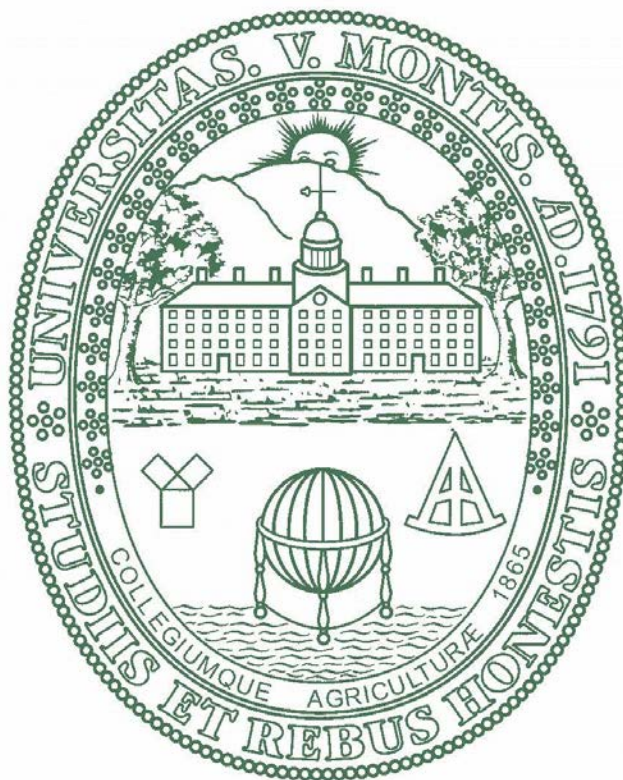


The University of Vermont



Undergraduate Catalogue

2012 - 2013

Table of Contents

Introduction	1
THE MISSION OF THE UNIVERSITY OF VERMONT	1
THE UNIVERSITY: A BRIEF HISTORY	1
UNIVERSITY ADMINISTRATION AND GOVERNANCE	1
HONORARY AND RECOGNITION SOCIETIES	1
ACCREDITATIONS	2
Admission to the University	3
GENERAL UNDERGRADUATE ADMISSIONS CRITERIA	3
ADMISSIONS PROGRAMS FOR UNDERGRADUATE STUDENTS	5
ADMISSIONS TO THE HONORS COLLEGE	5
TRANSFER STUDENT ADMISSIONS	5
INTERNATIONAL STUDENT ADMISSIONS	7
NONTRADITIONAL UNDERGRADUATE STUDENT ADMISSIONS	7
REAPPLYING TO THE UNIVERSITY AS AN UNDERGRADUATE	8
READMISSION TO UVM	8
RESIDENCY REGULATIONS, IN-STATE STATUS REGULATIONS	8
ARTICULATION AGREEMENTS	9
NEW UNDERGRADUATE STUDENT INFORMATION	11
Student Financial Services	12
TUITION AND FEES FOR UNDERGRADUATE STUDENTS	12
PAYMENT OBLIGATIONS	13
REFUND AND BILL ADJUSTMENT POLICIES	14
Financial Aid and Scholarships	15
FINANCIAL AID FOR UNDERGRADUATE STUDENTS	15
SCHOLARSHIPS FOR UNDERGRADUATE STUDENTS	15
Campus Resources	17
ACADEMIC RESOURCES	17
HEALTH SERVICES	17
CAMPUS LIFE	17
DIVERSITY AND EQUITY PROGRAMS	18
Academic and General Information	19
ACADEMIC ADVISING	19
ADVISING RESOURCES	19
TYPES OF ENROLLMENT	19
ENROLLMENT AND REGISTRATION	20
EXAMS AND GRADING	21
WAYS TO EARN CREDIT	23
DEGREE REQUIREMENTS FOR UNDERGRADUATES	24
RIGHTS AND RESPONSIBILITIES OF UNDERGRADUATE STUDENTS	25
UNIVERSITY RESPONSIBILITY	26
Academic Options	27
STUDY ABROAD	27
LIVING/LEARNING CENTER	27
PRE-PROFESSIONAL OPTIONS FOR UNDERGRADUATE STUDENTS	27

ACCELERATED DEGREE PROGRAMS	28
RESEARCH OPPORTUNITIES FOR UNDERGRADUATE STUDENTS	28
MILITARY STUDIES.....	28
CONTINUING EDUCATION	28
EXCHANGE PROGRAMS WITH NEW ENGLAND STATE UNIVERSITIES.....	30
Undergraduate Majors	31
Undergraduate Minors.....	32
Studying the Environment at UVM.....	33
MULTIDISCIPLINARY DEGREES ACROSS COLLEGES	33
ENVIRONMENTAL STUDIES.....	33
ENVIRONMENTAL SCIENCES.....	34
ENVIRONMENTAL ENGINEERING.....	35
The College of Agriculture and Life Sciences.....	36
ORGANIZATION	36
MAJOR DEGREE PROGRAMS.....	36
MAJOR DEGREE REQUIREMENTS	36
CALS CORE COMPETENCIES.....	36
REGULATIONS GOVERNING ACADEMIC STANDARDS.....	37
DISTINGUISHED UNDERGRADUATE RESEARCH (DUR) COLLEGE HONORS PROGRAM	37
HONORS PROGRAM.....	38
PRE-PROFESSIONAL PREPARATION	38
MAJORS: DEPARTMENTAL REQUIREMENTS.....	39
MINORS.....	46
The College of Arts and Sciences.....	47
ORGANIZATION AND DEGREE PROGRAMS	47
FIRST-YEAR PROGRAMS.....	47
PRE-PROFESSIONAL PREPARATION	47
REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE.....	48
REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE.....	50
REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE.....	50
INTERNSHIPS	51
REGULATIONS.....	51
MAJORS: DEPARTMENT REQUIREMENTS	52
The School of Business Administration.....	60
DEGREE PROGRAM	60
ACADEMIC STANDARDS.....	61
BUSINESS COURSE REQUIREMENTS.....	61
MINORS.....	63
The College of Education and Social Services	64
DEGREE PROGRAMS	64
DEGREE REQUIREMENTS.....	64
HUMAN DEVELOPMENT AND FAMILY STUDIES PROGRAM	65
SOCIAL WORK PROGRAM	66
TEACHER EDUCATION.....	66
ACADEMIC MAJORS AND MAJOR CONCENTRATIONS.....	71
POST BACCALAUREATE TEACHER PREPARATION PROGRAM	75
MASTER OF ARTS IN TEACHING (M.A.T.).....	75

MINORS.....	75
The College of Engineering and Mathematical Sciences	76
DEGREE PROGRAMS	76
HONORS THESIS PROGRAM.....	76
THE SCHOOL OF ENGINEERING.....	76
ACCREDITED ENGINEERING PROGRAMS	77
INTERDISCIPLINARY ENGINEERING DEGREES.....	81
DEPARTMENT OF COMPUTER SCIENCE.....	84
DEPARTMENT OF MATHEMATICS AND STATISTICS	85
MINORS.....	88
The College of Nursing and Health Sciences	89
ORGANIZATION	89
UNDERGRADUATE DEGREE PROGRAMS.....	89
RESPONSIBILITIES AND REQUIREMENTS.....	89
AREAS OF STUDY	89
The Rubenstein School of Environment and Natural Resources	96
DEGREE PROGRAMS AND OPTIONS	96
AIKEN SCHOLARS	96
OFFICE OF EXPERIENTIAL LEARNING	96
DEGREE REQUIREMENTS.....	96
MAJOR REQUIREMENTS.....	97
MINORS.....	99
The Honors College	100
ADMISSION TO THE HONORS COLLEGE.....	100
ACADEMIC STANDARDS.....	100
CURRICULUM.....	100
ADVISING AND SUPPORT	100
Undergraduate Minors - Descriptions	101
Diversity Courses	111
Courses of Instruction.....	113
The Board of Trustees.....	217
Administration.....	217
University Professorships.....	218
The University of Vermont Equal Opportunity.....	221

Academic Calendar

FALL 2012

First Day of Classes	August 27	Monday
Labor Day Holiday	September 3	Monday
Add/Drop, Audit, Pass/No Pass Deadline	September 10	Monday
Last Day to Withdraw	October 29	Monday
Thanksgiving Recess	November 19-23	Mon.-Friday
Last Day of Classes	December 5	Wednesday
Reading and Exam Period	December 6-14	Thursday, Friday-Friday
Reading Days	December 6, 12	Thursday, Wednesday
Exam Days	December 7, 10, 11, 13, 14	Fri., Mon., Tues., Th., Fri.
December Commencement	December 15	Saturday

WINTER 2013

First Day of Classes	December 26	Wednesday
Last Day of Classes	January 11	Friday

SPRING 2013

First Day of Classes	January 14	Monday
Martin Luther King Holiday	January 21	Monday
Add/Drop, Pass/No Pass, Audit Deadline	January 28	Monday
President's Day Holiday	February 18	Monday
Town Meeting Day Recess	March 5	Tuesday
Spring Recess	March 4-8	Monday-Friday
Last Day to Withdraw	March 29	Friday
Honors Day	April 19	Friday
Last Day of Classes	May 1	Wednesday
Reading and Exam Period	May 2-10	Th., Fri.-Fri.
Reading Days	May 2, 8	Th., Wed.
Exam Days	May 3, 6, 7, 9, 10	Fri., Mon., Tues., Th., Fri.
Commencement	May 19	Sunday

SUMMER 2013

First Day of Classes	May 20	Monday
Memorial Day Holiday	May 27	Monday
Fourth of July Holiday	July 4	Thursday
Last Day of Classes	August 9	Friday

Academic Calendar information for upcoming years is available on-line at:

<http://www.uvm.edu/~rgweb/calendar/>



Notes:

Refer to the policy on Class Attendance in the Academic and General Information section for information regarding observance of religious holidays and participation in intercollegiate athletics.

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

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

Although its legal title is The University of Vermont and State Agricultural College, the university is known to its students and alumni as UVM. This popular abbreviation is derived from the Latin *Universitāt Viridis Montis*, University of the Green Mountains.

The colors of the university are green and gold.
The mascot is the catamount.

Introduction

THE MISSION OF THE UNIVERSITY OF VERMONT

To create, evaluate, share, and apply knowledge and to prepare students to be accountable leaders who will bring to their work dedication to the global community, a grasp of complexity, effective problem-solving and communication skills, and an enduring commitment to learning and ethical conduct.

THE UNIVERSITY: A BRIEF HISTORY

Chartered in 1791, the same year that Vermont became the fourteenth state in the union, the University of Vermont was established as the fifth college in New England (after Harvard, Yale, Dartmouth and Brown). The university is popularly called UVM, a derivation of its Latin name, *Universit t Viridis Montis*, the University of the Green Mountains. Ira Allen, brother of Revolutionary War hero Ethan Allen and a central figure in Vermont's early economic and social development, led the drive to charter a state university and locate it in Burlington and is credited with founding the university. The new university's charter explicitly declared support for freedom of religion – making it the nation's first institution of higher learning to take such a public stance. This tradition of openness continued in 1871, when the university defied custom and admitted two women as students. Four years later, the university's Phi Beta Kappa chapter became the first honor society in the nation to admit women; two years after that, in 1877, the society became the nation's first to admit African American students.

The citizens of Burlington helped fund the university's first building and, when fire destroyed it in 1824, also paid for its replacement: the Old Mill. The Marquis de Lafayette, a French general who became a commander in the American Revolution, laid the cornerstone for the Old Mill, which still stands on the historic University Row, along with Ira Allen Chapel, Billings Hall, Williams Hall, Royall Tyler Theatre and Morrill Hall.

Although it began as a private university, UVM attained quasi-public status with the passage of the Morrill Land-Grant College Act in 1862 and the addition of the State Agricultural College. Today, the university blends the traditions of both a private and public university, drawing 14 percent of its general fund (and about 7 percent of its total budget) from the state of Vermont.

Some of our most famous graduates typify the university's independence of spirit and social consciousness. They include John Dewey, the late-19th-century educational philosopher; Jody Williams, recipient of the 1997 Nobel Peace Prize for the international campaign to ban landmines; John McGill, who led the U.S. section of Doctors Without Borders when it won the Nobel Peace Prize in 1999; and John Kilik, who has produced groundbreaking major motion pictures, including "Malcolm X," "Do the Right Thing" and "Dead Man Walking."

UVM offers more than 100 undergraduate majors, 54 master's programs, and 22 doctoral degrees including a medical degree.

During the 2011-12 academic year, the university enrolled approximately 10,450 undergraduate students, 1,530 graduate students, and 450 medical students. The university's academic units include: the Colleges of Agriculture and Life Sciences; Arts and Sciences; Education and Social Services; Engineering and Mathematical Sciences; Medicine; Nursing and Health Sciences; the Rubenstein School of Environment and Natural Resources; the School of Business Administration; the Honors College; the Graduate College; the University of Vermont Extension; the Division of Continuing Education; and the UVM Libraries. UVM is the nation's smallest land grant institution with a medical school. UVM is classified as a "Doctorate-granting University" by the Carnegie Foundation for the Advancement of Teaching, and is one of about 70 institutions in the U.S., out of over 4,300, that combine a "high research" profile with a

"high undergraduate" enrollment mix. The university employs over 3,700 full- and part-time faculty and staff.

The campus of the University of Vermont is located in Burlington, the state's largest city. Within a greater Burlington area of 150,000 people, the city with its population of 42,000 enjoys magnificent views of Lake Champlain and the Adirondack Mountains to the west and Vermont's Green Mountains to the east. Burlington is located approximately 200 miles northwest of Boston, 300 miles north of New York City, and 100 miles south of Montreal.

UNIVERSITY ADMINISTRATION AND GOVERNANCE

The University of Vermont combines elements of a private and public institution, a unique arrangement that is reflected in the makeup of the Board of Trustees.

The Board, which has full legal responsibility and authority for the university, consists of 25 members: nine legislative; nine self-perpetuating; three gubernatorial; two students; and two ex-officio members: the governor of Vermont and the president of the university.

The Trustees set and approve policies, budgets and strategic planning, and they have the authority to award honorary degrees and appoint the president of the university.

The administration, led by the president and the senior vice president/provost, and the Faculty Senate share responsibility in managing the university's academic affairs.

