Associate Professor of Sociology
- [Kahn-Fogel, Daniel Mark](#) - Professor of English
- [Kaminsky, David Alan](#) - Professor of Medicine - Pulmonary
- [Kasser, Susan L.](#) - Associate Professor of Rehabilitation and Movement Science
- [Kaza, Stephanie](#) - Director of the Environmental Studies Program, Professor in the Rubenstein School of Environment and Natural Resources
- [Keeton, William Scott](#) - Director of the Forestry Program, Professor in the Rubenstein School of Environment and Natural Resources
- [Kelm, Robert John](#) - Associate Professor of Biochemistry, Associate Professor of Medicine - Vascular Biology
- [Kennedy, Amanda G.](#) - Associate Professor of Medicine - General Internal, Research Assistant Professor of Nursing
- [Kerr, David E](#) - Associate Professor of Animal Science
- [Kete, Mary Louise](#) - Associate Professor of English
- [Kien, Craig L](#) - Professor of Medicine, Professor of Pediatrics - Gastroenterology

- Killeen, Kieran M. - Associate Professor of Leadership and Developmental Sciences
- Kilpatrick, Charles William - Professor of Biology
- Kindstedt, Paul Stephen - Associate Director of the Vermont Institute for Artisan Cheese, Professor of Nutrition and Food Sciences
- Kirkpatrick, Beth Diane - Professor of Medicine - Infectious Disease, Professor of Microbiology and Molecular Genetics
- Klepeis, Keith Andrew - Professor of Geology
- Kolan, Matthew Peter - Senior Lecturer in the Rubenstein School of Environment and Natural Resources
- Koliba, Christopher J. - Professor of Community Development and Applied Economics
- Kolodinsky, Jane Marie - Chairperson of Community Development and Applied Economics, Director of the Center for Rural Studies, Professor of Community Development and Applied Economics
- Kornbluh, Felicia A. - Associate Professor of History
- Kotov, Valeri N. - Assistant Professor of Physics
- Krag, David Nielsen - Professor of Surgery - General
- Krag, Martin Hans - Professor of Orthopedics and Rehabilitation
- Krymkowski, Daniel Harry - Professor of Sociology
- Kuentzel, Walter Frederick - Associate Professor in the Rubenstein School of Environment and Natural Resources, Director of Recreation Management Program

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- [Laher, Ismail](#) - Adjunct Professor of Pharmacology
- [Lakoba, Taras Igorevich](#) - Associate Professor of Mathematics and Statistics
- [Landry, Christopher C.](#) - Professor of chemistry
- [Langevin, Helene M.](#) - Professor of Neurological Sciences, Research Associate Professor of Orthopedics and Rehabilitation
- [Laskowski, Cheryl A.](#) - Adjunct Assistant Professor of Nursing
- [Laurent, Jennifer S.](#) - Assistant Professor of Nursing
- [Laven, Daniel](#) - Adjunct Assistant Professor of Environment and Natural Resources
- [Leahy, John L.](#) - Professor of Medicine - Endocrinology
- [Leavitt, Bruce J.](#) - Professor of Surgery - Thoracic Cardiovascular
- [Leclair, Laurie W.](#) - Associate Professor of Medicine - Pulmonary
- [Lee, Brian H. Y.](#) - Assistant Professor of Community Development and Applied Economics, Assistant Professor of Engineering, Assistant Professor of Transportation Research

- [Lee, Byung S.](#) - Professor of Computer Science
- [Leenstra, Willem R.](#) - Associate Professor of chemistry
- [Leib, Edward Samuel](#) - Professor of Medicine - Rheumatology
- [Leibowitz, George S.](#) - Assistant Professor of Social Work
- [Levine, Mark Alan](#) - Professor of Medicine - General Internal
- [Levine, Suzanne Nanette](#) - Associate Professor in the Rubenstein School of Environment and Natural Resources
- [Lewinter, Martin M.](#) - Professor of Medicine - Cardiology, Professor of Molecular Physiology and Biophysics
- [Liang, Chyi-Lyi Kathleen](#) - Professor of Community Development and Applied Economics
- [Lidofsky, Steven D.](#) - Director in the College of Medicine, Professor of Medicine - Gastroenterology, Professor of Pharmacology
- [Lindstrom, Eric Reid](#) - Associate Professor of English
- [Ling, Alan Chi](#) - Assistant Professor of Mathematics and Statistics, Associate Professor of Computer Science
- [Lini, Andrea](#) - Associate Professor of Geology, Chairperson of Geology
- [Lintilhac, Philip Malcolm](#) - Research Associate Professor of Plant Biology
- [Littenberg, Benjamin](#) - Professor of Medicine - General Internal, Professor of Nursing
- [Lock, Adam L.](#) -
- [Lord, Matthew J.](#) - Associate Professor of Molecular Physiology and Biophysics
- [Losambe, Lokangaka](#) - Professor of English
- [Lounsbury, Karen M.](#) - Professor of Pharmacology
- [Lovell, Sarah Taylor](#) - Adjunct Lecturer of Plant and Soil Science
- [Lucas, Marilyn T.](#) - Associate Professor of Business Administration
- [Lund, Frances E.](#) -
- [Lundblad, Lennart K.A.](#) - Assistant Professor of Medicine - Pulmonary
- [Lyman, Theodore](#) - Professor of Art and Art History

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- [Macias, Thomas E.](#) - Associate Professor of Sociology
- [MacLean, Charles Duncan](#) - Associate Dean of the College of Medicine - Primary Care, Professor of Medicine - General Internal
- [Madalengoitia, Jose Santos](#) - Associate Professor of chemistry
- [Magistrale, Anthony Samuel](#) - Professor of English
- [Mahoney, Dennis Francis](#) - Professor of German and Russian
- [Maltby, Hendrika J.](#) - Professor of Nursing
- [Manning, Kathleen](#) - Professor of Leadership and Developmental Sciences
- [Manning, Robert Emmet](#) - Professor in the Rubenstein School of Environment and Natural Resources
- [Mao-Draayer, Yang](#) - Assistant Professor of Neurological Sciences
- [Marble, Hugh](#) - Assistant Professor of Business Administration
- [Mardeusz, Patricia Ellen](#) - Library Associate Professor of Bailey Howe - Information and Instruction
- [Marsden, J. Ellen](#) - Director of the Wildlife and Fisheries Biology Program,

Professor in the Rubenstein School of Environment and Natural Resources

- Marshall, Jeffrey D. - Director of Research Collections of Bailey Howe Library, Library Professor of Bailey Howe - Access and Technical Services
- Marshall, Jeffrey Scott - Professor of Engineering
- Martin, Paul W. - Assistant Professor of English
- Massell, David Perera - Professor of History
- Matrajt, Mariana Laura - Research Assistant Professor of Microbiology and Molecular Genetics
- Matthews, Dwight E. - Chairperson of chemistry, Professor of chemistry, Professor of Medicine
- Mawe, Gary Michael - Professor of Medicine, Professor of Neurological Sciences, Professor of Pharmacology
- May, Victor - Professor of Neurological Sciences, Professor of Pharmacology
- Mazzoni, Maria-Cristina - Chairperson of Romance Languages and Linguistics, Professor of Romance Languages and Linguistics
- McCormack, John Joseph - Professor of Pharmacology Emeritus
- McCoy, Dorian L - Assistant Professor of Leadership and Developmental Sciences
- McCullough, Robert L. - Associate Professor of History
- McFadden, Thomas B. -
- McGowan, Abigail S. - Associate Professor of History
- McGowan, Todd Robert - Associate Professor of English
- McIntosh, Alan W. - Co-Director of the Environmental Science Program, Professor in the Rubenstein School of Environment and Natural Resources
- McIntosh, Barbara Ruth - Professor of Business Administration
- McKenna, Kevin James - Professor of German and Russian
- McLean, Kelley C. - Assistant Professor of Obstetrics and Gynecology
- McRae, Glenn - Adjunct Lecturer of Community Development and Applied Economics
- Mehrtens, Charlotte Jean - Co-Director of the Environmental Science Program, Professor of Geology
- Mendez, Victor E. - Associate Professor of Plant and Soil Science
- Meyer, Marjorie C. - Associate Professor of Obstetrics and Gynecology
- Meyer, Markus F. - Assistant Professor of Medicine - Cardiology
- Mickey, Ruth Mary - Professor of Mathematics and Statistics
- Mieder, Wolfgang - Professor of German and Russian
- Mierse, William Edwin - Professor of Art and Art History, Professor of Classics
- Miller, Carol Therese - Professor of Psychology
- Miller, Eleanor M. - Professor of Sociology
- Miller, Fayneese S. - Dean of the College of Education and Social Services, Professor of Leadership and Developmental Sciences
- Miller, Mark Stuart - Research Associate of Molecular Physiology and Biophysics
- Mintz, Beth - Professor of Sociology
- Mintz, Keith Peter - Associate Professor of Microbiology and Molecular Genetics
- Mirchandani, Gagan S. - Professor of Computer Science, Professor of Engineering
- Mitchell, Brian R. - Adjunct Assistant Professor of Environment and Natural