The Staff Council works with the administration on issues and policies that affect university staff.

The Student Government Association and Graduate Student Senate also play advisory roles to the administration, as well as recognizing student clubs and organizations and allocating funding.

HONORARY AND RECOGNITION SOCIETIES

Honorary and recognition societies at the University of Vermont recognize student contributions to the UVM community and their leadership in campus life.

University honorary societies include the Boulder Society, which acknowledges outstanding senior men; and the Tower Society, which acknowledges outstanding senior women.

National honorary societies represented on campus are as follows:

The *Phi Beta Kappa Society* established the Vermont Alpha Chapter at the university in 1848 and the local chapter was the first in Phi Beta Kappa to initiate women into membership. Initiates are chosen on the basis of high scholastic standing with emphasis on a broad distribution of liberal studies. This is interpreted to mean course work in all seven College of Arts and Sciences distribution categories including intermediate-level foreign language study. Membership criteria are published on the web; interested students and advisors should consult the chapter president.

Mortar Board is a national society for senior women and men. Although membership in Mortar Board comes as a high honor for a UVM student in recognition of outstanding service, scholarship, and leadership, it is also a challenge for continued unselfish service in the best interests of the college campus.

Golden Key National Honor Society recognizes the top fifteen percent of juniors and seniors in all fields of study. The society emphasizes scholarship and community service.

The *Society of the Sigma Xi*, established in 1945, initiates those who have proven their ability to do research in one of the sciences, including students who have a high scholastic standing.

The **National Society for Collegiate Scholars (NSCS)** recognizes first- and second-year students for outstanding academic achievement.

The alpha chapter of **Nu Delta Epsilon** was established at UVM in 1993. It is the first national honor society to recognize non-degree students who excel academically and exhibit a strong commitment to higher education and personal achievement.

Other honorary societies include: Alpha Kappa Delta (sociology), Alpha Omega Alpha (medical), Alpha Zeta (agriculture), Beta Gamma Sigma (business administration), Chi Epsilon (civil engineering), Eta Sigma Phi (classical studies), Delta Sigma Rho (debating), Gamma Theta Upsilon (geography), John Dewey Honors Program (College of Arts and Sciences), Justin Morrill Honors Program (College of Agriculture and Life Sciences), Kappa Delta Pi (education), Lambda Alpha (anthropology), Lola Aiken Scholars Program (Rubenstein School of Environment and Natural Resources), Omicron Nu (home economics), Order of Omega (fraternities and sororities), Phi Alpha Theta (history), Phi Eta Sigma (first-year students), Pi Sigma Alpha (political science honors society), Political Science Honors Program, Sigma Theta Tau (nursing), Tau Beta Pi (engineering), and Upsilon Pi Epsilon (computer science).

ACCREDITATIONS

The University of Vermont is accredited by the New England Association of Schools and Colleges, (NEASC), a non-governmental, nationally-recognized organization whose affiliated institutes include elementary schools through collegiate institutions offering post-graduate instruction.

Accreditation of an institution by the New England Association indicates that it meets or exceeds criteria for the assessment of institutional quality periodically applied through a peer group review process. An accredited school or college is one which has available the necessary resources to achieve its stated purposes through appropriate educational programs, is substantially doing so, and gives reasonable evidence that it will continue to do so in the foreseeable future. Institutional integrity is also addressed through accreditation.

Accreditation by the New England Association is not partial but applies to the institution as a whole. As such, it is not a guarantee of the quality of every course or program offered or the competence of individual graduates. Rather, it provides reasonable assurance about the quality of opportunities available to students who attend the institution.

Inquiries regarding the status of an institution's accreditation by the NEASC should be directed to the administrative staff of the university. Individuals may also contact the New England Association of Schools and Colleges, 209 Burlington Road, Bedford, MA 01730-1433, (781) 271-0022.

Specific academic program accreditations include:

AGRICULTURE AND LIFE SCIENCES

Dietetics — Commission on Accreditation for Dietetics Education

ARTS AND SCIENCES

Chemistry — American Chemical Society

Clinical Psychology — American Psychological Association

BUSINESS ADMINISTRATION

AACSB International — The Association to Advance Collegiate Schools of Business

EDUCATION AND SOCIAL SERVICES

Social Work — Council on Social Work Education

Teacher Education — Vermont Department of Education

Counseling — Council for Accreditation of Counseling and Related Educational Programs

Educator Preparation Programs — National Council for Accreditation of Teacher Education (NCATE)

ENGINEERING AND MATHEMATICAL SCIENCES

Engineering Programs — Commission of the Accreditation Board for Engineering and Technology

MEDICINE

Liaison Committee on Medical Education

American Medical Association

Association of American Medical Colleges

NURSING AND HEALTH SCIENCES

Athletic Training Education Program — Commission on Accreditation of Athletic Training Education

Radiation Therapy — Joint Review Committee on Education in Radiologic Technology

Medical Laboratory Science — National Accrediting Agency for Clinical Laboratory Science

Nuclear Medicine Technology — Joint Review Committee on Education Programs in Nuclear Medicine Technology

(Professional) Nursing — Commission on Collegiate Nursing Education (CCNE)

Physical Therapy — Commission on Accreditation in Physical Therapy Education

Speech-Language Pathology — American Speech Language-Hearing Association

Admission to the University

GENERAL UNDERGRADUATE ADMISSIONS CRITERIA

The University of Vermont welcomes applications from students of diverse backgrounds. Through a holistic admissions review, we select students with potential for academic success who will contribute to our community. The rigor of an applicant's academic program, class standing and grades, standardized test results, and trends in performance are considered. Essays, a letter of recommendation, and other evidence of each student's life experience also assist our evaluation. Admission decisions are made without regard to family financial circumstances.

In recognition of the university's focus on engaging with global, national, and state issues, UVM's admissions policies attempt to balance geographic diversity, diversity of racial, ethnic, and international backgrounds with a firm commitment to residents of the state of Vermont.

The University of Vermont welcomes applications from transfer students with a number of college credits completed. Transfer candidates are evaluated on performance in college-level course work completed, standing at previous institutions, and/or other credentials that reflect educational history. For transfer candidates who present fewer than twenty-one semester credits, the high school record is more heavily weighted. With twenty-one or more college credits the college record assumes more importance; the high school record will help determine completion of entrance requirements for the selected field of study. Course work not completed at the high school level may be fulfilled by equivalent college-level academic work. Students who were wait-listed or denied admission previously as high school students should be working toward completion of a minimum of twenty-one credits at the point of applying to UVM.

University admissions staff reviews applications and renders final admission decisions. Academic unit representatives are consulted on a case-by-case basis when a candidate's credentials are inconclusive. Admission policies are developed by the Office of Admissions in collaboration with the schools and colleges that constitute the University of Vermont and are subject to review by the University of Vermont Faculty Senate, the vice president for Enrollment Management, and the provost's office.

At a minimum, candidates for admission are expected to complete the entrance requirements prior to enrollment. These requirements have been established by the UVM faculty to ensure exposure to broad fields of intellectual inquiry; some programs require further study as indicated in the following sections. Most successful candidates have exceeded the minimums in all or most areas and, in many cases, present honors level course work, International Baccalaureate, Advanced Placement, or other rigorous course work in some areas.

Admissions Requirements and Recommendations by UVM College/School

Each of the university's undergraduate colleges and schools reserves the right to set additional requirements for their majors and to recommend courses of study beyond the minimum presented below.

College of Agriculture and Life Sciences

Required: One year of biology and one year of chemistry for science majors.

Recommended: Candidates are strongly encouraged to take one year of physics and at least one year of math beyond Algebra II (calculus is preferred).

College of Arts and Sciences

Recommended: Course work across the span of liberal arts disciplines; four years of math, including trigonometry; foreign language study all four years of high school.

School of Business Administration

Required: Four years of mathematics with high achievement, including at least one year beyond Algebra II (trigonometry, pre-calculus or calculus are preferred).

College of Education and Social Services

Recommended: One year of biology for Human Development and Family Studies and Social Work majors.

Math and science course work beyond the minimum for teacher education majors.

Minimum Entrance Requirements

At a minimum, candidates for all majors at UVM are expected to have met the following requirements prior to enrollment:

4 years of English

3 years of mathematics (Algebra I, geometry, Algebra II, or equivalent courses)

3 years of social science

2 years of natural or physical science, including a lab science

2 years of the same foreign language; (American Sign Language meets this requirement)

Most successful applicants exceed the minimum entrance requirements. Any exceptions to these requirements are made on a case-by-case basis.

Course work not completed at the high school level may be fulfilled by equivalent college-level academic work.

In general, one semester of college work is considered the equivalent of one year of high school study.

College of Engineering and Mathematical Sciences

Required: Four years of mathematics, including trigonometry or pre-calculus. One year of chemistry and one year of physics for all engineering majors. All other majors: two years of a laboratory-based science.

Honors College

Required: Admission to one of the seven undergraduate schools and colleges at UVM. Completion of the most challenging courses offered by the student's high school. Admission is by invitation; no application is required.

Rubenstein School of Environment and Natural Resources

Required: One year of biology and one year of chemistry or physics. Additional year of college preparatory math beyond Algebra II.

College of Nursing and Health Sciences

Required: One year of biology and one year of chemistry for all majors; four years of math, including trigonometry or pre-calculus; one year of physics for Exercise and Movement Science majors.

Recommended: Additional science course beyond chemistry and biology in the senior year of high school for all majors in the college. One year of physics is recommended for applicants to the Radiation Therapy, Nuclear Medicine Technology and Athletic Training majors.

Application Deadlines and Notification Dates for Undergraduates

(The deadlines noted below are electronic submission or postmark dates.)

Spring Semester

November 1 — First-year and Transfer candidates. Notification is on a rolling basis. Payment of a \$450 acceptance fee as proof of intention to enroll is generally due 20 business days from the date of the letter of admission. Payment of the acceptance fee is required prior to the start of the semester of enrollment.

Fall Semester

November 1 — Early Action First-Year candidates. Notification is generally by mid-December. Early Action candidates have until May 1 to pay the \$450 acceptance fee as proof of intention to enroll; this program is non-binding. Payment of the acceptance fee is required prior to the start of the semester of enrollment.

January 15 — Regular First-Year candidates. Notification for most decisions is by the end of March. A \$450 acceptance fee is due May 1 as proof of intention to enroll. Payment of the acceptance fee is required prior to the start of the semester of enrollment.

April 15 — Transfer candidates. Notification is on a rolling basis. Payment of a \$450 acceptance fee as proof of intention to enroll is due May 1 or, after May 1, generally within 20 business days from the date of the letter of admission. Payment of the acceptance fee is required prior to the start of the semester of enrollment, and no later than the first day of classes in the semester of enrollment.

International students should adhere to all application and payment deadlines listed above. Notification is on a rolling basis.

Please note: deadlines and payment amounts are subject to change.

Application and Supporting Materials for Undergraduates

To review an application and render a decision, the admissions office must receive the following by the appropriate deadlines:

Application for admission Candidates may apply online using the Common Application and UVM Supplement at:
<http://www.uvm.edu/admissions/undergraduate/applying>.

Application fee The \$55 non-refundable application fee can be paid as part of the submission of the Common Application via credit card or e-check. The application fee for a paper application is payable to the University of Vermont via check or money order. For candidates for whom the fee poses a financial hardship, fee waivers are accepted from the College Board, school counselors, the admissions office, or other reputable sources familiar with the applicant's financial situation.

Official transcripts from all secondary and (for transfer students) postsecondary course work. Candidates may not ignore any previous academic work and are expected to provide a full, accurate account of the academic record. Only transcripts sent directly from the issuing agency via electronic submission or mail are considered official.

Secondary school report should be completed by the secondary school counselor or other school official who is familiar with the student.

Standardized testing results (First-Year Candidates only): The university requires first-year candidates to submit results from either the SAT or ACT (with the writing component). UVM's code for the SAT is 3290 and 4322 for the ACT. Standardized test scores are considered official only if submitted directly from the testing agency. For further information regarding these tests, contact a high school guidance office or go directly to the following websites:
<http://www.collegeboard.org> and <http://www.act.org/>.

Letter of recommendation All candidates must present **one** letter of recommendation. First-year students are encouraged to obtain a recommendation from either a school/college counselor or current or recent teacher. Transfer students are encouraged to obtain a recommendation from a current or recent professor.

Essays UVM requires one extended essay as part of the Common Application.

Music majors Candidates for the Bachelor of Arts in Music or Bachelor of Science in Music Education must contact the music department to arrange for an audition or submit an audition CD or DVD before an application is considered complete. These materials become property of UVM and will not be returned. More information is available at <http://www.uvm.edu/~music>.

Matriculation Status

The admissions office requires proof of high school graduation or equivalent for all students enrolling in degree programs at UVM.

High school graduates must submit a final high school transcript showing date of graduation prior to the start of the semester of enrollment. Recipients of the **General Education Development (GED) certificate** are required to send an official score report from the testing agency to the admissions office in addition to official transcripts of any previous high school or college-level work completed.

The University of Vermont welcomes applications from students who plan to complete high school in three years, provided all entrance requirements and other admissions criteria have been met. **Three-year graduates** are asked to submit written proof of support from the high school indicating that the school district has approved early graduation and is prepared to issue a diploma prior to the start of the semester of enrollment.

UVM welcomes applications from home-schooled students. Students are required to meet all the entrance requirements outlined in this catalogue, to submit standardized test results (First-Year candidates only), to document academic work covered by the curriculum (home-schooled students must supply the admissions office with a copy of the curriculum approved by the home state, if applicable), and provide acceptable proof of graduation. An official transcript of any course work taken at a local or virtual high school is also required. If entrance requirements cannot be determined from this information, the student may be contacted for more information or additional documentation. Official college transcripts are required for any college-level course work. Advanced Placement (AP) or College Level Examination Program (CLEP) results may be used to demonstrate background in required areas. If a home-schooled student chooses to enroll at UVM, the student will need to provide documentation of successful completion of secondary level studies in the form of a final transcript, a General Equivalency Diploma (GED), or a certificate of completion from the local school district or state board of education. If the home school program does not provide a diploma, please contact the admissions office to discern the final documentation required before enrollment.

Acceptable Proof of Graduation

High School Diploma. (Some home-schooled students receive a diploma from their area secondary school.)

General Education Development (GED) certificates and state certificates.

A Certificate of Completion of a home-study program if the program is recognized by the student's home state.

For transfer students only: if a formerly home-schooled student has completed sixty semester credits of college course work comparable to UVM course work and has met all entrance requirements, no proof of high school graduation is required.

ADMISSIONS PROGRAMS FOR UNDERGRADUATE STUDENTS

Early Action Students applying as first-year degree-seeking students who wish to learn of their admission decision by late December may apply by November 1 under the Early Action program. Applicants admitted under Early Action have until May 1 to pay an acceptance fee but do not have to make a binding commitment to attend the university.

Some Early Action candidates will be deferred until the admissions office has reviewed all first-year applicants for fall admission. Deferred applications are automatically reviewed again and decisions are generally released by the end of March. Early Action candidates may also be denied admission and do not have the option of re-applying for entry to the same semester.

Regular Decision Students may apply as first-year degree-seeking students by January 15 for consideration for fall semester entrance. Students who complete their application for admission will be notified of an admissions decision by late March. Regular decision applicants may be denied admission or offered a place on the waiting list.

New England Regional Tuition Break Program The University of Vermont participates with the other public two-and four-year institutions of higher education in the six New England states in the New England Board of Higher Education's (NEBHE) Tuition Break Program, an option aimed at increasing educational opportunities for the region's students. All approved programs can be accessed at <http://www.nebhe.org/>.

Beginning in the fall of 2007, New England resident students enrolling in an approved program are charged 175% of in-state tuition.

UVM bachelor's degree programs offered for the 2012-13 academic year are:

- Plant Biology to residents of MA
- Canadian Studies to residents of CT, MA, NH, and RI
- Forestry to residents of CT, MA and RI
- Greek to residents of CT, ME and RI
- Latin to residents of CT and RI
- Russian to residents of CT, MA, ME, and RI

For a full listing of programs and policies, contact the New England Board of Higher Education at <http://nebhe.org>.

Guaranteed Admission Program (GAP) The Guaranteed Admission Program provides advising services and guarantees admission after successful completion of approved academic credit courses taken through Continuing Education. The program is administered cooperatively by Continuing Education, Undergraduate Admissions, and the deans' offices of the colleges and schools within UVM.

To qualify for the Guaranteed Admission Program students must have a high school diploma or General Education Development (GED). Students are required to complete a minimum of eighteen semester credits in approved courses including courses for the proposed major and general education requirements and earn a minimum of a 3.00 cumulative grade-point average. Any admissions requirements lacking from high school must also be completed.

A few majors may have additional restrictions or may not be accessible through the Guaranteed Admission Program. Please review the Continuing Education website: <http://www.uvm.edu/~learn> for a list of these programs.

Students should call the Continuing Education office at (802) 656-2085 or (800) 639-3210 to schedule an appointment with an advisor. A high school transcript as well as a transcript for any previous college work should be provided at the appointment.

The advisor will discuss the program and begin the process of determining the courses needed to complete the contract. If a student has earned previous credits, a copy of his/her transcripts will be forwarded to the Office of Transfer Affairs to determine which courses will transfer to UVM upon admission.

ADMISSIONS TO THE HONORS COLLEGE

Admission to the Honors College (HC) is based on prior academic performance and students are admitted in one of two ways. First-year students are invited to the HC based on the strength of their application for admission to the university; no additional application is required. Approximately 150 first-year students comprise each year's class. The Honors College recognizes and encourages academic excellence; it also welcomes applications for sophomore admission from students who were not in the HC in the first year, and are among the top performers as first-year students at UVM. Sophomore admission requires an application form, a 3.40 grade-point average at the end of the first year, a letter of recommendation from a UVM faculty member, and a brief essay. More than 100 sophomores are admitted annually. Students transferring into the first or second year at UVM should contact the Honors College offices to express their interest.

TRANSFER STUDENT ADMISSIONS

The university welcomes applicants who have demonstrated success at other institutions of higher education and who have met all university-wide entrance requirements either in high school or in college. For the purpose of admission, a transfer candidate is one who has enrolled in college-level courses for credit after completion of secondary school.

All transfer students are considered for admission on a space-available, competitive basis.

In making transfer admission decisions, the admissions office reviews all academic information available: official transcripts of all college-level work and the high school record (or GED). Submission of standardized test scores such as the SAT or the ACT is optional for transfer candidates.

Transfer candidates are subject to the minimum entrance requirements outlined for first-year candidates, including the specific college's or school's additional requirements. Any entrance requirement not fulfilled in high school can be met by an equivalent semester-long college course prior to admission to UVM.

For transfer candidates who have earned fewer than twenty-one college-level semester credits, the quality of the high school record and course rigor remain the primary admissions criteria. After twenty-one earned semester credits, the college grade-point average and course selection are the most important factors in a decision. The admissions office still reviews the high school record to determine if all university-wide entrance requirements have been met. Students who were wait-listed or denied admission previously as high school students should be working toward completion of a minimum of twenty-one credits at the point of applying to UVM.

The minimum grade-point average requirement for all transfer candidates is 2.50 on a four-point scale. Generally, a 3.00 average or above is recommended to be competitive. Transfer applicants are encouraged to review progression and graduation requirements for each college or school.

Additional Transfer Requirements

College of Nursing and Health Sciences A limited number of seats may be available for qualified applicants interested in transferring to the College of Nursing and Health Sciences. Applicants to the nursing major must have completed approximately thirty semester credits of the non-nursing required course work from the first year of the curriculum. Qualified applicants to all other majors will be considered on a space-available basis.

School of Business Administration The School of Business Administration requires transfer applicants to have completed at least one semester of college-level calculus and one semester of college-level economics (micro or macro economics is preferred) with at least a GPA of 2.50 or better. AP credits are acceptable. Transfer applicants who do not meet this requirement will only be considered for their second major choice outside the School of Business Administration.

Students who do not meet the minimum requirements are encouraged to enroll in the College of Arts and Sciences to complete the business prerequisites prior to initiating an internal transfer. Upper-level business transfer credit must come from an AACSB accredited institution to be considered for equivalent transfer credit.

College of Engineering and Mathematical Sciences Students transferring to UVM under articulation agreements should be aware of the School of Engineering's Pre-Engineering Technical (PET) requirement. In order to take sophomore or higher level engineering courses, students must have transfer credits for Calculus I and II (i.e., MATH 021 and 022), college chemistry (CHEM 031), calculus-based physics I (PHYS 031) and a programming course in MATLAB (CS 020). Transferring students will need to have transfer credit or complete the PET requirement(s), with a C- or better in all courses, during their first semester at UVM.

Honors College Transfer students with first-year standing and a minimum grade-point average of 3.40 from their former institution are eligible to apply for sophomore admission to the Honors College. Students with junior or senior standing cannot be considered for the Honors College as they are not able to complete the necessary curricular requirements to become Honors College Scholars. Admission to the university is a prerequisite for applying to the Honors College. Students may work on both applications concurrently, but no action will be taken on the Honors College application until the student is admitted to the university.

Transfer Credit Policy

The Office of Transfer Affairs reviews each college-level course taken by transfer candidates accepted for admission. Transfer candidates are notified electronically with their official credit evaluation. To receive transfer credit, a course must have been taken at a regionally accredited degree-granting college or university for credit; it must be comparable in content, nature, and intensity to a course offered at UVM; and the grade earned must be comparable to a C or higher as indicated on an official transcript. The dean of the college or school determines the applicability of the transfer course(s) to the student's degree requirements at the university. Credit is given for course content only once; it is the student's responsibility not to duplicate courses.

All transfer credit remains provisional until the transfer student successfully completes one semester of course work as a degree student at UVM. The UVM grade-point average reflects only course work taken here. Grades from other institutions are not calculated into the UVM GPA and will not appear on a UVM transcript.

Credit through the **Advanced Placement Program (AP) of the College Board** is granted for scores of 4 or 5. Scores of 3 are acceptable for some exams. Consult our AP credit guide for specifics at: http://www.uvm.edu/admissions/undergraduate/AP_Guide.pdf. Official AP score reports from the College Board must be sent directly to the Office of Transfer Affairs in order to receive credit. AP course equivalencies are determined by the faculty of the corresponding subject area and are awarded by the Office of Transfer Affairs. AP credit is assigned a UVM course equivalency and applicability to the degree program is determined by the dean's office of the student's college or school. Students receiving transfer credit for AP may not receive credit for the same course at UVM.

Students who complete **International Baccalaureate (IB)** course work and receive a score of 5 or greater on higher level IB exams may be eligible for transfer credit (UVM does not award credit for standard level exams). Students may receive credit for course work without completing the entire IB curriculum. Up to one year of introductory course work may be awarded in a discipline.

College-level courses taken through high school cooperatives, such as **Syracuse University Project Advance (SUPA)**, may transfer to UVM if they meet the standards set forth above by the Office of Transfer Affairs. Credit may also be obtained through a nationally standardized exam to demonstrate college-level subject mastery. Advanced Placement Examinations (AP), which can be taken while still in high school, or College Level Examination Placement (CLEP) would serve as recognized standardized exams. More information about UVM's CLEP policy is available at:

<http://www.uvm.edu/admissions/undergraduate/applying/?Page=other.html>. A third option is the UVM Credit by Exam. Contact the Office of Transfer Affairs for more information.

Diversity Requirement and Transfer Credit

All transfer credit review starts with the Office of Transfer Affairs. In order to determine if a transferred course will satisfy the Category One (D1) or Category Two (D2) Diversity requirement please submit the following to the Office of Transfer Affairs:

- A detailed syllabus of the transferred course in question. Additional supporting documentation may be requested if the committee deems it necessary.
- An essay of approximately **one page** that explicitly states **which** requirement (D1 or D2) the transferred course is attempting to fulfill and **how** the transferred course meets the diversity criteria, as outlined for each category.
- Information about what is required to be addressed in each category can be found on the Office of the Registrar's website at:
http://www.uvm.edu/~rgweb/?Page=transferringcredit/t_diversity.html&SM=t_menu.html.

Further questions regarding transfer credit should be addressed to the Office of Transfer Affairs, 360 Waterman Building, University of Vermont, Burlington, VT 05405-0160, (802) 656-0867 or email: transfer@uvm.edu.

INTERNATIONAL STUDENT ADMISSIONS

The university welcomes the applications of international students.

Academic Documents International applicants must submit official original transcripts of all secondary and postsecondary education, including final exam results. If documents are not in English, certified translations are required. Information regarding certified translation services can be obtained at the applicant's embassy or through University Language Services, within the U.S. at (800) 419-4601. Outside the U.S., call (212) 766-4111, or visit:

<http://www.universitylanguage.com>. This information is provided for your convenience only. All arrangements must be made directly with the translation option of your choice.

Standardized Tests Students applying as first-year candidates must present official scores from either the SAT or the ACT (with writing). If English is not the student's first language, official scores of the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) will need to be submitted. UVM requires a minimum band IELTS score of 6.5, a minimum iBT score of 79-80 or 550 paper-based TOEFL.

For information about test dates and sites for SAT exams, contact the College Board at <http://www.collegeboard.org>.

For ACT exams, go to <http://www.act.org>.

For TOEFL, go to <http://www.ets.org>.

For IELTS, go to <http://www.ielts.org>.

If an international student has attended a U.S. institution for three or more years, the office of admissions may waive the requirement for TOEFL or IELTS scores on a case-by-case basis.

US-Sino Pathway Program The U.S.-Sino Pathway Program (USPP) is a partnership between the Consortium of North American Universities (CNAU), comprising Baylor University, DePaul University, Marist College, Northeastern University, Stevens Institute of Technology, the University of Utah, and the University of Vermont, and global education service provider Kaplan China (<http://www.kaplan.com.sg/>). The program provides a success-oriented pathway for talented Chinese students to pursue undergraduate studies in the U.S. at one of the CNAU partner institutions.

USPP students start the program with a full year of college-level course work in China. Students who select UVM as their destination institution then enter a ten-week Summer Bridge program on the UVM campus. Successful completion of the Summer Bridge program will lead to matriculation in the fall semester with second-year status. Students are offered conditional admission to UVM on the basis of their performance in the credit-bearing courses taken during the fall and spring semesters in China with at least a 2.70 cumulative grade-point average. Final admission is granted on the basis of grades earned in the UVM Summer Bridge program. USPP students must meet the minimum entrance requirements for the college or school they choose. Students who matriculate into UVM through the US-Sino Pathway Program are considered for merit-based scholarship assistance. For more details, visit the following website: <http://www.uvm.edu/sfs/scholarships>.

English as a Second Language (ESL) Programs The University of Vermont offers two English-as-a-Second-Language courses intended to ease the transition to studying and living in an English-speaking environment. Interested students with TOEFL or IELTS scores below the recommended minimum may want to consider transferring to the University of Vermont after studying at a U.S. college or university that offers intensive ESL preparation, although UVM will consider candidates on a case-by-case basis.

The ESL intensive program closest to the University of Vermont is found at Saint Michael's College, an accredited institution of higher

learning in nearby Colchester, Vermont. For full information about Saint Michael's College, contact the English Language Programs Office, Saint Michael's College, One Winooski Park, Colchester, VT 05439, by phone at (802) 654-2301 or by email at: nspeziani@smcvt.edu.

For further information concerning available programs, contact: NAFSA: Association of International Educators, 1875 Connecticut Ave. NW, Suite 100, Washington, DC 20009-5728 or visit them at: <http://www.nafsa.org>.

Financial Support for International Students The university offers merit-based scholarships to international students each year. Most international students pay the full cost of attending UVM; students attending on non-immigrant student visas are charged out-of-state tuition rates. All international students are considered for these merit-based scholarships; no additional application is required. Information about merit scholarships for international students may be found at:

<http://www.uvm.edu/sfs/scholarships>.

Form I-20 International students requiring an F-1 student visa to begin studies at the University of Vermont must complete an I-20 request form and submit it to UVM's Office of International Education. The I-20 form can only be issued when a student has been formally admitted to UVM and has provided proof of sufficient financial support to cover educational expenses for one full academic year. The student must provide documentation for all sources of financial support. Financial documents must be submitted in English, state an exact currency amount (preferably in U.S. dollars) and be less than six months old at the point of submission for I-20 issuance.