### Resources

- [Mitchell, John Joseph](#) - Senior Lecturer of Biology
- [Molofsky, Jane](#) - Professor of Plant Biology
- [Morielli, Anthony D.](#) - Associate Professor of Pharmacology
- [Morin, Frederick C.](#) - Dean in the College of Medicine, Professor of Molecular Physiology and Biophysics, Professor of Pediatrics
- [Morrical, Scott Walker](#) - Professor of Biochemistry, Professor of Microbiology and Molecular Genetics
- [Morrissey, Leslie A.](#) - Associate Professor in the Rubenstein School of Environment and Natural Resources
- [Morse, Cheryl](#) - Assistant Professor of Geography
- [Mossman, Brooke Taylor](#) - Professor of Pathology Emerita
- [Mount, Sharon Lee](#) - Professor of Pathology - Anatomic
- [Murdoch, James D.](#) - Assistant Professor in the Rubenstein School of Environment and Natural Resources
- [Murray-Close, Dianna Katharine](#) - Associate Professor of Psychology

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- [Nash, Robert James](#) - Professor of Leadership and Developmental Sciences
- [Naylor, Magdalena Raczowska](#) - Professor of Psychiatry
- [Neal, Patrick Allen](#) - Associate Professor of Political Science
- [Neher Weicht, Deborah](#) - Chairperson of Plant and Soil Science, Professor of Plant and Soil Science
- [Neiweem, David](#) - Professor of Music and Dance
- [Nelson, Mark Tuxford](#) - Chairperson of Pharmacology, Professor of Molecular Physiology and Biophysics, Professor of Pharmacology, Professor of Surgery
- [Neroni, Hilary L.](#) - Associate Professor of English
- [Neumann, Maureen Doyle](#) - Associate Professor of Education
- [Nicholas, Catherine F.](#) - Assistant Professor of Family Medicine, Clinical Assistant Professor of Obstetrics and Gynecology
- [Nichols, Eric Charles](#) - Senior Lecturer of Integrated Professional Studies Emeritus
- [Nicklas, Janice Ann](#) - Associate Professor of Pediatrics
- [Nicosia, Francis R.](#) - Interim Director for the Miller Center for Holocaust Study,

Professor of History

- Nilsen, Sarah Dawn - Associate Professor of English
- Nishi, Rae - Director of the Neuroscience Graduate Program, Professor of Neurological Sciences
- Noordewier, Thomas Gerald - Associate Dean of the School of Business Administration, Professor of Business Administration
- Novak, David C. - Associate Professor of Business Administration

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- [O'Rourke, Deborah Anne](#) - Clinical Associate Professor of Rehabilitation and Movement Science
- [Okech, Jane E.](#) - Associate Professor of Leadership and Developmental Sciences
- [Orzeck, Reecia](#) - Assistant Professor of Geography
- [Osol, George Jury](#) - Professor of Molecular Physiology and Biophysics, Professor of Obstetrics, Gynecology and Reproduction, Professor of Pharmacology
- [Otovo, Okezi T.](#) - Assistant Professor of History
- [Oughstun, Kurt Edmund](#) - Professor of Computer Science, Professor of Engineering, Professor of Mathematics and Statistics
- [Ozbek, Metin Mehmet](#) - Adjunct Assistant Professor of School of Engineering

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- [Palmer, Bradley M.](#) - Assistant Professor of Molecular Physiology and Biophysics
- [Palumbo, Mary Val](#) - Associate Professor of Nursing
- [Pan, Zhongzong](#) - Assistant Professor of Animal Science
- [Parent, Richard E.](#) - Assistant Professor of English
- [Paris, Catherine Ann](#) - Senior Lecturer of Plant Biology
- [Parke, Edward Lauck](#) - Associate Professor of Business Administration
- [Parker, Bruce Lawrence](#) - Professor of Plant and Soil Science
- [Parrish, Donna L.](#) - Research Professor in the Rubenstein School of Environment and Natural Resources
- [Parsons, Robert L.](#) - Extension Professor of Community Development and Applied Economics, Professor of Community Development and Applied Economics
- [Parsons, Rodney Lawrence](#) - Professor of Molecular Physiology and Biophysics, Professor of Neurological Sciences
- [Patterson, Fiona M.](#) - Associate Professor of Social Work
- [Pederson, David Scott](#) - Professor of Microbiology and Molecular Genetics

- Perkins, Timothy David - Director of the Proctor Maple Research Center, Research Professor of Plant Biology
- Perry, Leonard Payne - Extension Professor of Plant and Soil Science
- Petrucci, Giuseppe A. - Associate Professor of chemistry
- Peyser, Janis Mussett - Clinical Associate Professor of Neurological Sciences, Clinical Associate Professor of Psychiatry
- Phelps, Nicole M. - Assistant Professor of History
- Phillippe, Mark - Chairperson of Obstetrics Gynecology and Reproduction - Maternal Fetal, Professor of Obstetrics and Gynecology - Maternal Fetal
- Pickett, Kurt M. - Assistant Professor of Biology
- Pinckney, Richard G. - Associate Professor of Medicine - General Internal
- Pinder, George Francis - Professor of Computer Science, Professor of Engineering, Professor of Mathematics and Statistics
- Pinel, Elizabeth C. - Associate Professor of Psychology
- Pintauro, Stephen Joseph - Associate Professor of Nutrition and Food Sciences
- Poleman, Walter Mallery - Director of the GreenHouse Residential Learning Community, Senior Lecturer in the Rubenstein School of Environment and Natural Resources
- Pontius, Jennifer A. - Lecturer in the Rubenstein School of Environment and Natural Resources, Research Assistant Professor in the Rubenstein School of Environment and Natural Resources
- Potter, Alexandra S. - Assistant Professor of Psychiatry, Clinical Assistant Professor of Psychology
- Poynter, Matthew E - Associate Director of the Vermont Lung Center, Associate Professor of Medicine - Pulmonary
- Pratley, Richard E - Professor of Medicine - Endocrinology
- Prelock, Patricia A. - Dean of the College of Nursing and Health Sciences, Professor of Communication Sciences, Professor of Pediatrics
- Proulx, Raymond J. - Lecturer of Education

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- [Rabinowitz, Terry](#) - Professor of Family Medicine, Professor of Psychiatry
- [Radermacher, Michael](#) - Associate Professor of Computer Science, Professor of Molecular Physiology and Biophysics
- [Rambur, Betty A.](#) - Professor of Nursing
- [Ramos-Nino, Maria E.](#) - Lecturer of Medical Laboratory and Radiation Science, Research Assistant Professor of Pathology
- [Rand, Matthew Dearborn](#) - Assistant Professor of Neurological Sciences
- [Randall, Troy D.](#) -
- [Rankin, Joanna Marie](#) - Professor of Physics
- [Rathbone, Charles](#) - Associate Professor of Education Emeritus
- [Rayback, Shelly A.](#) - Associate Professor of Geography
- [Reardon, Mildred Ann](#) - Professor of Medicine Emerita
- [Reed, Brian Vaughn](#) - Associate Professor of Rehabilitation and Movement Science, Associate Provost
- [Reed, J. Patrick](#) - Associate Professor of Medical Laboratory and Radiation