For more information on obtaining an I-20, contact the Office of International Education, 633 Main St., Living/Learning B162, Burlington, VT 05405; Tel: 011-802-656-4296 or visit the website: <http://www.uvm.edu/~oies>.

Transfer Credit for International Students International students who have attended postsecondary institutions in their home country may be eligible for UVM credit under the Transfer Credit Policy guidelines. International students should submit comprehensive course descriptions and outlines, translated in English, to the Office of Transfer Affairs, 360 Waterman Building, Burlington, VT 05405-0160, USA. Submission of these materials helps the Office of Transfer Affairs prepare a full credit evaluation prior to enrollment at UVM. All translations must be certified by the school of record, or by an official NACES member translation agency. Translations must accompany all original documentation. If you have post-secondary college-level course work, you may wish to have your credentials evaluated for U.S. academic equivalents. For more information, please contact the Office of Transfer Affairs at (802) 656-0867, or email: transfer@uvm.edu.

NONTRADITIONAL UNDERGRADUATE STUDENT ADMISSIONS

The admissions office recognizes that candidates 24 years and older who have not been enrolled in an educational institution may require additional consideration in the admissions process.

As with every applicant for admission, nontraditional candidates are required to present official documents of all academic work, including high school transcript and/or General Education Development certificate (GED) and transcripts of all college-level work attempted. The admissions office looks for previous academic performance that would predict success at the university. The admissions office may waive the standardized test requirement on a case-by-case basis for first-year applicants. Students may contact an admissions counselor for further information. Students are also encouraged to describe their activities after high school completion as part of their application to UVM.

Nontraditional applicants who are missing any entrance requirements are reviewed on a case-by-case basis. If a record is otherwise admissible, the admissions office may offer admission with a clause requiring completion of missing requirements prior to enrollment or concurrent with the UVM degree program. UVM does not grant college credit through portfolio assessment. Nontraditional candidates may explore credit options through the College Level Examination Program (CLEP):

<http://clep.collegeboard.org/?affiliateId=rdr&bannerId=clep>
or through UVM's Credit by Exam.

REAPPLYING TO THE UNIVERSITY AS AN UNDERGRADUATE

Applicants denied admission for a given semester may reapply for a subsequent semester. Students who were wait-listed or denied admission previously as high school students should be working toward completion of a minimum of twenty-one semester credits at the point of applying to UVM. Anyone reapplying must submit a new application form and application fee, and update any academic information. Essays may be adjusted to reflect applicant's recent activities. These individuals should contact the admissions office to discuss academic work that would improve their chances for admission.

Under certain conditions, candidates offered admission who choose not to attend in a given semester can defer entry for up to two semesters with permission of the admissions office. Students who defer admission are required to pay the acceptance fee for the semester to which they applied and may not enroll in another degree program at another college or university. After that period, or if the admitted candidate failed to request deferred admission, another application and fee must be filed for review by the admissions office.

READMISSION TO UVM

Former degree students at the University of Vermont who withdrew for any reason must see the dean of his/her former UVM college or school to request re-entry. The admissions office does not readmit former degree students.

RESIDENCY REGULATIONS, IN-STATE STATUS REGULATIONS

The Vermont Legislature has established a lower rate of tuition for students who are Vermont residents. These regulations define eligibility requirements for in-state status classification. All students at the University of Vermont (UVM) are assigned an in-state or out-of-state status classification consistent with these regulations. The establishment of domicile in Vermont is necessary, but not sufficient, for a student to qualify for in-state status.

In-State Status Classification Regulations

1. Domicile shall mean a person's true, fixed, and permanent home. It is the place at which one intends to remain indefinitely and to which one intends to return when absent.
2. In addition to establishing domicile, an in-state status applicant must reside in Vermont continuously for one full year prior to the semester for which in-state status is sought.
3. A residence or domicile established for the purpose of attending UVM shall not qualify a student for in-state status.
4. An in-state status applicant who applies for admission or registers for class within one year of first moving to the state shall have created a rebuttable presumption that residency in Vermont is for the purpose of attending UVM and/or acquiring in-state status for tuition purposes.
5. A domicile or residency classification assigned by a public or private authority other than UVM neither qualifies nor disqualifies a student for UVM in-state status. Such classification may be taken into consideration, however, in determining the student's status at UVM.

6. It shall be presumed that a student who has not reached the age of majority (18) holds the domicile of his/her parents or legal guardian(s).
7. Receipt of financial support by a student from his/her family shall create a rebuttable presumption that the student's domicile is with his/her family, regardless of whether the student has reached the age of 18.
8. A student who has not reached the age of 18 whose parents are legally separated or divorced shall be rebuttably presumed to hold the domicile of the parent with legal custody.
9. A student of parents legally separated or divorced may be granted in-state status if a non-custodial or joint custodial parent is domiciled in Vermont and has contributed more than 50 percent of financial support for at least one year prior to the semester for which in-state status is sought.
10. The burden of proof as to eligibility for in-state status rests with the student. Eligibility must be established by clear and convincing evidence.

Residency Rules for Members of the Armed Forces and their Family Members

In compliance with the Higher Education Opportunity Act, the following rules and definitions apply for members of the armed forces, their spouses and dependent children:

1. A member of the armed forces who is on active duty for a period of more than 30 days and whose domicile or permanent duty station is in Vermont, or his or her spouse or dependent children, will be charged tuition at the in-state rate.
2. The member of the armed forces or his or her family member who is eligible for in-state tuition under this paragraph will continue to be eligible for in-state tuition as long as the individual is continuously enrolled, even if there is a subsequent change in the permanent duty station of the member to a location outside of the state of Vermont.
3. For purposes of this Rule for members of the armed forces the following definitions apply:
 - a. "Armed Forces" means the Army, Navy, Air Force, Marine Corps, and Coast Guard.
 - b. "Active duty for a period of more than 30 days" means active duty under a call or order that does not specify a period of 30 days or less.
 - c. "Active duty" means full-time duty in the active military service of the United States and includes full-time training duty, annual training duty, and attendance, while in the active military service, at a school designated as a service school by law or by the Secretary of the military department concerned. Such term does not include full-time National Guard duty.

In-State Status Classification Documentation

1. The student must submit with the application for In-State Status all relevant information.
2. The classification decision shall be made by the residency officer based upon information furnished by the student, information requested of the student, and other relevant information available consistent with university policies and procedures and legal guidelines.
3. Additional documents and/or verification may be requested.
4. The student's failure to produce information requested may adversely affect the decision for in-state status.
5. A student or others furnishing information may request the deletion of irrelevant private data from documents.
6. A determination of in-state status is valid only if a student actually enrolls for the semester in question. If a student does not enroll, they must submit a new and timely application for In-State Status for subsequent semesters.

Appeal of In-State Status Classification

The decision of the residency officer must be appealed in writing to the residency appellate officer within thirty (30) calendar days of the date of the residency officer's written decision. Appeal to the residency appellate officer is the final internal appeal at UVM.

In-State Status Reclassification

1. A student who does not qualify for in-state status classification may reapply for such classification once each semester by submitting the application for In-State Status to the residency officer.
2. In-state status reclassification becomes effective for the semester in which the successful application was made, provided that the application for In-State Status was received on or before the last day to add/drop classes for that semester. An application may be submitted as early as 75 days in advance of the first day of classes for a semester. Approved residency reclassification will not be applied retroactively to previous terms.

Re-Examination of Classification Status

Classification status may be re-examined upon the initiative of the residency officer in the exercise of sound discretion. Circumstances such as periodic enrollment may be cause for re-examination.

ARTICULATION AGREEMENTS

1) CCV/College of Arts and Sciences

Students who have completed an associate degree at the Community College of Vermont (CCV) can be admitted to the University of Vermont's College of Arts and Sciences under the following conditions:

- Students must complete a minimum of sixty transferable academic credits pre-approved by UVM's Office of Transfer Affairs.
- Students must present a CCV grade-point average of 2.50 (on a 4.00 scale) or better.
- Candidates for the Articulation Agreement must meet UVM's minimum entrance requirements prior to CCV graduation.
- CCV students must initiate their degree program at UVM within two years of completing the CCV associate degree.
- CCV associate degree students will be held to the policies that are in effect at the time they are admitted to UVM.

2) CCV/College of Education and Social Services

Students who have completed a minimum of thirty transferable credits based on the transfer credit policy of the University of Vermont can be admitted into the College of Education and Social Services (CESS). The agreement includes the programs in Human Development and Family Studies, Social Work, Teacher Education programs in Art, Early Childhood Education, Elementary Education, and Secondary Education.

- Students must present a CCV grade-point average of 2.50 (on a 4.00 scale) or better.
- Candidates must meet UVM's minimum entrance requirements or have prior approval from the College of Education and Social Services and the office of admissions.
- To be eligible under the terms of the Articulation Agreement, CCV students must initiate their degree program at UVM within two years of completion of their courses at CCV. Faculty at both institutions will cooperatively certify students as eligible under the terms of the agreement.
- Co-advisement by the appropriate CESS and CCV advisors is essential. Through co-advisement, CCV students may gain secure permission to enroll in beginning level CESS courses at UVM while enrolled at CCV.
- CCV transfer students will be held to policies that are in effect at the time they are admitted to UVM.

The Process Starts at CCV Current or prospective CCV students interested in this option should meet with a CCV advisor early in their college career to develop an Articulation Plan that outlines course work and ensures completion of any UVM requirements in English, foreign language, mathematics, science, and social sciences. At this time, students will provide transcripts of all previous academic work. This allows the CCV advisor to review the record and assess UVM entrance requirements and CCV course placement.

Admissions Process at UVM CCV articulation candidates are encouraged to meet with a transfer counselor in the UVM admissions office to ensure course transferability. Candidates are asked to submit a completed Application for Admission and all financial aid forms by the stated UVM deadlines.

CCV students who have signed the Articulation Agreement do not pay UVM's application fee. Articulation candidates should include a brief statement in the UVM Application for Admission indicating they are applying under this option.

Candidates for UVM admission must submit official copies of all college course work attempted for credit, including the Community College of Vermont transcript. An official high school transcript is required only for candidates who must prove completion of all UVM entrance requirements prior to CCV entry.

UVM admissions will review articulation student applications for the minimum GPA and entrance requirements. Offers of admission will be sent to those meeting the established criteria. To become a matriculated student at UVM, CCV articulation students must pay an acceptance fee by the date stipulated in the admission letter.

Candidates whose GPAs fall below the minimum will be reviewed by UVM on a case-by-case basis. Those denied admission are encouraged to meet with a transfer counselor at UVM to review future options.

For a current list of transferable CCV courses and UVM equivalents, contact a CCV advisor. Students may also check the Transfer Guide on the UVM registrar's office website:
<http://www.uvm.edu/~rgweb/>.

Recipients of a CCV associate degree prior to 1999 may contact the UVM transfer advisors for general transfer information.

CCV graduates interested in UVM programs outside the College of Arts and Sciences and the College of Education and Social Services are encouraged to meet with a UVM transfer counselor to discuss their academic history and potential for transfer admission.

3) Saint Michael's College/UVM Engineering 3+2

In the fall of 1994, Saint Michael's College (SMC) and the University of Vermont established an articulation agreement for a Dual Degree program in Engineering. This agreement guarantees students who meet specified criteria admission to a prescribed program of study in engineering at UVM. Upon successful completion of the program and degree requirements, students receive a Bachelor of Arts or Bachelor of Science degree from SMC and a Bachelor of Science degree in the appropriate engineering area from UVM. **Students normally complete the program in five years.**

The academic advising, admission, transfer of credits, enrollment, and monetary conditions in this agreement applicable to students will be carried out in accordance with the following policies and procedures.

1. Initial application to the program will be made to SMC.
2. Students will enroll in the program by declaring a pre-engineering major at the time of admission to SMC to permit them to complete all prerequisites in a reasonable time (see SMC catalogue for pre-engineering program).
3. Students may register for any of the options in the Civil, Environmental, Electrical or Mechanical Engineering, Engineering, or Engineering Management programs.
4. Students enrolling under this program will be considered SMC students throughout the duration of the program. Once

admitted to UVM according to the policies of this Agreement, they also become UVM students for the remainder of the program.

5. For the first three years the host institution for students in the program will be SMC, and for the last two years the host institution will be UVM. Tuition and fees will be paid to the host institution according to its normal policies (including residence status, financial aid, etc.). Tuition for courses taken at the other institution will be paid by the host institution transferring funds based on an agreed upon amount per credit.
6. While students are enrolled at a host institution they will be independently responsible for applicable fees at the other institution according to the other institution's policies (at UVM this includes but is not limited to the admission fee and the comprehensive fee). Each institution will communicate the applicable fees for the upcoming academic year to the other institution (Dean of CEMS at UVM; VPAA at SMC) by June 1 or as soon as the fees are determined for the upcoming academic year, whichever is later.
7. Students in the program will make a formal application to UVM by April 15 in the spring semester of their third year at SMC and pay the application fee.
8. To become a matriculated student at UVM, St. Michael's articulation students must pay an acceptance fee by the date stipulated in the admission letter.
9. Students will matriculate at UVM and will be accepted to the appropriate engineering program at UVM once they have met the following requirements: (a) completion of at least sixty credits at SMC with appropriate courses, in good standing; (b) completion of Part 1 of the required pre-engineering courses at SMC, as specified in the Agreement (see SMC catalogue); and (c) completion of the credits of UVM engineering courses, including the following list of courses, with a minimum GPA of 2.30 in these courses:
 - BS Engineering:** ENGR 002; EE 003 or 100; CE 001; ME 040; CS 020
 - Civil Engineering:** CE 001, 010, 132; CS 020; ENGR 002; ME 012
 - Environmental Engineering:** CE 001, 010, 132; CHEM 032; CS 020; ENGR 002; ME 012
 - Electrical Engineering:** EE 003, 004, 081, 082, 131; ENGR 002; CS 020
 - Mechanical Engineering:** ME 012, 014, 040, 042; ENGR 002; CE 001; CS 020
 - Engineering Management:**
 - CE option: ENGR 002; CE 001, 010, 132; CS 020; ME 012
 - EE option: ENGR 002; EE 003, 004, 081, 082, 131; CS 020
 - ME option: ENGR 002; CE 001; ME 012, 040, 082; CS 020
10. Students transferring to UVM under articulation agreements should be aware of the School of Engineering's Pre-Engineering Technical (PET) requirement. In order to take sophomore or higher level engineering courses, students must have transfer credits for calculus I and II (i.e., MATH 021 and 022), college chemistry (CHEM 031), calculus-based physics I (PHYS 031) and a programming course in MATLAB. Transferring students will need to complete the PET requirement with a C- or better in all courses during their first semester at UVM.

4) Vermont Technical College/UVM Engineering

Vermont Technical College and the University of Vermont have an articulation agreement in engineering. This agreement provides a structured sequence of courses at VTC that, if completed successfully, would guarantee acceptance as a transfer student in an engineering discipline in UVM's College of Engineering and Mathematical Sciences. Upon successful completion of the Associate in Engineering Technology degree and with the clear recommendation of VTC's academic dean or his/her assignee, the student would then spend a

minimum of two years at the University of Vermont. While studying at UVM, the student will complete the major course requirements that will lead to a baccalaureate degree from UVM. Students must earn a grade of "C" or better in any VTC course for the course to be accepted for transfer credit. Students presenting with less than a 3.00 grade-point average will be considered on a case-by-case basis. UVM will guarantee the acceptance of VTC graduates who have a grade-point average of 3.00 or better from the following programs:

- Civil Engineering Technology
- Computer Engineering Technology
- Electrical and Electronics Engineering Technology
- Mechanical Engineering Technology

Initial acceptance for admission to the program will be made to VTC where the candidate will be subject to the admission requirements of the institution. A student will indicate the desire to enroll in the articulation program at the time of the student's admission to VTC or early enough in the student's program at VTC to permit the student to complete all prerequisite courses. Articulation program students will be subject to the same admissions deadlines as other transfer applicants to the university. The application for fall admissions and supporting credentials should be received by the undergraduate admissions office at UVM no later than April 15. The student must indicate on the application that they are in the VTC/UVM articulation program. All information and correspondence pertaining to student transfer in this agreement will be handled by UVM's admissions office. Correspondence related to course selection should be addressed to the Student Services office in UVM's College of Engineering and Mathematical Sciences. In addition to the course list in the appendix, a student may be required to register for additional courses. This agreement will be reviewed every third academic year, starting in 2006-2007, in order to modify the program requirements as necessary.

Students transferring to UVM under articulation agreements should be aware of the School of Engineering's Pre-Engineering Technical (PET) requirement. In order to take sophomore or higher level engineering courses, students must have transfer credits for calculus I and II (i.e., MATH 021 and 022), college chemistry (CHEM 031), calculus-based physics I (PHYS 031) and a programming course in MATLAB. Transferring students will need to complete the PET requirement with a C- or better in all courses during their first semester at UVM.

For more information, please contact UVM's College of Engineering and Mathematical Sciences Student Services office at (800) 364-6284 or by e-mailing info@cems.uvm.edu.

5) Vermont Technical College/ UVM 2+2 FARMS Program

Students who have completed an associate degree in the Vermont Technical College Dairy Management program can be admitted into the University of Vermont's College of Agriculture and Life Sciences (CALS) in the Animal Science or Community Entrepreneurship major, leading to a bachelor's degree. Transferable courses are limited to those directly comparable to UVM courses and meeting the requirements for both programs.

For acceptance, students must meet the following criteria:

- Students must have a 3.00 grade-point average (on 4.00 scale) or better.
- Students must meet the minimum entrance requirements for the university and for the Animal Sciences or Community Entrepreneurship major. A list of these courses can be obtained from the agreement coordinator in the College of Agriculture and Life Sciences.
- All students who do not meet the above conditions can apply for transfer admission and be reviewed on a case-by-case basis.
- Candidates applying to the University of Vermont under this agreement do not pay the application fee.

For more information about this agreement and course equivalencies, please contact the agreement coordinator in the College of Agriculture and Life Sciences at 802-656-2890.

NEW UNDERGRADUATE STUDENT INFORMATION

(Important information for students after the payment of the acceptance fee.)

Orientation All entering first-year students are required to attend a two-day orientation session in June. For more information, please refer to <http://www.uvm.edu/studentlife/orientation>.

Housing First-time, first-year and second-year students are required to live in on-campus housing. For more information, visit: <http://reslife.uvm.edu>. Housing for transfer students is available on a space-available basis.

Class Registration An academic advisor at Orientation helps prepare the first semester class schedule. First-year students entering in the fall semester register for classes at June Orientation. First-year students entering in the spring and transfer students entering either semester meet with an academic advisor at an Orientation session and may need to formally register for classes at that time.

Immunization and Health History Forms Pre-matriculation health requirements must be completed and submitted to the UVM Center for Health and Wellbeing Student Health Services before a student's first term at UVM. These requirements are presented in both paper and online forms. New students will receive detailed instructions regarding the immunizations required by Vermont state law. More about the health requirements can be found at this link: <http://www.uvm.edu/~CHWB/health/>.

Student Financial Services

TUITION AND FEES FOR UNDERGRADUATE STUDENTS

The student expenses outlined in the following paragraphs are anticipated charges for the 2012-2013 academic year. Changing costs may require adjustment of these charges before the beginning of the fall semester. To view charges approved by the Board of Trustees after the May 2012 board meeting please visit the website: <http://www.uvm.edu/sfs/>.

Application Fee

A nonrefundable application fee of \$55 is charged for each application for admission to a university degree program.

Acceptance Payment

To reserve a space in the class or semester admitted, students must submit an acceptance fee of \$450 online (preferred) at <http://www.uvm.edu/admissions/appstatus>, or send a check, payable to the University of Vermont, to the admissions office. See <http://www.uvm.edu/admissions/undergraduate/admitted/?Page=enroll.html> for more information. Payment of the acceptance fee is required prior to the start of the semester of enrollment, and no later than the first day of classes of the semester of enrollment.

Acceptance fee refunds will be returned by May 1 to students admitted for the fall semester, but who decide not to enroll. Transfer students and students admitted for spring semester may receive a refund up to the payment deadline noted in the letter of admission.

Estimated Yearly Expenses

(Estimated costs are subject to change until approved by the Board of Trustees in May 2012)

Listed below are estimated expenses (excluding transportation, laundry, and spending money) based on the tuition for full-time undergraduate students, followed by an explanation of these charges.

	<i>Resident</i>	<i>Nonresident</i>
Tuition	\$13,344	\$33,672
Housing/Average Room & Meal	\$10,064	\$10,064
Comprehensive Student Fee	\$1,910	\$1,910
Inter-Residence Association Fee	\$30	\$30
Student Government Association Fee	\$168	\$168
Textbooks and Supplies (Estimated)	\$1,200	\$1,200
Optional Student Health Insurance Plan ('11-'12 cost)	\$2,178*	\$2,178*

** This reflects the UVM Student Health Insurance Plan for the 2011-2012 school year. For 2012-2013 premium information, visit <http://www.uvm.edu/~chwb/insurance/>.*

Tuition

(Estimated costs are subject to change until approved by the Board of Trustees in May 2012)

In-State Students: \$556 per credit through 11.5 credits. From twelve-eighteen credits — \$6,672 per semester plus \$556 per credit for each credit in excess of eighteen credits.

Out-of-State Students: \$1,403 per credit through 11.5 credits. From twelve-eighteen credits — \$16,836 per semester plus \$1,403 per credit for each credit in excess of eighteen credits.

Note: Courses taken for audit are also included in determining the number of credits for which a student is billed.

Housing Charges

Room and Board: All housing agreements include both room and board and are legally binding for the nine-month academic year. Each occupant is responsible for the yearly rent, one half to be paid each semester.

For information related to housing, please refer to: <http://reslife.uvm.edu/>.

For information related to meal plans, please visit: <http://uds.uvm.edu/>.

Comprehensive Student Fee

This fee is used to cover the operating, capital costs, and improvements of the Library, Student Center, Athletic Complex, Center for Health and Wellbeing, Campus Transportation Services, Instructional Technology, and other Student Services.

Inter-Residence Association Fee

A per semester fee is charged to each resident to be used for activities within the residence hall system. For more specific information related to fee amount, please refer to:

http://www.uvm.edu/~rlweb/?Page=students/cost/ira_fee.html&SM=students/cost/cost_sm.html.

Health Insurance

Students enrolled in nine or more credits are required to have health insurance. These students must purchase the UVM Student Health Insurance or provide verification of comparable other coverage.

For additional information please visit the website of the Center for Health & Wellbeing:

<http://www.uvm.edu/health/insurance>.

Student Government Association Fee

Undergraduate degree students enrolled in four or more credits are charged the Student Government Fee each semester. This fee is allocated by the Student Government Association toward the support of student organizations and student activities. For students enrolled in twelve or more credits in a semester, this fee is included in the Comprehensive Student Fee. For additional information on specific fee amounts, please visit the Tuition and Fees website for Student Financial Services:

<http://www.uvm.edu/~stdfinsv/?Page=undergrad-tuition.html&SM=tuitionsubmenu.html>.

Fees for Part-Time Students

(Estimated costs are subject to change until approved by the Board of Trustees in May 2012)

Students enrolled in one to four credits in a semester will be charged \$10 per credit to offset costs associated with registration.

A comprehensive fee is charged to all part-time students enrolled in at least five but less than twelve credits in a semester, as follows:

<i>Credits Enrolled / Semester</i>	<i>Fee</i>
5	\$371
6	\$413
7	\$466
8	\$517
9 to 11.5	\$566

Books and Supplies

The estimated yearly cost of books and supplies at \$1,200 is a low average. Some particular curricula may require one time purchases that will change this amount.

Physical Therapy students will be responsible for the cost of medically-required vaccinations, transportation, and living expenses (including room and board) during clinical affiliation periods. All Physical Therapy students are required to carry professional liability insurance prior to enrolling in the clinical experience.

Nuclear Medicine Technology and Radiation Therapy students are responsible for lab coats and other related expenses.

Professional Nursing students are responsible for the cost of clinical attire, vaccinations, CPR certification, and other related expenses prior to the clinical experience.

Students enrolled in art courses should expect to incur a lab or materials cost roughly equivalent to the cost of books in other courses. In certain courses, instructional materials are purchased in bulk by the department and costs are prorated among students at a far lower rate than if they were purchased individually.

Optional and Unique Fees for Undergraduate Students

Locker-Towel Fee

All students enrolled in physical education activity courses and others who wish to have an assigned locker must pay a locker-towel fee each year or any portion thereof. This fee provides a locker and a clean towel after each use of the gymnasium facility.

The School of Business Administration

All new first-year and transfer students entering programs in the school are required to purchase a microcomputer. Details on the cost and the machine specifications are provided to the student at the time of admission.

Credit by Exam

A fee will be charged for administration of special tests in areas for which academic credit may be received. This fee must be paid in advance.

Fees for Courses in Music Performance Study

Private applied lessons in most instruments and voice are available each semester, for academic credit, to qualified students. Private lessons meet for 14 weeks during the semester. Both one-half hour (one academic credit) or one hour (two academic credits) lessons may be taken, depending on the recommendation of the faculty. To review the detailed fees associated with music lessons, visit: <http://www.uvm.edu/music> and click on "Lessons".

Any student enrolled in excess of eighteen credits because of private applied lessons will be charged only the additional Private Lesson fee, and not the supplemental tuition charges for taking more than the permitted eighteen credits. However, permission from the respective dean's office to exceed eighteen academic credits in a semester must still be obtained.

The Rubenstein School of Environment and Natural Resources Summer Field Courses

Students majoring in Forestry or Wildlife Biology are required to take summer field courses. Forestry majors must take FOR 122 and Wildlife Biology majors must take WFB 131 and WFB 150.

The tuition for the Rubenstein School of Environment and Natural Resources Summer Field Courses will be at the Summer Session credit rate. In addition, there may be charges for field expenses.

Department of Nursing

A fee of approximately \$30 annually (estimated) will be charged each student for membership in the National Student Nurse Association and

a fee of approximately \$30 a year (estimated) for professional liability insurance will be billed to juniors and seniors. ATI (Assessment Technologies Institute) testing fees will be billed to seniors, at approximately \$83. These fees are included with the usual tuition bills.

Additional Fees for Special Courses

Occasionally, a special fee will be charged in addition to the fee for tuition to cover long distance travel expenses, special equipment, arrangements, or skilled consultants. Students will be notified of this fee through the registration process.

Study Abroad

A \$500 administrative fee will be assessed for students participating in a semester or year-long study abroad program and \$250 for summer programs.

Diagnostic Evaluation

In certain instances, students may be assessed a fee for diagnostic testing. Additional information can be obtained from the Office of Specialized Student Services.

PAYMENT OBLIGATIONS

By registering for courses, students are entering into a financial arrangement with UVM and accept responsibility for charges billed to their UVM account. The online registration system will generate charges based on enrolled credits. All tuition, fees, and room and board charges are payable in full upon billing. Students who enroll in advance for courses will receive itemized statements of applicable semester charges through their university e-mail, with instructions to settle in full by a specific date (usually three weeks before classes begin). Advance payments are accepted; checks should be made payable to the University of Vermont. Any checks or payments received by the university may be applied to outstanding balances.

Students who cannot meet their financial obligations because of unusual circumstances should contact the Office of Student Financial Services as soon as possible before the payment due date.

Students who have not satisfactorily completed financial arrangements by the announced due date will be assessed a late payment fee and a hold preventing registration and access to grades and transcripts and may have their enrollment cancelled. Disenrollment will automatically place a registration hold on a student's account that will prevent re-enrolling until the student has contacted Student Financial Services to discuss the account. A \$50 fee must be paid to allow re-registration.

The university reserves the right to withhold registration material, the diploma, degree, and all information regarding the record, including transcript, of any student who is in arrears in the payment of tuition, fees, or other charges, including, but not limited to, student loans, dining and housing charges, telephone toll charges, and parking fines.