Sciences Emeritus

- [Rellini, Alessandra](#) - Associate Professor of Psychology
- [Rettew, David C.](#) - Assistant Professor of Pediatrics - General, Associate Professor of Psychiatry
- [Reyes, Cynthia C.](#) - Associate Professor of Education
- [Richardson, Bruce A.](#) - Adjunct Associate Professor of Education
- [Richardson-Nassif, Karen](#) - Professor of Family Medicine
- [Rincon, Mercedes](#) - Professor of Medicine - Immunobiology
- [Ring, Marcia E.](#) - Assistant Professor of Nursing
- [Rizzo, Donna Marie](#) - Associate Professor of Engineering
- [Roberts, Julie L.](#) - Professor of Communication Sciences, Professor of Romance Languages and Linguistics
- [Roberts, Walter M.](#) - Assistant Professor of Classics
- [Roche, Susan E.](#) - Associate Professor of Social Work
- [Rodgers, Robert Howard](#) - Professor of Classics
- [Rohan, Kelly Joanna](#) - Associate Professor of Psychology
- [Rohy, Valerie](#) - Chairperson of English, Professor of English
- [Rose, Gail Lynne](#) - Assistant Professor of Psychiatry
- [Rosen, Michael J.](#) - Research Associate Professor of Engineering
- [Ross, Donald Savage](#) - Co-Director of the Environmental Science Program, Director of the Agriculture Testing Laboratory, Research Professor of Plant and Soil Science
- [Ross, Jane Kaye](#) - Professor of Nutrition and Food Sciences
- [Rould, Mark Allen](#) - Research Assistant Professor of Molecular Physiology and Biophysics
- [Rubin, Alan Saul](#) - Associate Professor of Medicine, Research Associate Professor of Psychiatry
- [Ruiz, Teresa](#) - Associate Professor of Molecular Physiology and Biophysics
- [Ryan, Susan Marie](#) - Director of Center on Disability and Community, Professor of Leadership and Developmental Sciences



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- [Sadek, Adel Wadid](#) -
- [Saia, John Jerome](#) - Associate Professor of Family Medicine Emeritus
- [Salembier, George B.](#) - Associate Professor of Education, Chairperson of Education
- [Sande, Diane R](#) - Lecturer of Nursing Emerita
- [Sands, Jonathan Winslow](#) - Professor of Mathematics and Statistics
- [Sansoz, Frederic P.](#) - Associate Professor of Engineering, Director of Mechanical Engineering
- [Sarkar, Indra N.](#) - Assistant Professor of Computer Science, Assistant Professor of Microbiology and Molecular Genetics, Assistant Professor of the Center of Clinical and Transational Science
- [Saule, Mara Rita](#) - Dean of Library and Information Services, Library Associate Professor
- [Saulnier Sholler, Giselle L.](#) - Adjunct Associate Professor of Pediatrics
- [Saylor Rodgers, Barbara](#) - Professor of Classics

- [Schaberg, Paul Gerard](#) - Adjunct Associate Professor in the Rubenstein School of Environment and Natural Resources
- [Schall, Joseph Julian](#) - Professor of Biology
- [Schmidt, Frederick Eberhard](#) - Associate Professor of Community Development and Applied Economics Emeritus
- [Schneider, David J.](#) - Professor of Medicine - Cardiology, Professor of Molecular Physiology and Biophysics
- [Schneider, Wayne Joseph](#) - Associate Professor of Music and Dance
- [Schnell, Lisa Jane](#) - Associate Dean of Honors College, Associate Professor of English
- [Schnure, Joel J.](#) - Professor of Medicine - Endocrinology
- [Schrafsfetter, Susanna B.](#) - Associate Professor of History
- [Schramm, Richard A.](#) - Lecturer of Community Development and Applied Economics
- [Schreckenberger, Helga](#) - Chairperson of German and Russian, Professor of German and Russian
- [Schukken, Ynte H.](#) - Adjunct Associate Professor of Animal Science
- [Scott, Helen C.](#) - Associate Professor of English, Director of the Buckham Overseas Program
- [Seguino, Stephanie](#) - Professor of Economics
- [Shanley, James Bryan](#) - Adjunct Associate Professor of Environment and Natural Resources
- [Shannon, Margaret Ann](#) - Professor of Environment and Natural Resources
- [Shapiro, Robert Evan](#) - Professor of Neurological Sciences
- [Shea, Jeanne Laraine](#) - Associate Professor of Anthropology
- [Shelton, Lawrence G.](#) - Associate Professor of Leadership and Developmental Sciences
- [Shepherd, Katharine Green](#) - Associate Professor of Education
- [Shiman, David Aaron](#) - Professor of Leadership and Developmental Sciences
- [Shukla, Arti](#) - Associate Professor of Pathology
- [Shukla, Girja Shanker](#) - Associate Professor of Surgery - Oncology
- [Sibold, Jeremy S.](#) - Assistant Professor of Rehabilitation and Movement Science
- [Sicotte, Richard A.](#) - Associate Professor of Economics
- [Sigmon, Stacey C.](#) - Associate Professor of Psychiatry, Research Assistant Professor of Psychology
- [Sillett, Terence Scott](#) - Adjunct Assistant Professor in the Rubenstein School of Environment and Natural Resources
- [Silveira, Jay R.](#) - Assistant Professor of Biochemistry
- [Simone, R. Thomas](#) - Professor of English
- [Simpatico, Thomas A.](#) - Professor of Psychiatry, Research Professor of Center Clinical and Translational Science, Research Professor of Psychiatry
- [Single, Richard M.](#) - Associate Professor of Mathematics and Statistics
- [Sinkula, James Michael](#) - Professor of Business Administration
- [Sisk, Jennifer L.](#) - Assistant Professor of English
- [Skalka, Christian Edward](#) - Associate Professor of Computer Science
- [Skinner, Margaret](#) - Research Professor of Plant and Soil Science

- Slauterbeck, James R. - Associate Professor of Orthopaedics and Rehabilitation, Associate Professor of Pediatrics - General
- Smith, Julia M. - Extension Associate Professor of Animal Science
- Smith, Lance C. - Assistant Professor of Leadership and Developmental Sciences
- Smith, Sherwood E. - Director of Cultural Pluralism, Lecturer of Leadership and Developmental Sciences
- Snapp, Robert Raymond - Associate Professor of Computer Science, Associate Professor of Mathematics and Statistics
- Sniffen, Charles J. - Adjunct Professor of Animal Science
- Sobel, Burton E. - Professor of Biochemistry, Professor of Medicine - Cardiology
- Soll, Roger Franklin - Professor of Pediatrics - Neonatology
- Solomon, Brenda M. - Associate Professor of Social Work
- Solomon, Richard Jay - Professor of Medicine - Nephrology
- Solomon, Sondra Elice - Associate Professor of Psychology, Clinical Associate Professor of Psychiatry
- Son, Mun Shig - Professor of Mathematics and Statistics
- Spector, Peter Salem - Professor of Medicine - Cardiology
- Spees, Jeffrey L. - Associate Professor of Medicine - Vascular Biology
- Stapleton, Renee D. - Assistant Professor of Medicine - Pulmonary
- Starrett, Mark C. - Associate Professor of Plant and Soil Science
- Steingard, Sandra - Clinical Associate Professor of Psychiatry
- Steinweis, Alan E. - Professor of History
- Stevens, Lori - Professor of Biology
- Stickle, Timothy R - Associate Professor of Psychology
- Stilwell, Sean Arnold - Associate Professor of History
- Stokowski, Patricia A. - Associate Professor in the Rubenstein School of Environment and Natural Resources
- Stratton, Donald Arthur - Co-Director of Integrated Biological Science, Senior Lecturer of Plant Biology
- Streeter, Thomas George - Chairperson of Sociology, Professor of Sociology
- Strong, Allan Matthew - Associate Dean of the Rubenstein School of Environment and Natural Resources, Associate Professor in the Rubenstein School of Environment and Natural Resources
- Sun, Tao - Assistant Professor of Community Development and Applied Economics
- Suratt, Benjamin Tate - Associate Professor of Medicine - Pulmonary
- Suter, Jesse Courtney - Research Assistant Professor of Education
- Swain, Susan L. - Adjunct Professor of Medicine