Seriously delinquent accounts may be placed with an outside collection agency and/or reported to the national credit bureau system. Students are responsible for all late payment fees, collection charges, attorney fees, interest and any other costs and charges necessary for the collection of amounts not paid when due.

Late Payment Fee

Students who do not settle their accounts by the due date will be charged a late payment fee. Please refer to the Payment Information and Financial Policies information on the following website: <http://www.uvm.edu/sfs/bill>.

Budgeted Payment

The university offers a Monthly Payment Plan to parents who desire to budget annual costs in monthly installments. Specific information is mailed to parents of incoming and returning students in the spring and can also be found online by visiting: <http://www.uvm.edu/sfs/bill>.

REFUND AND BILL ADJUSTMENT POLICIES

Please see the Refund and Bill Adjustment Policy at this address:
<http://www.uvm.edu/policies/student/billadjust.pdf>.

Acceptance Fee and Advance Payments for New Students

A newly admitted undergraduate student for fall semester who decides not to attend the university may request a full refund of the acceptance fee by submitting a written request to the admissions office postmarked on or before May 1. After May 1, the acceptance fee is non-refundable.

Transfer students and students admitted for spring semester whose plans to enroll change before the payment deadline noted on the enrollment card, may request a full refund of the acceptance fee. Requests should be made in writing to the admissions office.

Cancellation and Withdrawal

A student who cancels or withdraws for personal or medical reasons will receive an adjustment of charges in accordance with the following schedule. Medical withdrawals require approval of the University Student Health Center.

- 100% tuition, fees, room and board credit adjustment if withdrawal occurs by the fourteenth day after the first day of classes for the semester.
- 50% tuition, fees, room and board credit adjustment if withdrawal occurs by the twenty-first day after the first day of classes for the semester.
- 25% tuition, fees, room and board credit adjustment if withdrawal occurs by the twenty-eighth day after the first day of classes for the semester.
- No adjustment if withdrawal occurs on or after the twenty-ninth day after the first day of classes for the semester.

In the case of suspension or dismissal from the university for disciplinary reasons, there will be no refund of tuition, room, meal plan, or comprehensive fees for the semester, nor will there be any reduction in amounts due to the university for the semester if the bill has not been paid fully at the time of suspension or dismissal.

Note: In no case will an adjustment be made after the first day of classes of the following semester.

Changes In Credit Load

A student who adds courses during the semester will be billed additional tuition and fees applicable to the adjusted credit load. A student who drops courses during the semester will receive a tuition credit based upon the effective date as described above. However, the course will remain on the student's record.

Death

In the case of a student's death, tuition, room, and fees will be fully refunded for the semester during which the death occurs. Unused meal points will be refunded.

Financial Aid and Scholarships

The university has many programs to help finance a UVM education. These include financial aid awards for students with a demonstrated need for financial assistance and scholarship awards for students whose academic achievements and other accomplishments and qualities promise to enrich the university in exceptional ways.

For more information, visit the Student Financial Services website at: <http://www.uvm.edu/sfs/>.

FINANCIAL AID FOR UNDERGRADUATE STUDENTS

For questions about financial aid at UVM, contact Student Financial Services via the information below:

Phone: (802) 656-5700

Web: <http://www.uvm.edu/sfs>

Fax: (802) 656-4076

Eligibility

Students who wish to be considered for assistance in meeting their university expenses with student loans, grants, or employment should consider applying for federal, state, and university financial aid. To be eligible to apply for financial aid, a student must be a U.S. citizen or a permanent resident. To be considered for aid, a student must also be enrolled at least half-time (six credits) in a degree program. Audited credits or Credits by Exam cannot be considered as part of the credits in determining financial aid eligibility. Students enrolling as non-degree (through Continuing Education) may be eligible for limited financial aid. Visit: <http://www.uvm.edu/sfs/> for more information.

Application Procedures

Incoming first-year students who wish to apply for aid may do so by submitting the Free Application for Federal Student Aid (FAFSA) online at <http://www.fafsa.ed.gov/> after January 1 and before February 10th and by providing any verification information requested by UVM Student Financial Services. Incoming transfer students and returning UVM students should submit their FAFSA online between January 1st and March 1st. Applications submitted after these dates will be processed in chronological order, subject to the availability of funds. In addition to following the procedures listed above, all students should apply to their state financial aid grant agency for assistance. Vermont students should apply to the Vermont Student Assistance Corporation (VSAC) at: <http://services.vvac.org/wps/wcm/connect/vvac/VSAC/Pay+for+College/Funding+Sources/Grants/>.

The Financial Aid Package

The University of Vermont participates in most federal and state financial aid programs and must adhere to their requirements. Additionally, the university makes available a variety of grant and loan opportunities from its own operating and endowment funds. While most federal and state aid is based exclusively on student need, eligibility for university funds is based on student need and on the strength of the applicant's academic record. Applicants will be considered for all aid programs for which they are eligible. Aid is most often awarded in combinations or "packages" of the various types of aid. Almost all awards will include some student loan.

Student loans are available to all students regardless of need in the form of Unsubsidized Federal Stafford Loans. To be considered, however, a student must APPLY for aid. After a determination of eligibility has been made by Student Financial Services, students will be notified if they qualify for "need-based" aid or for an Unsubsidized Federal Stafford Loan.

In the awarding of UVM institutional financial aid funds, a student's academic record is taken into consideration. Most federal and state financial aid funds are allocated solely on the basis of student and parent financial need.

Satisfactory Academic Progress Standard for Financial Aid Recipients

In order to maintain eligibility for federal Title IV financial aid, matriculated undergraduate students must progress at a rate that ensures completion of their degree programs within a reasonable time frame. Full-time undergraduate students may be entitled to up to six years of financial aid eligibility to complete their degree requirements. 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 credits totaling at least 75 percent of the number of credits attempted. Each student's progress will be measured at the end of each semester to ensure adherence to this standard.

During the first two academic years, in order to qualify for assistance, students must have attained at least a cumulative grade-point average (GPA) of:

- 2.30 for students in the College of Engineering and Mathematics
- 2.00 for students in the College of Nursing and Health Sciences and the College of Education and Social Services
- 1.67 for all other students

Beginning with the third academic year, in order to qualify for assistance, students must have attained at least a cumulative grade-point average (GPA) of:

- 2.30 for students in the College of Engineering and Mathematics
- 2.50 for students in the College of Nursing and Health Sciences, and the College of Education and Social Sciences
- 2.00 for all other students

Any student not meeting the standard described above will be placed on Financial Aid Warning Status for a one semester period (during which time 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 warning semester, 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 Student Financial Services. 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 that resulted in the student's not meeting the stated requirements.

Standards for graduate students enrolled in a master's or doctoral degree program can be found by clicking on "Academic Progress and Aid" found on this website: <http://www.uvm.edu/sfs/handbook>.

SCHOLARSHIPS FOR UNDERGRADUATE STUDENTS

Thanks to the generosity of UVM alumni, parents, and friends, a number of scholarships are available to incoming first-time, first-year undergraduate students whose experiences and backgrounds promise to enrich the larger university community. While many of these scholarships are based on a combination of need and merit, several scholarships are offered exclusively on the basis of academic

achievements and potential for success at UVM. For more information, visit:

<http://www.uvm.edu/sfs/scholarships>. Samples of scholarships available to new students include:

The Vermont Scholars Program Each year, UVM names a select group of outstanding Vermont high school students as Vermont Scholars, an academic honor that carries a four-year scholarship. To qualify, candidates generally rank in the top ten percent of their graduating class and present superior scores on the SAT Reasoning Test (SAT). Comparable ACT scores are acceptable.

Final selection is based on such factors as secondary school record, recommendations, admissions essays, extracurricular participation and academic potential. Scholarship recipients are notified by mid-March.

Vermont Scholars receive a merit scholarship of \$4,500 annually. The scholarship is renewable up to four years (eight semesters) or until the student graduates (whichever comes first) provided a 3.00 cumulative grade-point average and full-time enrollment is maintained.

The Green and Gold Scholars Program recognizes the academically strongest student at each accredited high school in Vermont with 4-year, full tuition scholarships, currently valued at over \$51,000. At the end of the academic year, the principal of each school submits a nominee who has completed the 11th grade. The primary criteria for determining a nominee is limited to academic performance in high school, including rank in class, grade-point average, rigor of course work and standardized testing. Green and Gold nominees are awarded four-year full tuition scholarships upon admission to the university. The scholarships are renewable annually providing that the recipient maintains a 3.00 overall grade-point average and full-time enrollment.

UVM Community Service Scholarship Vermont and out-of-state residents who have demonstrated an exceptional commitment to community and public service may apply for the UVM Community Service Scholarship. Community Service Scholars are awarded \$3,000 annually. Recipients must maintain at least a 2.50 cumulative grade-point average, perform 80 hours of community service annually while at the university, and enroll in two one-credit seminars across each of the first and second academic years. First-year Community Service Scholars live and participate in the Dewey House for Civic Engagement. Community Service Scholars will be selected by the UVM Office of Community-University Partnerships and Service Learning.

Presidential Scholarship Out-of-state students with a superior record of scholastic achievement are eligible for consideration for the UVM Presidential Scholarship. Letters of recommendation, secondary school record, and extracurricular participation are among the criteria used in making scholarship selections. Presidential Scholars receive a merit scholarship for four years (eight semesters) or until graduation (whichever comes first) providing they maintain a cumulative 3.00 grade-point average and full-time enrollment, and continue to make satisfactory progress toward the completion of their degree requirements. Scholarship recipients are awarded a four year (eight semester) merit scholarship of up to \$11,000 annually.

Trustees Scholarship Academically talented out-of-state students are eligible for consideration for the UVM Trustees Scholarship. Letters of recommendation, secondary school record, and extracurricular participation are among the criteria used in making scholarship selections. Trustees Scholars receive a merit scholarship for four years (eight semesters) or until graduation (whichever comes first) providing they maintain a cumulative 3.00 grade-point average and full-time enrollment. Scholarship values range from \$2,000-\$7,000 per year.

Patrick Scholarship The Patrick Scholarship is awarded to academically deserving Vermonters in the amount of \$2,000 per year for four years.

International Scholarships Several scholarships are available for international students who are admitted to the University of Vermont, including U.S.-Sino Pathway Program students. Applicants for admission are automatically considered for these scholarships based on their application materials. Eligibility for the scholarships is based on academic merit. More information about available international scholarships is available at:

<http://www.uvm.edu/sfs/scholarships>.

How to Apply for UVM Scholarships

There is no separate application process for most UVM-based scholarships. First-year applicants are considered for most UVM scholarships simply by submitting the UVM admissions application. Transfer applicants are not eligible for merit scholarships. The wealth of information provided in the admissions application is used in matching students with available scholarships. Additionally, students must file the Free Application for Federal Student Aid (FAFSA) in order to be considered for need-based scholarships. For more information, including details on scholarships that do require separate applications, visit:

<http://www.uvm.edu/sfs/scholarships>.

Other Scholarship Resources

- VSAC (the Vermont Student Assistance Corporation) offers a guide to scholarships for Vermont students. Contact VSAC toll-free at (800) 798-8722 or visit: <http://services.vvac.org/wps/wcm/connect/vvac/VSAC>.
- The Army ROTC Program offers an opportunity for students to earn a degree of their choice and possibly qualify for an officer's commission. For ROTC Scholarship information, visit: <http://www.goarmy.com/rotc.html>.
- The Air Force ROTC, through a dual enrollment agreement between UVM and Norwich University, offers an opportunity for students to earn a degree of their choice and possibly qualify for an officer's commission. For Air Force ROTC Scholarship information, visit: <http://www.norwich.edu/cadets/airforcerotc/>.
- Veterans are encouraged to consult the UVM registrar's office and to visit: <http://www.uvm.edu/sfs/veterans> regarding G.I. Bill benefits for education, including the Yellow Ribbon Program.
- Many organizations within home communities offer a wide range of scholarships to needy and deserving students. Check with schools and communities for these opportunities.

Veterans Educational Benefits

The university provides support and information to any veteran or dependent eligible for benefits under Federal Law, Chapters 30, 31, 32, 33, 34, 35, or 1606 and 1607. Students eligible for these benefits should contact the registrar's office each semester to request an enrollment certification. Students wishing to register for benefits should be prepared to present their certificates of eligibility. UVM is a Yellow Ribbon school. Eligible students must apply annually.

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) 656-0867.

Campus Resources

A student's commitment to strong academic performance coupled with healthy out-of-class pursuits forms the basis for a successful college experience. The units listed and described in this section are meant to acquaint students with some of the offices, services, and programs that support student endeavors, needs, and interests. More detailed information is available on the dean of students office's website at: <http://www.uvm.edu/~dos/>.

ACADEMIC RESOURCES

A wide array of academic services and programs exist on campus. They include:

Academic Support Programs

Academic Support Programs serves students who would like to improve study skills and receive supplemental instruction. Academic Support Programs additionally provides services for students with disabilities, Trio students, and Upward Bound students. More information is available at: <http://www.uvm.edu/~aspprogs/>.

Career Services

Career Services helps UVM students and graduates to imagine, explore and attain their career and learning goals. Programs and services include assistance in choosing majors, identifying internships and jobs, networking with alumni, meeting employers, applying to positions, preparing for interviews and making decisions. Career Services offers Pre-health and Pre-law advising. Appointments with career counselors can be scheduled in advance; afternoon drop-in sessions (no appointment necessary) are also available. For more information, please visit: <http://www.uvm.edu/career/> or call 656-3450.

Enterprise Technology Services

Enterprise Technology Services offers a variety of computing and information technology resources including but not limited to Internet connectivity, email support, computing purchases, computer repairs, computing labs, and other services. For more detailed information, please visit: <http://www.uvm.edu/it/>.

University Libraries

The UVM libraries are composed of three physical entities: the Bailey/Howe Library, the Dana Medical Library (in the Health Sciences Education Center), and the Library Research Annex (on East Avenue) which houses university archives and manuscripts, Congressional and public policy papers, and lesser used or fragile materials.

Bailey/Howe provides service, print, and electronic resources relating to the humanities, social sciences, and many of the sciences. As the largest research library in Vermont, Bailey/Howe is home to a Special Collections department that contains a comprehensive collection of Vermont materials, rare books, literary and historical materials, and important public policy papers. It is a depository for U.S. and Canadian government publications, and provides a full service Patent and Trademark Depository Library. The library also houses extensive map and media collections.