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- [Taatjes, Douglas Joseph](#) - Professor of Pathology, Research Associate Professor of Pathology
- [Tandan, Rup](#) - Professor of Neurological Sciences
- [Tarule, Jill Mattuck](#) - Professor of Leadership and Developmental Sciences
- [Taylor, Robert Pepperman](#) - Professor of Political Science
- [Teuscher, Cory](#) - Professor of Medicine - Immunobiology, Professor of Pathology - General
- [Thaler, Martin Andrew](#) - Professor of Theatre
- [Thali, Markus Josef](#) - Professor of Microbiology and Molecular Genetics
- [Tierney, Mary Loretta](#) - Associate Professor of Microbiology and Molecular Genetics, Associate Professor of Plant Biology
- [Tinkler, Barri E.](#) - Assistant Professor of Education
- [Titcomb, Stephen](#) - Associate Professor of Engineering, Director of Electrical Engineering
- [Tomas, Amy M](#) - Senior Lecturer of Business Administration

- [Tomas III, Michael John](#) - Associate Professor of Business Administration [Toolin,](#)
- [Regina](#) - Associate Professor of Education
- [Toscano, Sharyl E.](#) - Assistant Professor of Nursing
- [Toth, Michael J.](#) - Associate Professor of Medicine - Cardiology, Associate Professor of Obstetrics and Gynecology - Reproductive Endocrinology and Infertility
- [Toufexis, Donna J.](#) - Assistant Professor of Psychology
- [Tracy, Paula Babiarz](#) - Professor of Biochemistry, Professor of Medicine
- [Tracy, Russell P.](#) - Associate Director of the Center for Clinical and Translational Science, Professor of Biochemistry, Professor of Pathology
- [Trainor, Kevin M.](#) - Chairperson of Religion, Professor of Religion
- [Troy, Austin R.](#) - Associate Professor of Computer Science
- [Trubek, Amy B.](#) - Associate Professor of Nutrition and Food Sciences, Director of the Food Systems Graduate Program
- [Trybus, Kathleen M.](#) - Professor of Molecular Physiology and Biophysics
- [Twery, Mark J.](#) - Adjunct Associate Professor of Environment and Natural Resources
- [Tyzbir, Robert Stanley](#) - Professor of Nutrition and Food Sciences

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- [Usher, Mark David](#) - Associate Professor of Classics, Chairperson of Classics

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- [Van Buren, Peter C.](#) - Assistant Professor of Molecular Physiology and Biophysics, Associate Professor of Medicine - Cardiology
- [van den Berg, Abby Katrien](#) - Lecturer of Plant Biology, Research Assistant Professor of Plant Biology
- [van der Vliet, Albert](#) - Professor of Pathology
- [Van Houten, Judith Lee](#) - Director of EPScOR, Professor of Biology, Professor of Neurological Sciences
- [Vanden Bergh, Richard G.](#) - Associate Professor of Business Administration
- [VanSlyke, Gretchen Jane](#) - Professor of Romance Languages and Linguistics
- [Varhue, Walter John](#) - Professor of Engineering
- [Vayda, Michael E](#) - Professor of Plant Biology
- [Ventriss, Curtis L.](#) - Professor in the Rubenstein School of Environment and Natural Resources
- [Vigoreaux, Jim Osvaldo](#) - Chairperson of Biology, Professor of Biology, Professor of Molecular Physiology and Biophysics

- [Villa, Ferdinando](#) - Research Associate Professor of Computer Science
- [Visser, Thomas Durant](#) - Associate Professor of History, Director of Historic Preservation
- [Vivanco, Luis A.](#) - Associate Professor of Anthropology, Director of Global and Regional Studies
- [Vizzard, Margaret A.](#) - Professor of Neurological Sciences
- [Vogelmann, Thomas C.](#) - Dean of the College of Agriculture and Life Sciences, Professor of Plant Biology
- [Voight, John M.](#) - Assistant Professor of Mathematics and Statistics



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- [Waldron, John Vincent](#) - Associate Professor of Romance Languages and Linguistics
- [Wallace, Susan Scholes](#) - Chairperson of Microbiology and Molecular Genetics, Professor of Microbiology and Molecular Genetics
- [Wallin, Kimberly F.](#) - Graduate Program Director in the Rubenstein School of Environment and Natural Resources, Research Assistant Professor in the Rubenstein School of Environment and Natural Resources
- [Wang, Deane](#) - Associate Professor in the Rubenstein School of Environment and Natural Resources
- [Wang, Qingbin](#) - Professor of Community Development and Applied Economics
- [Wang, Xiaoyang S](#) - Adjunct Professor of Computer Science
- [Ward, Gary E.](#) - Professor of Microbiology and Molecular Genetics
- [Wargo, Matthew](#) - Assistant Professor of Microbiology and Molecular Genetics
- [Warrington, Gregory S.](#) - Assistant Professor of Mathematics and Statistics
- [Warshaw, David Michael](#) - Chairperson of Molecular Physiology and Biophysics,

- Professor of Molecular Physiology and Biophysics
- [Wasserman, Richard Charles](#) - Professor of Pediatrics
  - [Waterman, Rory](#) - Associate Professor of chemistry
  - [Waters, Stephen P.](#) - Assistant Professor of chemistry
  - [Watts, Richard A.](#) - Director of the Center for Research on Vermont, Lecturer of Rubenstein School of Environment and Natural Resources, Research Assistant Professor of Community Development and Applied Economics, Research Assistant Professor of Transportation Research Center
  - [Weaver, Donald Lee](#) - Professor of Pathology - Anatomic
  - [Webb, Laura E.](#) - Assistant Professor of Geology
  - [Weinstock, Jacqueline S.](#) - Associate Professor of Leadership and Developmental Sciences
  - [Weiss, Daniel Jay](#) - Professor of Medicine - Pulmonary
  - [Welch, Nancy Ellen](#) - Professor of English
  - [Welkowitz, Julie Ann](#) - Adjunct Lecturer of Education
  - [Wellman, George C.](#) - Professor of Pharmacology, Professor of Surgery
  - [Wemple, Beverley Coghill](#) - Associate Professor of Geography, Associate Professor of Geology
  - [Wesley, Umadevi V.](#) - Research Assistant Professor of Microbiology and Molecular Genetics
  - [White, Sheryl Lynne](#) - Assistant Professor of Neurological Sciences
  - [Whitfield, Harvey Amani](#) - Associate Professor of History
  - [Whitney, Stuart Luhn](#) - Clinical Associate Professor of Nursing, Coordinator of Nursing
  - [Widrick, Gary Charles](#) - Chairperson of Social Work, Lecturer of Social Work, Research Associate Professor of Social Work
  - [Wilcke Jr., Burton William](#) - Associate Professor of Medical Laboratory and Radiation Sciences, Associate Professor of Pathology
  - [Willmuth, Mary E.](#) - Clinical Associate Professor of Psychiatry
  - [Wilson, James Michael](#) - Professor of Mathematics and Statistics
  - [Witkin, Stanley L.](#) - Professor of Social Work
  - [Wollenberg, Eva K.](#) - Research Associate Professor in the Rubenstein School of Environment and Natural Resources
  - [Wong, Cheung](#) - Associate Professor of Obstetrics and Gynecology
  - [Wood, Marie E.](#) - Professor of Medicine - Hematology Oncology
  - [Woodland, David L.](#) - Adjunct Professor of Medicine
  - [Wolf, Arthur George](#) - Associate Professor of Economics
  - [Wright, Andre-Denis G.](#) - Associate Professor of Medicine, Associate Professor of Microbiology & Molecular Genetics, Chairperson of Animal Science, Professor of Animal Science
  - [Wu, Ge](#) - Professor of Rehabilitation and Movement Science
  - [Wu, Jun-Ru](#) - Professor of Engineering, Professor of Physics
  - [Wu, Xindong](#) - Professor of Computer Science