The University Libraries' website at <http://library.uvm.edu/> serves as a gateway to services and collections, which are increasingly available in electronic form. UVM affiliates can access library resources from remote locations. The Libraries' Center for Digital Initiatives makes the university's signature collections available to users in digital form at <http://cdi.uvm.edu/collections/index.xml>.

HEALTH SERVICES

Center for Health and Wellbeing

The Center for Health and Wellbeing provides students with the highest quality care available in the areas of medicine, nutrition, counseling, psychiatry and athletic medicine. Educational and outreach programming is also offered to give students the information needed to make smart decisions about taking care of themselves. For more information, please refer to: <http://www.uvm.edu/~chwb/>.

CAMPUS LIFE

Many campus departments and student organizations enrich the student life experience. They include:

Athletics

The University of Vermont sponsors 16 intercollegiate varsity sports, basic physical education instruction, and campus recreation. For more detailed information, please refer to: <http://www.uvmathletics.com/index.aspx/>.

Center for Student Ethics and Standards

The Center for Student Ethics and Standards offers three programs which include: the Civic and Judicial Program, which helps students develop a deeper understanding of the role of the individual within a community and serves to resolve allegations of misconduct under the Code of Student Rights and Responsibilities:

<http://www.uvm.edu/~uvmppg/ppg/student/studentcode.pdf>

and University Policies: <http://www.uvm.edu/~policies/>; the Academic Integrity Program, which promotes an intellectual climate and supports the academic integrity of the university resolving allegations of misconduct under the Code of Academic Integrity; and the Intergroup Dialogue Program, which provides undergraduate students the opportunity to engage in facilitated dialogue about the concepts of power, privilege, and oppression. For more detailed information, please visit: <http://www.uvm.edu/cses>.

Dudley H. Davis Center

The Dudley H. Davis Center is UVM's hub of campus activity. Striving to achieve its core values of social justice and environmental stewardship, the Davis Center offers student-focused programming, local and organic food options, cutting-edge "green" design, centrally-located services, and innovative connections to academic learning. The building houses a number of student organizations: the Student Government Association, the Vermont Cynic (student-run newspaper), WRUV-FM (student-run radio station), a Diversity and Equity office and lounge, the Bookstore, and numerous spaces to hang out, study, and gather with friends. More information is available at <http://www.uvm.edu/davis/>.

Residential Learning Communities

The Department of Residential Life, in conjunction with designated faculty, offers Residential Learning Communities (RLC) and the Living-Learning Center which are designed to engage the whole student, tying together the intellectual, ethical, and social aspects of college life. By living together with fellow students who share common interests and ideals, the individual student becomes part of a true community, a community that is also tied to the greater world beyond the confines of the university. In addition, students, faculty, and staff are given the opportunity to interact outside the classroom, the lab, or the office, thereby encouraging the pursuit of knowledge as a lifetime activity. For more information on RLC's and the Living-Learning Center, please visit: <http://www.uvm.edu/~rlc/>.

Student and Community Relations

The Office of Student and Community Relations furnishes off-campus students with guidance, support, and resources. It identifies issues or problems confronting off-campus students and their neighbors and develops strategies to address them in ways that build community and incorporate personal responsibility. For more information, please visit: <http://www.uvm.edu/~stdcmrel/>.

Student Governance

There are a variety of student leadership opportunities available on campus including:

Student Government Association

The Student Government Association serves as the primary student governing organization and assumes responsibility for voicing student concerns and interests in the governance activities of the university community. More information is available at: <http://www.uvm.edu/sga/>.

Graduate Student Senate

The Graduate Student Senate cultivates both the academic and non-academic activities of the graduate student body and enhances all aspects of graduate school life at the University of Vermont. For more information, please refer to: <http://www.uvm.edu/~gss/>.

IRA (Inter-Residence Association)

IRA represents students living in UVM residence halls and offers programs and services, providing leadership for residence hall students. For more information, please visit: <http://www.uvm.edu/~irauvm/>.

Student Life

The work of Student Life encompasses many different programs that enhance the co-curricular experience. These programs include New Student Orientation, Leadership and Civic Engagement, Greek Life, Outdoor Programs, Campus Programs, Student Media, Club Sports, and the Davis Center. More information is available at: <http://www.uvm.edu/studentlife/>.

University Dining Services

University Dining Services provides food service expertise to the University of Vermont community consisting of, but not limited to, quality resident and retail dining programs; catering services; partnering with university departments on large-scale, campus-wide events; providing accurate nutritional information; and assisting with facility development. For more information, please refer to: <http://uds.uvm.edu/>.

DIVERSITY AND EQUITY PROGRAMS

There are a number of diversity and equity programs at the university which seek to create an environment of social justice, inclusion, and equity as well as provide support and advocacy for students. These departments include:

Affirmative Action and Equal Opportunity

The AAEO Office strives to create a diverse, nondiscriminatory learning and working environment for the University of Vermont community by promoting inclusion, respect and equity through the provision of education, training and resources. For more information, please refer to: <http://www.uvm.edu/~aaeo/?Page=mission.html>.

ALANA Student Center

The ALANA Student Center (ASC) exists to ensure that African, Latino/a, Asian, Native American (ALANA) and Bi/Multi-racial students succeed at the University of Vermont. ASC promotes academic achievement, personal growth, identity formation, and cultural development. More information is available at: <http://www.uvm.edu/~asc/>.

Center for Cultural Pluralism

The Center for Cultural Pluralism (CCP) is dedicated to helping UVM achieve its core mission to provide quality multicultural education in order to equip faculty, staff and students with the competencies necessary to function in a diverse world. The center focuses on the intersections of issues of culture and social justice. For more information, please visit: <http://www.uvm.edu/~ccpvm/>.

LGBTQA Services

The Lesbian, Gay, Bisexual, Transgender, Questioning and Ally Services (LGBTQA) are committed to helping meet the needs of LGBTQA students, faculty, and staff at UVM by fostering and creating cultural education for the community at large, building and strengthening the LGBTQA community at UVM, providing advocacy and support to LGBTQA students, faculty, and staff, and providing consultation and information to offices and programs throughout the university. More information is available at: <http://www.uvm.edu/~lgbtqa/>.

Women's Center

The Women's Center values and celebrates the multiplicity of women's lives; recognizes the intersections of gender, race, sexual orientation, economic status, and other significant aspects of individual and cultural identity; accepts responsibility for opposing injustice; and commits itself to service to the university and larger communities. For more information, please visit: <http://www.uvm.edu/~women/>.

Academic and General Information

ACADEMIC ADVISING

Academic Advising is a process in which students seek and receive guidance with academic program planning, usually from a faculty advisor. Meaningful educational planning is compatible with a student's life goals; therefore academic advising encompasses discussion of life goals and assistance with the developmental process of life goals clarification. The ultimate responsibility for making decisions about educational plans and life goals rests with the individual student. Assistance with the clarification of life goals is not limited to the academic advising relationship, and may include staff in areas such as career development, residential life, and counseling. For academic advisors, assisting students in the clarification of life goals means helping students explore and define their educational and career goals in an atmosphere of mutual respect and learning. Advising, while non-prescriptive, encourages students to think critically, seek out resources, and develop action steps. The desired result is that students will feel a sense of connection with the advisor and a sense of guidance, while realizing personal responsibility for exploring options and making decisions.

Academic advisors remain alert to any barriers to student academic performance and guide students to address these appropriately. The advisor needs to be able to refer students to appropriate academic and support services to enhance both their student experience and their academic success. Faculty advisors are expected to initiate contact with each advisee during a student's first two semesters on campus and when a new advisee is assigned to the advisor (includes newly declared majors and transfer students). After the first two semesters, maintaining regular contact with the advisor is the responsibility of the advisee. The advisor will be prepared to meet with and listen to his/her advisees on a regular basis. Advisor and advisee share responsibility equally for the success of the advising relationship.

ADVISING RESOURCES

In addition to an assigned faculty advisor, a variety of other advising resources are available to undergraduates:

International Student Advising is provided through the Office of International Education to assist international students with personal and academic problems, as well as matters relating to immigration and social and cultural adjustment. A special orientation program, prior to the beginning of each semester, provides new international students with an introduction to the university and the Burlington community. An active campus International Club provides an opportunity for international students to contribute to campus life and to make friends outside the classroom. Students planning to study abroad should also consult the Office of International Education which is located at B162, Living/Learning Center. For more information, please visit: <http://www.uvm.edu/~oies/>.

Multicultural Student Advising at the ALANA Student Center provides broad based support aimed at ensuring the success of multicultural students at UVM. Services include: academic advising; linking students to resources and opportunities on campus; tutoring; peer mentoring; and social and cultural networking. Students may elect to take part in the Summer Enrichment Scholarship Program, a pre-first year opportunity that offers an academic experience (six credits) and provides an introduction to campus and college life before the official start of the school year. For more information, please visit: <http://www.uvm.edu/~asc/>.

Continuing Education Advising assists non-degree students and nontraditional students on course selection, how to apply for a degree program, general information about UVM academic resources, and career and life planning. The advisors work with individuals who are returning to school after raising a family or working outside the home, who are considering a career change, or who have recently

graduated from high school. For more information, please visit: <http://www.uvm.edu/~learn/>.

Pre-Professional Advising Services include pre-health, pre-law and pre-veterinary. Pre-veterinary advising is available through the Animal Sciences department. Advising for pre-health and pre-law is offered within Career Services. For pre-health and pre-law information, please visit: <http://www.uvm.edu/career/>.

TYPES OF ENROLLMENT

Degree Student Status

Definition: Undergraduate degree students who have presented appropriate credentials for admission and have been accepted as students in a degree program. The following four actions apply only to degree students.

Intercollege Transfers Degree students may transfer to another college/school within the university. To do so, a student must complete a Change of Major/College form and obtain the approval of the deans of the two units involved. Students wishing to transfer must have a cumulative GPA of 2.00. A cumulative GPA of 2.50 is required for transfer admission into teacher licensure programs in the College of Education and Social Services. Transfers will be approved only if space is available and may be conditional upon students satisfactorily completing requirements set out by the new college/school. Internal transfers to the School of Business Administration must have successfully completed at least one semester of calculus and one semester of economics before being considered for transfer.

Readmission to the University Degree students who have left the university for one semester or more must write to their dean to request readmission. Students must apply for readmission by October 31 or March 31 preceding the appropriate semester of return.

Withdrawal from the University Degree students who wish to withdraw from the university must first notify their academic dean in person or writing.

Medical Withdrawal Degree students who wish to withdraw from all current courses at the university for medical reasons must first notify their academic dean in person or in writing. For more information, please refer to the complete policy: <http://www.uvm.edu/policies/student/medicalwithdrawal.pdf>.

Leave of Absence A leave of absence means that a student in good standing, who is eligible for continued enrollment, ceases to be enrolled and is guaranteed readmission.

1. Students submit a written application for a leave of absence to their college/school prior to the beginning of the semester that the leave will take effect. To be confirmed, leave forms must be signed by both the student and their dean.
2. Leaves are granted for a finite period of time, and normally may not exceed four semesters. A leave normally may not be granted to students on academic trial or disciplinary probation.
3. While on leave, the student's status is temporarily inactivated. A leave of absence guarantees an individual's readmission only if the student confirms intent to return by the closing date for a normal readmission application (October 31 and March 31 preceding the appropriate semester). A leave does not guarantee housing upon the student's return.
4. Unused financial aid will not be carried over. Upon readmission, students must reapply for financial aid according to the Office of Student Financial Services policies and procedures in effect at that time.

Non-Degree Student Status

This category applies to non-degree students who have presented minimum credentials and have been permitted to undertake limited course work up to six credits, or two courses, per semester for a purpose other than the earning of a degree. Approval from Continuing Education is necessary for a student to exceed the six-credit maximum. Credits earned by non-degree students who later apply and gain admission to a degree program will be evaluated and, if appropriate, will be accepted toward completion of their degree.

Non-degree students may enroll for a maximum of six credits or two courses per semester in the day program.

Selection of courses for those having long-range plans of earning a degree in the daytime program should be made on the basis of information given in this catalogue. Students interested in making a formal application for admission to the university should contact the admissions office.

Students presently enrolled and in good standing at another institution may take courses at UVM to transfer to their institutions. These visiting students are considered non-degree students and should contact Continuing Education for information and registration material.

Before completing thirty credits of course work through the evening program or summer session, degree-bound students should consult with an advisor at Continuing Education, submit an application for formal admission to UVM, and then should consult with the appropriate dean's office to structure further courses into a degree program.

All non-degree students who would like assistance in planning educational programs and selecting courses should contact Continuing Education at (802) 656-2085.

ENROLLMENT AND REGISTRATION

Definition of a Credit Hour

- (1) One hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester hour of credit or the equivalent amount of work over a different amount of time; or
- (2) At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

Class Standing

The designation of a student's class shall be determined by the number of academic credits completed. The designations are as follows:

Bachelor's Degree Credits

First-year	0-26.9
Sophomore	27.0-56.9
Junior	57.0-86.9
Senior	87.0 and over

Registration

Degree students must register for the next semester at the designated time, unless excused in advance by their dean. Registration instructions are on the web at:

<http://www.uvm.edu/~rgweb/>. Written approval of the student's dean is required to register for more than eighteen credits.

Students with disabilities, who are in receipt of appropriate medical certification from the Director of the Student Health Center, will be approved to enroll for a course load of less than twelve credits (FTE).

Such students will be afforded full-time status in accordance with Section 504 of the Rehabilitation Act of 1973.

Any credits earned at the University of Vermont are transferable to another institution at the discretion of the receiving school.

Course Add/Drop

Courses may be added through the first five instructional days of the semester without instructor permission, unless indicated. Adding a course between the sixth and tenth instructional day will be at the discretion of the faculty member and will occur by means of a faculty override. Courses may be dropped through the first ten instructional days of the semester. During summer and winter sessions, the Add/Drop period varies from course to course depending on when the class begins and how long it runs.

Drops will only be allowed after the tenth day of instruction if a student did not attend the class. The disposition of such cases is handled by the registrar's office.