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- [Xia, Tian](#) - Associate Professor of Engineering

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- [Yadav, Dharam Pal](#) - Associate Professor of Psychology
- [Yandell, David Wendell](#) - Professor of Medicine, Professor of Pathology
- [Yang, Jianke](#) - Professor of Mathematics and Statistics
- [Yang, Jie](#) - Associate Professor of Physics
- [Youngblood, Denise J.](#) - Professor of History
- [Yu, Jun](#) - Associate Chairperson of Mathematics and Statistics, Associate Director of Mathematics and Statistics, Professor of Computer Science, Professor of Mathematics and Statistics

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- [Zakai, Neil A.](#) - Associate Professor of Medicine - Hematology Oncology, Associate Professor of Pathology
- [Zdatny, Steven M.](#) - Professor of History
- [Zelko, Frank S.](#) - Assistant Professor of History
- [Zhang, Chun](#) - Associate Professor of Business Administration
- [Zhao, Feng-Qi](#) - Associate Professor of Animal Science
- [Zia, Asim](#) - Assistant Professor of Community Development and Applied Economics

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<a href="#">Y</a>	<a href="#">Z</a>					

- [Abruscato, Joseph Anthony](#) - Professor of Education Emeritus
- [Absher, P. Marlene](#) - Research Associate Professor of Medicine Emerita
- [Absher, Richard G](#) - Professor of Electrical and Computer Engineering Emeritus
- [Agne, Russell Maynard](#) - Professor of Education Emeritus
- [Aines, Linda D](#) - Associate Professor in Extension Emerita
- [Ainsworth, Pamela J.](#) - Extension Professor Emerita
- [Albee, George](#) - Professor of Psychology Emeritus
- [Albertini, Richard Joseph](#) - Professor of Microbiology and Molecular Genetics Emeritus, Professor of Pediatrics Emeritus
- [Allen, Christopher Whitney](#) - Professor of chemistry Emeritus
- [Allen, Elizabeth Fleming](#) - Assistant Professor of Pathology Emerita
- [Allen Jr., Sinclair T.](#) - Professor of Medicine Emeritus
- [Alnasrawi, Abbas](#) - Professor of Economics Emeritus
- [Alpert, Norman R.](#) - Professor of Physiology and Biophysics Emeritus
- [Ambrose, Jane P.](#) - Professor Emeritus of Music

- [Ambrose, Z. Philip](#) - Professor of Classical Languages and Literature Emeritus
- [Anderson, Richard](#) - Professor of Electrical Engineering Emeritus
- [Andrea, Alfred J.](#) - Professor of History Emeritus
- [Andreas, Rosalind E.](#) - Assistant Professor of Education Emerita
- [Arns, Robert G.](#) - Professor of Physics Emeritus
- [Ashman, Jay Irwin](#) - Senior Lecturer of Community Development and Applied Economics Emeritus
- [Ashman, Marguerite G](#) - Extension Professor Emerita
- [Atherton, Henry V.](#) - Professor of Animal Science Emeritus
- [Atwood, Elizabeth F.](#) - Associate Professor of Merchandising, Consumer Studies, and Design Emerita
- [Averyt, William Franklin](#) - Associate Professor of Business Administration Emeritus

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- [Babbott, David](#) - Professor of Medicine Emeritus
- [Babbott, Frank L.](#) - Clinical Associate Professor of Medicine Emeritus
- [Balch, Donald J.](#) - Professor of Animal Science Emeritus
- [Ball, Howard](#) - Professor of Political Science Emeritus
- [Bandel, Betty](#) - Professor of English Emerita
- [Barbour, James](#) - Associate Professor of Integrated Professional Studies Emeritus
- [Barney, Bernard B.](#) - Associate Professor of Surgery Emeritus
- [Barnum, H. Gardiner](#) - Associate Professor of Geography Emeritus
- [Barrett, Evaline I.](#) - Associate Professor of Professional Nursing Emerita
- [Bartlett, Richmond J.](#) - Professor of Plant and Soil Science Emeritus
- [Battelle, Peter Erle](#) - Assistant Professor of Business Administration Emeritus
- [Beeken, Warren L.](#) - Professor of Medicine Emeritus
- [Beliveau, Jean-Guy Lionel](#) - Professor of Civil Environmental Engineering Emeritus
- [Bell, Ross T](#) - Professor of Biology Emeritus



- Bergdahl, Dale Roger - Professor of Environment and Natural Resources Emeritus
- Bevan, Rosemary - Professor of Pharmacology Emerita
- Bevins, Malcolm - Professor of The Rubenstein School of Environment and Natural Resources Emeritus
- Biddle, Arthur W. - Professor of English Emeritus
- Bigalow, Charles - Extension Professor of Community Development and Applied Economics Emeritus
- Bishop, Kathleen - Associate Professor of Social Work Emerita
- Blair, Alice J. - Extension Associate Professor Emerita
- Bland, John H. - Professor of Medicine Emeritus
- Bliss, Francis R. - Professor of Classics Emerita
- Bloom, Thomas K. - Associate Professor of Community Development and Applied Economics Emeritus
- Bogorad, Samuel N. - Professor of English Emeritus
- Boller, Betty M. - Professor of Organizational, Counseling, and Foundational Studies Emerita
- Bolognani, Betty M. - Extension Instructor Emerita
- Bolton, Wesson D. - Professor of Animal Science Emeritus
- Boushey, Dallas R. - Assistant Professor of Anatomy and Neurobiology Emeritus
- Bousquet, Daniel W. - Extension Associate Professor Emeritus
- Bouton, Edward - Extension Professor Emeritus
- Boyce, Bertie - Professor of Plant and Soil Science Emeritus
- Bradley, Anthony G. - Professor of English Emeritus
- Bramley, Andrew John - Professor of Animal Science and Microbiology and Molecular Genetics Emeritus
- Branch, Judy H. - Extension Associate Professor Emerita
- Branda, Richard Frank - Professor of Medicine and Pharmacology Emeritus
- Brandenburg, Richard George - Professor of Business Administration Emeritus
- Braun Jr., Theodore - Associate Professor of Obstetrics and Gynecology Emeritus
- Breen, Mary E. - Associate Professor of Medical Technology Emerita
- Brenneman, Walter L. - Professor of Religion Emeritus
- Bright, William - Assistant Professor of Education Emeritus
- Bronstein, Phyllis - Professor of Psychology Emerita
- Brook, Munro S. - Extension Professor Emeritus
- Broughton, T. Alan - Professor of English Emeritus
- Brown, Joanne C. - Lecturer of Mathematics and Statistics Emerita
- Brown, John S. - Professor of Physics Emeritus
- Brown, Peter M. - Associate Professor of Music Emeritus
- Bucke, David P. - Associate Professor of Geology Emeritus
- Buechler, John L. - Library Professor Emeritus
- Burchard, Sara N. - Associate Professor of Psychology Emerita
- Burczy, Sara A. - Extension Professor Emerita
- Burdett, Carol A. - Assistant Professor of Education Emerita
- Burns, Stanley - Professor of Medicine Emeritus
- Burrell, Leon Frederick - Lecturer of Leadership and Developmental Sciences, Professor of Social Work Emeritus

- [Buxton, Beatrice F.](#) - Extension Associate Professor Emerita

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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, Mary C](#) - Extension Assistant Professor 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
- [Cloninger, Chigee Jan](#) - Research Associate Professor of Education Emerita
- [Cochran, Robert W.](#) - Professor of English Emeritus
- [Coffin Jr., Laurence H.](#) - Professor of Surgery Emeritus
- [Cohen, Julius G.](#) - Professor of Psychiatry Emeritus
- [Coleman, Willi](#) - Associate Professor of History and ALANA U.S. Ethnic Studies Emerita
- [Conrad, David](#) - Professor of Education Emeritus
- [Cook, Philip W.](#) - Associate Professor of Botany Emeritus
- [Cooke, Roger L.](#) - Professor of Mathematics and Statistics Emeritus
- [Corey, William M.](#) - Extension Professor Emeritus
- [Costante, Joseph](#) - Professor of Plant and Soil Science Emeritus
- [Craighead, John](#) - Professor of Pathology Emeritus
- [Crichfield, Grant](#) - Associate Professor of Romance Languages 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
- [Davison, William E.](#) - Professor of Honors College Emeritus
- [Deane, Robert S.](#) - Professor of Anesthesiology Emeritus
- [Deck, Edith F.](#) - Associate Professor of Professional Nursing Emerita
- [Dehayes, Donald Henry](#) - Professor of Natural Resources Emeritus
- [Demers, Louise Aline](#) - Associate Professor of Professional Nursing Emerita
- [Detenbeck, Robert W.](#) - Professor of Physics Emeritus
- [Deweese, Martha P.](#) - Associate Professor of Social Work Emerita
- [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

- [Doolan, Barry Lee](#) - Associate Professor of Geology 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
- [Drake, John C.](#) - Associate Professor of Geology 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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<a href="#">Y</a>	<a href="#">Z</a>					

- [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, Carolyn Margaret](#) - Professor of Political Science Emerita
- [Elliott, Norris A.](#) - Extension Associate Professor Emeritus
- [Emerson, Faith G.](#) - Associate Professor of Professional Nursing Emerita
- [Emery III, E. Stanley](#) - Professor of Neurology Emeritus
- [Erb, Clinton A.](#) - Associate Professor of Education Emeritus
- [Eschholz, Paul A](#) - Professor of English 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, Alfred Paul](#) - Associate Professor of Sociology 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
- [Fives-Taylor, Paula M.](#) - Professor of Microbiology and Molecular Genetics Emerita



- [Flanagan, Ted B](#) - Professor of Chemistry and Mechanical Engineering Emeritus
- [Flanagan, Theodore R.](#) - Extension Associate Professor of Plant and Soil Science Emeritus
- [Fogarty, John P.](#) - Professor of Family Medicine Emeritus
- [Foot, Murray W.](#) - Associate Professor of Microbiology and Biochemistry Emeritus
- [Ford, John R. Deep](#) - Associate Professor of Agricultural Economics 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
- [Frey, Lois](#) - Extension Associate Professor 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
- [Gallagher, Connell Bernard](#) - Library Professor 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
- [Gilmore, James Arthur](#) - Associate Professor of Animal Science Emeritus
- [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
- [Gordon, Lawrence Russell](#) - Professor of Psychology Emeritus
- [Gotlieb, Alan B.](#) - Extension Professor of Plant and Soil Sciences Emeritus
- [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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- [Haeberle, Joe Roy](#) - Associate Professor of Molecular Physiology and Biophysics Emeritus
- [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
- [Hamilton, Ruth Irene](#) - Research Assistant Professor of Education Emerita
- [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
- [Hardin, Nicholas Jackson](#) - Professor of Pathology Emeritus
- [Harris, Everett W.](#) - Associate Professor of Community Development and Applied Economics Emeritus
- [Hart, Beth A](#) - Professor of Biochemistry Emerita
- [Harvey, Lydia H](#) - Extension Assistant Professor Emerita
- [Hasazi, Joseph E.](#) - Associate Professor of Psychology Emeritus
- [Haugh, Larry Douglas](#) - Professor of Statistics Emeritus
- [Haviland, William A.](#) - Professor of Anthropology Emeritus
- [Heinrich, Bernd](#) - Professor of Biology Emeritus
- [Held, Jean M.](#) - Associate Professor of Physical Therapy Emerita
- [Helzer, John Earl](#) - Professor of Psychiatry Emeritus
- [Hemenway, David Reeves](#) - Professor of Civil and Environmental Engineering 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
- [Hoffmann, James Paul](#) - Associate Professor of Plant Biology 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
- [Hutton, Patrick H.](#) - Professor of History 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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<a href="#">Y</a>	<a href="#">Z</a>					

- [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
- [Johansson, Jan Erik](#) - Lecturer of Mathematics and Statistics Emeritus
- [Johnson, Robert Jonathan](#) - Professor of Orthopaedic Surgery Emeritus
- [Johnstone, Donald B.](#) - Professor of Microbiology and Biochemistry Emeritus
- [Jokela, William E](#) - Associate Professor of Plant and Soil Science Emeritus
- [Jones, Leonidas M.](#) - Frederick and Fanny Corse Professor Emeritus
- [Julow, Roy G.](#) - Associate Professor of Romance Languages Emeritus

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<a href="#">Y</a>	<a href="#">Z</a>					

- [Kapp, Bruce S](#) - Professor of Psychology Emeritus
- [Kasprisin, Christina Algieri](#) - 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
- [Kessler, Marc](#) - Associate Professor of Psychology 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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<a href="#">Y</a>	<a href="#">Z</a>					

- [Laber, Gene](#) - Professor of Business Administration Emeritus
- [Laferriere, Mary E.](#) - Lecturer in Professional Nursing Emerita
- [Laing, Frederick M.](#) - Research Associate Professor of Botany Emeritus
- [Lakin, William Donald](#) - Professor of Mathematics and Statistics 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
- [Leff, Herbert Leroy](#) - Associate Professor of Psychology 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, George Louis](#) - Professor of Biochemistry Emeritus
- [Long, Littleton](#) - Professor of English Emeritus
- [Low, Elizabeth Sloan](#) - Lecturer of Mathematics and Statistics 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
- [MacPherson, Bruce Reed](#) - Associate Professor of Pathology Emeritus
- [Magdoff, Frederick Robin](#) - Professor of Plant and Soil Science 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
- [McCann, H. Gilman](#) - Associate Professor of Sociology 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
- Meier, Frederic Jacob - Lecturer of Business Administration 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
- Miller, Willard Marshall - Assistant Professor of Philosophy 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
- Morris, Joyce Lorraine - Research Assistant Professor of Education Emerita
- Morselli, Maria-Franca C. - Research Professor of Botany Emerita
- Moser, Donald E. - Professor of Mathematics Emeritus
- Mossman, Brooke Taylor - Professor of Pathology Emerita
- Mulieri, Louis Anthony - Research Associate Professor of Molecular Physiology and Biophysics Emeritus
- Munger, Bethia N. - Extension Associate Professor Emerita
- Murad, Jo Anne - Lecturer of Romance Languages Emerita
- Murphy, William Michael - Professor of Plant and Soil Science Emeritus
- Murray, Barbara Lee - Associate Professor of Nursing Emerita
- Murray, Roger - Research Associate Professor of Animal and Food Sciences Emeritus
- Musty, Richard Edward - Professor of Psychology Emeritus
- Myott, Lawrence B. - Extension Associate Professor Emeritus

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- [Nadworny, Milton J.](#) - Professor of Economics Emeritus
- [Newton, Carlton MacBeth](#) - Professor of Forestry Emeritus
- [Newton, David P.](#) - Extension Professor Emeritus
- [Nichols, Beverly A.](#) - Associate Professor of Education Emerita
- [Nichols, Eric Charles](#) - Senior Lecturer of Integrated Professional Studies Emeritus
- [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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<a href="#">Y</a>	<a href="#">Z</a>					

- [Olson, James Paul](#) - Associate Professor of Civil and Environmental Engineering Emeritus
- [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
- [Overfield, James Harris](#) - Professor of History Emeritus
- [Owre, Edwin M](#) - Professor of Art 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
- [Patlak, Joseph Burton](#) - Professor of Molecular Physiology and Biophysics Emeritus
- [Pellett, Norman](#) - Professor of Plant and Soil Science Emeritus
- [Pelsue, Neil Hugh](#) - Extension Associate Professor 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
- [Pilcher, David B.](#) - Professor of Surgery Emeritus
- [Poger, Sidney B.](#) - Professor of English Emeritus
- [Porter, Monica B.](#) - Extension Associate Professor Emerita
- [Portnow, Nancy Baldwin](#) - Library 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
- [Puterbaugh, Holly Beth](#) - Senior Lecturer of Mathematics and Statistics Emerita

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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
- [Read, Thomas Lawrence](#) - Professor of Music Emeritus
- [Reagin, Dolores M.](#) - Assistant Professor of Organizational, Counseling, and Foundational Studies Emerita
- [Reardon, Mildred Ann](#) - Professor of Medicine Emerita
- [Reed, J. Patrick](#) - Associate Professor of Medical Laboratory and Radiation Sciences Emeritus
- [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
- [Robertson, Craig A.](#) - Library Associate Professor Emeritus
- [Rogers, David L.](#) - Lecturer of Animal Science Emeritus
- [Roland, Margaret](#) - Associate Professor of Art Emerita
- [Rosa, Alfred F](#) - Professor of English Emeritus
- [Rosen, James C](#) - Professor of Psychology and Psychiatry Emeritus
- [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
- [Saia, John Jerome](#) - Associate Professor of Family Medicine Emeritus
- [Sampson, Samuel F.](#) - Professor of Sociology Emeritus
- [Sande, Diane R.](#) - Lecturer of Nursing Emerita
- [Sandoval, Dolores](#) - Associate Professor of Education Emerita
- [Sargent, Frederic O.](#) - Professor of Agricultural and Resource Economics Emeritus
- [Savitt, Ronald](#) - Professor of Business Administration Emeritus
- [Sawyer, Janet R.](#) - Professor of Professional Nursing Emerita
- [Scarfone, Leonard M.](#) - Professor of Physics Emeritus
- [Schaeffer, Warren I.](#) - Professor of Microbiology and Molecular Genetics Emeritus
- [Schenk, William M.](#) - Professor of Theatre 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 Shackford,
- Steven Robert - Professor of Surgery Emeritus
- Shea, William I. - Associate Professor of Surgery Emeritus
- Shepherd, Allen G. - Professor of English Emeritus
- Shinozaki, Tamotsu - Professor of Anesthesiology Emeritus
- Silverstein, Gerald C. - Lecturer of Microbiology and Molecular Genetics 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
- Snow, William Charles - Extension Associate Professor Emeritus
- Solomon, Laura Jean - Research Professor of Family Medicine and Psychology Emerita
- Soule, Phyllis M. - Assistant Professor of Nutritional Sciences Emerita
- Sowan, Nancy A. - Associate Professor of Nursing Emerita
- Spinner Jr., Thomas J. - Professor of History Emeritus
- Sproul, Marga Susan - Associate Professor of Family Medicine Emerita
- 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
- Steffens, Henry J - Professor of History Emeritus
- Stephany, William A - Professor of English 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

- [Stoler, Mark Alan](#) - Professor of History Emeritus
- [Stout, Neil R.](#) - Professor of History Emeritus
- [Strassburg, Kathleen](#) - Extension Professor of Textiles, Merchandising and Consumer Studies Emerita
- [Strauss, Michael John](#) - Professor of Chemistry Emeritus
- [Stryker III, Barent W.](#) - Extension Professor Emeritus
- [Sullivan, Anne Marie](#) - Associate Professor of Biomedical Technologies Emerita
- [Sullivan, Mary Jackman](#) - Lecturer of Education Emerita
- [Sumner, J Williams](#) - Extension Assistant Professor Emeritus
- [Sweterlitsch, Richard Carl](#) - Associate Professor of English 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, Lee J](#) - Professor of English Emeritus
- [Thompson, Noah C.](#) - Extension Professor Emeritus
- [Tindle, Barbara Heywood](#) -
- [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
- Trent, Elizabeth Scannell - Extension Associate Professor for Community Development and Applied Economics Emerita
- 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
- Twardy, Edward Stuart - Associate Professor of Public Administration Emeritus



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<a href="#">Y</a>	<a href="#">Z</a>					

- [Ugalde, Louis Maldonado](#) - Professor of Romance Languages Emeritus
- [Ullrich, Robert C.](#) - Professor of Botany and Agricultural Biochemistry Emeritus
- [Uphold, Ruth Esther](#) - Professor of Surgery Emerita
- [Ure, Helena A.](#) - Associate Professor of Professional Nursing Emerita

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<a href="#">Y</a>	<a href="#">Z</a>					

- [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
- [Von Turkovich, Branimir Francis](#) - Professor of Mathematics and Statistics Emeritus, Professor of Mechanical Engineering Emeritus

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<a href="#">O</a>	<a href="#">P</a>	<a href="#">R</a>	<a href="#">S</a>	<a href="#">T</a>	<a href="#">U</a>	<a href="#">V</a>
<a href="#">Y</a>	<a href="#">Z</a>					

- [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, Jospeh](#) - Professor of Anatomy and Neurobiology Emeritus
- [Welsh, George William](#) - Associate Professor of Medicine Emeritus
- [Weltin, Eugen E.](#) - Associate Professor of Chemistry Emeritus
- [Wertheimer, Alan Philip](#) - Professor of Political Science 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
- [Worden, John Kimball](#) - Research Professor of Family Medicine Emeritus [Worley,](#)
- [Ian Almer](#) - Professor Emeritus in the Rubenstein School of Environment and Natural Resources
- [Wright, Robert Kingman](#) - Professor of Mathematics Emeritus

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<a href="#">W</a>	<a href="#">Z</a>					

- [Young, William J.](#) - Professor of Anatomy and Neurobiology Emeritus
- [Yuan, Susan Jane](#) - Research Assistant Professor of Education Emerita

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<a href="#">W</a>	<a href="#">Y</a>					

- [Zarate, Armando](#) - Professor of Spanish Emeritus
- [Zimny, Nancy Joyce](#) - Associate Professor of Physical Therapy Emerita
- [Zucker, Barbara M.](#) - Professor of Art Emerita

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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 2008

- Robert F. Cioffi, B.A., M.B.A., Rowayton, Connecticut
- Carl H. Lisman, A.B., J.D., Charlotte, Vermont
- Raymond C. Pecor, Jr., A.B.A., Shelburne, Vermont
- Stirling A. Winder, Burlington, 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
- Beth H. Rice, Burlington, Vermont
- Robert H. Young, B.A., M.B.A., Rutland, Vermont

### Term Ending March 2010

- James M. Betts, B.S., M.D., Oakland, California
- Deborah H. McAneny, B.S., Southborough, Massachusetts
- John R. Snow, B.A., Charlotte, Vermont

### Term Ending March 2011

- Claire D. Ayer, B.A., R.N., Weybridge, Vermont
- Bill Botzow, B.A., Bennington, Vermont
- Frank J. Cioffi, B.A., St. Albans, Vermont


- Johannah Leddy Donovan, B.A., Burlington, Vermont

### Term Ending March 2012

- Ian D. Boyce, B.A., Fort Wayne, Indiana
- John A. Hilton, Jr., B.S., New York, New York
- Susan Hudson-Wilson, B.A., M.A., Chebeague Island, Maine

### Term Ending March 2013

- Harry L. Chen, B.A., M.D., Mendon, Vermont
- Davis, Jeffrey L., B.A., Underhill Center, Vermont
- Donna G. Sweaney, B.A., M.Ed., Windsor, Vermont
- Jeanette White, B.S., M.S., Putney, Vermont

See also, *[the Board of Trustees Web site](#)* .



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## Administration The University of Vermont

- Fogel, Daniel Mark, Ph.D., President
- Hughes, John M., Ph.D., Senior Vice President & Provost
- Bazluke, Francine T., J.D., Vice President for Legal Affairs & General Counsel
- Carr, Frances E., Ph.D., Vice President for Research & Dean of Graduate Studies
- Lucier, Christopher H., Vice President for Enrollment Management
- Gustafson, Thomas J., Ed.D., Vice President for Student & Campus Life
- Diamond, Marcus M., Vice President Development & Alumni Relations
- Meyer, Karen N., Vice President for Federal, State and Community Relations
- Nestor, David A., Ed.D., Associate Vice President for Campus Life & Dean of Students
- Belliveau, Cynthia and Vallett, Carol, Deans, Continuing Education
- Forcier, Lawrence K., Ph.D., Interim Dean, Rubenstein School of the Environment and Natural Resources
- DeWitt, Rocki-Lee, Ph.D., Dean, School of Business Administration
- Morin III, Frederick C., M.D., Dean, College of Medicine
- Grasso, Domenico, Ph.D., Dean, College of Engineering and Mathematical Sciences
- Johnson, Rachel N., Ph.D., Dean, College of Agriculture and Life Sciences
- Lantagne, Douglas O., Ph.D., Dean, Extension System
- Miller, Eleanor M., Ph.D., Dean, College of Arts and Sciences
- Miller, Fayneese S., Ph.D., Dean, College of Education and Social Services
- Rambur, Betty, D.N.S., Dean, College of Nursing and Health Sciences
- Rizvi, Abu, Ph.D., Interim Dean, Honors College
- Saule, Mara R., M.L.S., Dean, Libraries and Learning Resources

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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. Dr. Kenneth Ivan Golden is the Williams Professor of Mathematics.
- **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. Dr. 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. Dr. 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. Dr. Charles W. Kilpatrick is the Howard Professor.
- **The Flint Professorship of Mathematics, Natural or Technic Science** was established in 1895 by a bequest from Edwin Flint. Robert G. Jenkins is the the Flint Professor of Mathematics, Natural or Technic Science.
- **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. Dr. William A. Gibson is the Converse Professor.
- **The Thayer Professorship in 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. Dr. 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. Dr. Frank MacLlewlynn Bryan 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. Dr.

Judith L. Van Houten is the Perkins Professor.

- **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. Dr. Robert H. Rodgers 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. Mr. Anthony G. Bradley is the Corse Professor of English Language and Literature.
- **The Lawrence Forensic Professorship of Speech** was established in 1965 by Edwin W. Lawrence, lawyer and financier of Rutland, Vermont, A.B., 1901. Dr. Alfred C. Snider is the Lawrence Professor.
- **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. Dr. James M. Sinkula 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. Dr. Stephen J. Cutler is the Joyce Professor.
- **The Ernest Hiram Buttles Chair in Pathology** was established in 1984 to honor Ernest Hiram Buttles, Professor of Pathology and Bacteriology, 1921 to 1946. Sharon L. Mount, M.D. is the Buttles Chair in Pathology.
- **The McClure Professorship in Musculoskeletal Research** was established in 1988 by J. Warren and Lois H. McClure. Dr. Bruce D. Beynon is the McClure Professor.
- **The E. L. Amidon Chair in the Department of Medicine** was established in 1989 to honor Dr. E.L. Amidon, a revered teacher and former chair of the Department of Medicine. Polly E. Parsons, M.D. is the Amidon Chair.
- **The Roger H. Allbee '31 Professorship in Surgery** was created in 1992 by Roger H. Allbee, M.D. '31, to provide support for a research fellow in the Department of Surgery. Frederick Rogers, M.D. is the Allbee Professor.
- **The Gund Chair in Liberal Arts**, established in 1995 by Gordon and Lulie Gund, provides the College of Arts and Sciences with the opportunity to attract a leading teacher-scholar to one of the liberal arts disciplines. Dr. Robert V. Bartlett is the Gund Chair.
- **The Harry W. Wallace Professorship in Neonatology** was established in the Department of Pediatrics 1995 by the family of Harry W. Wallace to represent Mr. Wallace's philanthropic interests. Jerold F. Lucey, M.D. is the Wallace Professor.
- **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. Dr. X. Sean Wang is the Dorothean Chair.
- **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. Benjamin Littenberg, M.D. is the Tufo Chair in General Internal Medicine.
- **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. David N. Krag, M.D. is the S.D. Ireland Family Professor.

- **The Robert F. and Genevieve B. Patrick Chair in Nephrology** was created in 2000 through a generous bequest from the estate of Genevieve Patrick. The endowment is intended to support the study or specialty of nephrology. F. John Gennari, M.D. is the Patrick Chair in Nephrology.
- **The Patrick Chair in Watershed Planning and Science** was established in 2000 from the estate of Genevieve Patrick, bequest to the University. Dr. William Breck Bowden is the first Patrick Chair in Watershed Planning and Science.
- **The John Van Sicklen Maeck, M.D. Chair in Obstetrics and Gynecology** was established in 2000. The endowment supports the Chair of the Department of Obstetrics, Gynecology and Reproductive Sciences, who also holds the faculty position. Mark Phillippe, M.D. is the John Van Sicklen Maeck, M.D. Chair in Obstetrics and Gynecology.
- **The Gund Professorship of Ecological Economics** was established in 2001 by Gordon and Lulie Gund and their sons, Grant and Zachary. Prof. Robert Costanza is the Gund Professor of Ecological Economics.
- **The Stanley S. Fieber '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. David W. McFadden, M.D. is the Stanley S. Fieber '48 Chair in Surgery.
- **The Duncan W. Persons, M.D. '34 Green & Gold Professorship in Ophthalmology** was established in 2003. Bryan Y. Kim, M.D. is the Persons Professor.
- **Endowed Professorship in Radiation Therapy** was established in the College of Nursing and Health Sciences in 2003 by an anonymous donor. Mr. M. Ahmad Chaudhry is the Endowed Professor in Radiation Therapy.
- **The Albert G. Mackay '32 and H. Gordon Page '45 Professorship in Surgical Education** was established in 2005 to support the academic mission of the Department of Surgery. James Hebert, M.D. is the Mackay-Page Professor.
- **The Heinz and Rowena Ansbacher Green and Gold Professorship in Psychology** was established by Max, Ben, Ted, and Charles Ansbacher in October 2004 to honor the lifetime achievement of their father and mother, Heinz and Rowena, in the field of Psychology. Mr. Rex Forehand is the Ansbacher Green and Gold Professor in Psychology.
- **The Cordell E. Gross Green and Gold Professorship in Neurosurgery** was established in 2005. Bruce I. Tranmer, M. D., is the Gross Green & Gold Professor in Neurosurgery.
- **The Mary Kay Davignon Green and Gold Professorship** was established in 2005 to support the strategic priorities of the Dean of Medicine. Lawrence Kein, M.D., Ph.D. is the Davignon Green & Gold Professor.
- **The John P. and Kathryn H. Tampas '54 Green & Gold Professorship in Radiology** was established in 2005 to support education and research in the Department of Radiology. Brian S. Garra, M.D. is the Tampas, M.D. '54 Green & Gold Professor in Radiology.
- **The Samuel B. and Michelle D. Labow Green & Gold Professorship of Colon**

**& Rectal Surgery** was established in 2005 to support colon & rectal surgeons in the Department of Surgery. Neil H. Hyman, M.D. is the Labow Green & Gold Professor of Colon & Rectal Surgery.

- **The A. Bradley Soule and John Tampas Green & Gold Professorship of Radiology** was established in 2006 to support the Department of Radiology's academic mission. Jeffrey S. Klein, M.D. is the Soule-Tampas Green & Gold Professor of Radiology.
- **The R. James McKay, M.D. Green and Gold Professor in Pediatrics** was established in 2006 to support the research and educational activities in the Department of Pediatrics. Marshall L. Land, M.D. is the McKay Green and Gold Professor.
- **The Jerold F. Lucey Chair in Neonatal Medicine** was established in 2007 by Vermont Oxford Network, Inc. and other donors to advance the care of newborn infants and their families through research, education, and quality improvement in the Department of Pediatrics. Jeffrey Horbar, M.D. is the Lucey Chair in Neonatal Medicine.
- **The Thomas Achenbach Chair in Developmental Psychopathology** was established in 2007 by the Research Center for Children, Youth and Families, Inc to support research and education in the Department of Psychology. James J. Hudziak, M.D. is the Achenbach Chair in Developmental Psychopathology.



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