Course Withdrawal

From the eleventh day of instruction until the second business day after the 60% point in the semester, students may withdraw from courses. To do so, students must complete a Course Withdrawal form, consult with their advisor, and obtain the instructor's signature. The student must deliver the form to the registrar's office no later than 4 p.m. on the second business day after the 60% point in the semester. Students give a copy to their dean for information purposes. A grade of W will be assigned by the instructor(s) and recorded on the student's permanent record.

Between the second business day after the 60% point in the semester and the last day of classes, students may withdraw from one or more courses only by demonstrating to their college/school Studies committee, through a written petition, that they are unable to continue in the course(s) due to circumstances beyond their control. Such petition must contain conclusive evidence, properly documented, of the illness or other situation preventing completion of the course(s). Acceptable reasons do not include dissatisfaction with performance or expected grade, with the course or instructor, or desire to change major or program. If the petition is approved, a grade of W will be assigned by the instructor(s) and recorded on the student's permanent record. If the petition is denied, the instructor(s) will assign a final grade (A-F) in accordance with the same criteria applied to all other students in the course(s).

Withdrawn courses are included in the number of credits used for billing purposes. No withdrawals will be permitted after the last day of classes. In all instances, withdrawal grades remain on the permanent academic record, but will not affect the grade-point average.

Retroactive Academic Adjustment

The university will consider requests for late withdrawal and retroactive academic adjustments when those requests are accompanied by appropriate information. To receive consideration, a student or his/her authorized representative must submit to his/her dean's office a completed Consultation Form for Late Withdrawal and Incompletes. Forms are available in deans' offices.

Students may appeal the academic adjustment decision of their school or college to the provost's office. If the appeal is based upon a certified disability and recommended as an appropriate accommodation, students may appeal the academic adjustment decision of their school or college as outlined in Policies and Procedures for Students with Disabilities under the section entitled "Protocol for Dispute Resolution". All appeals must be submitted in writing.

Decisions regarding adjustments to academic records are distinct and separate from refunds. Any refund, including tuition, financial aid awards, fees, room and board, will follow federal and institutional guidelines. The effective date for any refund will be the date that the completed form was received by the academic dean's office.

Questions regarding refunds should be directed to Student Financial Services.

Independent Study Courses

Independent study is a course taken for credit, which is tailored to fit the interests of a specific student, and which occurs outside the traditional "classroom/laboratory setting".

Independent study is carried out under the direct supervision of a faculty member having expertise in a particular area of investigation. Consequently the project will be done in the department primarily responsible for the field of study. Prior to enrollment in independent study, students must obtain the approval of their advisor, faculty sponsor, and the faculty sponsor's department chair.

Independent study may be taken for variable credit. The amount of credit to be granted should be mutually agreed upon by the student and the faculty sponsor prior to registration.

Academic units offering independent study will be responsible for administering such work. Specific guidelines, which define the responsibilities of both faculty and student for administering the independent study, are noted below. Alternative guidelines that incorporate these basic points are acceptable.

Guidelines for Independent Studies

A. The success of an independent study project is often related to the amount of advance planning expended on the project. Consequently, planning for the project should, whenever possible, be initiated in the semester before the course is taken.

B. By the end of the add/drop period, students will be required to submit to their faculty sponsor a specific plan which must include, but not be limited to, the following:

1. The project title.
2. A statement of justification, indicating why independent study is being selected and the reason for undertaking the project, its importance, and how it relates to other work done by the student.
3. A clear and complete statement of project objectives.
4. A concise statement of the plans and methods to be used in order to accomplish each objective.

C. During the first full week of classes the student and the faculty sponsor will meet and prepare a document which includes the following:

1. A schedule of dates when the student and faculty member will meet and discuss progress, including a time plan indicating when various parts of the work are projected for completion.
2. A list of those ways in which documentation of work can be shown.
3. A plan for evaluation, which will include the specific work to be submitted for evaluation on the project, and a statement of criteria to be used for evaluation.

D. It is the responsibility of the faculty supervisor to ensure that all the provisions outlined above have been satisfactorily accomplished. Copies of all documents and schedules mentioned must be filed with the department chair by the end of the add/drop period. Faculty sponsors should retain the completed projects, along with faculty evaluations, for review, if necessary, by appropriate school/college committees.

Graduate Course Enrollment for Undergraduate Students

Senior undergraduates may enroll for up to six graduate credits at UVM under the following circumstances: courses must be available for graduate credit; total enrollment including the graduate course must not exceed twelve credits in the semester in which the course is taken; and the course must not be computed as part of the bachelor's

degree. Permission to seek graduate credit must be obtained from the of the Graduate College in writing by the dean of the undergraduate college/school in which the student is enrolled. Graduate credit can be used only at UVM if the course is judged appropriate by the student's advisor for the particular graduate program.

EXAMS AND GRADING

Exams

Hour Tests:

1. One or more hour tests are usually given during a semester in each course. These are scheduled by the faculty member within the assigned class periods.
2. In a course which has several sections meeting at different hours, a common test for all sections may be given only by arrangement with Conference and Event Services.
3. Attendance at hour tests scheduled outside the normal meeting time of the class shall not have precedence over attendance at other scheduled activities or other important commitments of the students concerned. Faculty members must be prepared to give a make-up test for those unable to be present at the time set.
4. University academic responsibilities have priority over other campus events. Attendance at (1) regularly scheduled classes have priority over specially scheduled common hour exams, (2) common hour exams have priority over attendance at other activities.

Final Exams:

1. Final in-class exams for all courses, including Graduate and Continuing Education courses, will be held during the exam period established by the university calendar. Classes in the College of Medicine and in the summer session are not affected by these regulations.
2. No exam (regular or final) shall be given during the last five instructional days of the semester except lab exams given in courses with specific lab sections.
3. For courses scheduled in the evening, every effort will be made to schedule the exam on the evening of the regular meeting, even if that day is a designated reading day.
4. In-class final exams will be no more than three hours in length. However, lab exams in courses with specific lab components may be longer than three hours.
5. The time and place of each final exam are determined by the registrar under the direction of the Faculty Senate and a schedule is circulated and posted. Any change in the scheduled time or place may be requested by the chair of the department concerned when conditions seem to warrant such special arrangement. Decision on such requests rests with the registrar.
6. In every course in which a final exam is given, every student shall take the exam unless excused in writing by the instructor.
7. Students having a conflict in their final exam schedule must notify the faculty concerned of such a conflict not later than the close of business one week prior to the last day of classes for the semester in which the conflict arises.
8. Students who are absent from a final exam for any reason must report that fact and the reason, in writing, to their instructor within 24 hours. If the absence is due to any situation beyond the reasonable control of the student (e.g., illness or family tragedy), the instructor must provide the student with the opportunity to complete the course requirements. At the instructor's discretion, this may be an exam or some other suitable project. The instructor may require evidence in support of the student's reason for absence.
9. If the absence is not reported as provided above, or is not excused by the instructor, the exam is regarded as failed.

10. No student shall be required to take three or more final exams in one 24-hour period.
11. If a student has three or more finals in a 24-hour period then, unless a mutually agreeable alternative time can be reached by the student and one instructor, the make-up will be scheduled for the next day after the regularly-scheduled exam. These considerations are subject to the constraints that all exams will be given in the final exam period and all conflicts must be resolved before the start of the final exam period.

Students will select which of the three exams they wish to take at an alternative time. In cases where the instructors in all three sections feel it is impossible to give the exam at an alternative time, and all conflicts are in the same academic unit, the appropriate dean's office, in consultation with the faculty involved, will establish which of the three exams will be taken as a make-up. If the unresolved conflict involves more than one college, the deans of the units in question will resolve the matter. If the deans involved cannot reach agreement, then a person from the provost's office will establish which of the three exams will be taken as a make-up.

12. All final exam materials should be retained for at least one month after the commencement of the following semester in case any questions arise concerning grades and to afford students the opportunity to review their graded final exam papers if they wish to do so.

Grading

Grades are reported and recorded as letter grades. Student grade-point averages (GPA) are calculated from quality point equivalents noted here:

	Points / Credit
A+ Excellent.....	4.00
A Excellent.....	4.00
A- Excellent.....	3.67
B+ Good.....	3.33
B Good.....	3.00
B- Good.....	2.67
C+ Fair	2.33
C Fair	2.00
C- Fair	1.67
D+ Poor.....	1.33
D Poor.....	1.00
D- Poor.....	0.67
F Failure	0.00
XF Failure resulting from academic dishonesty. *	

*This grade is equivalent to the grade of F in the determination of grade-point averages and academic standing (effective Fall, 2005).

In certain instances, grades are assigned that will appear on the transcript, but will not be used in grade-point calculation. These grades are:

AU	Audit (see below)
INC	Incomplete (see below)
P/NP	Pass/No Pass (see below)
S/U	Satisfactory/Unsatisfactory (see below)
SP/UP	Satisfactory Progress/Unsatisfactory Progress (see below)
M	Missing (grade not turned in by the instructor)
W	Withdrawn

AU: Students wishing to regularly attend a course, but not receive credit, may register as an auditor, with the approval of the dean and the instructor. Auditors have no claim on the time or service of the instructor. Students must meet minimum levels of performance set by the instructor at the time of registration in order to receive an audit grade. Tuition is charged at the applicable rate. Under no circumstances will changes be made after the add/drop period to allow credit for courses audited.

INC: This grade may be assigned when course work is not completed for reasons beyond the student's control. Incompletes require the approval of the student's college/school dean. The incomplete course requirement will be satisfied at the earliest possible date, but not longer than the beginning of the corresponding semester of the next academic year. In cases of laboratory assignments, the student must complete all work the first time that the laboratory experience is offered again. Instructors will fill out an incomplete card and forward it to the student's dean and include the reason for the incomplete, as well as the completion date agreed to by the student and instructor. It is the student's responsibility to learn from the dean's office whether the request has been approved, the date of completion and, from the instructor, the nature of all outstanding requirements.

Incompletes may be approved for the following reasons: medical, personal tragedy, or academic. In all instances, students must contact the appropriate dean's office to obtain necessary application forms.

P/NP: Undergraduate degree program students, not on academic trial, are permitted to take up to six courses (or as many courses as they have semesters remaining for transfer students) on a pass/no pass basis, beginning in their sophomore year. Courses in the student's major department, either for the major or for the degree, and electives within the distribution requirements of a department may not be taken on a pass/no pass basis. This option may be used without condition for free electives. It also may be used for physical education (activity) courses, and shall not be counted as a part of the six standard courses described above.

Students must complete all work normally required in these courses to receive full credit toward graduation for passing them. The instructor will not be informed of the student's status and the registrar will record grades of D or higher as Pass and grades of F as No Pass. The grade submitted by the instructor will not become available to the student nor to any third party. There are no quality points associated with pass/no pass grades.

To apply, a Pass/No Pass Request form, obtained from the registrar's office, must be approved by the student's academic advisor and submitted to the registrar's office during the first ten instruction days of the semester. Requests to be removed from that status must be filed during the same period. Any question about a course or courses being appropriately elected as pass/no pass for a student will be resolved by the student's college/school dean.

Note: Non-degree, graduate and certificate students may not take courses on a pass/no pass basis.

S/U: These grades are used in courses where the A-F grade is inappropriate, such as in seminars, internships, practica, etc. For graduate students, S and U 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. For undergraduates, the S/U is available only on a whole course basis and is available for courses that count toward degree requirements.

SP/UP: These grades are used in courses with a linkage in credits to multiple semesters. Neither SP nor UP will be included in the student's GPA. The grade of SP will be assigned when a student has made satisfactory progress during a semester prior to the final semester of the linked courses; credit will be awarded with the grade of SP. The grade of UP will be assigned when the student's progress has been unsatisfactory and no credit will be awarded. The faculty member may change the grade of SP to a letter grade once the final grade for the multiple semester work is completed. A grade of SP cannot be changed to a UP or F based on a student not completing the final semester's work satisfactorily. UP is a final grade. It can stand as it is, or it can be changed to an F.

Grade Appeals

Students who feel that they have received an unfair grade should first contact the registrar's office to verify that the grade submitted by the instructor is the same as that displayed on the grade report. If the grade has been reported correctly, a student should next contact the

instructor, department chair, and dean of the college/school in which the course is offered (in that order) to discuss the matter. A decision to change a grade can be made only by the instructor.

Grade changes must be made by the instructor and approved by the student's dean by the end of the first month of the following semester unless an extension is granted by the student's dean.

More detailed information is available online at:

<http://www.uvm.edu/policies/student/gradeappeals.pdf>.

Dean's List

Dean's list status is awarded to full-time undergraduate students with a cumulative grade-point average of not less than 3.00 who stood in the top 20 percent of each class of their college/school during the preceding semester. The dean's lists are published at the beginning of each semester. Full-time enrollment in this case shall be a minimum of twelve credits in courses in which grades of A, B, C, D, or F can be given.

Repeated Courses

Students who repeat a course only receive credit once for the course. The grades for all occurrences of the course remain on the permanent academic record and all are included in computing the cumulative grade-point average. Any transfer credit for repeated course work will be removed from the transfer credit record. Only the course(s) completed at UVM will be calculated into the GPA.

Academic Reprieve

The Academic Reprieve Policy is designed to make it possible for former UVM students, whose academic performance when first enrolled was below standard, to resume their studies without the encumbrance of the grades previously earned.

The Academic Reprieve Policy is available to returning students who have not been enrolled at UVM or any other accredited institution of higher education for a period of at least three calendar years.

Former students returning to the university may request the application of the Academic Reprieve Policy only once in their career at UVM. The established procedures and criteria for admission or readmission apply to students applying for an Academic Reprieve.

The dean of the college/school in which the student is enrolled at the time of initial eligibility for the application of the Academic Reprieve shall determine eligibility for, and application of, the reprieve. Eligible former students must file a petition with the appropriate dean requesting reprieve of all prior course work at the university, either at time of admission or readmission or before the close of the first semester of re-enrollment. The Academic Reprieve Policy includes all previous UVM work and does not allow the students to pick and choose individual courses for reprieve. All courses with grades below passing are ignored, credits for courses passed are carried forward, but the grades are not figured in the new grade-point average, which begins again at zero.

Any person electing the reprieve option is required to complete a minimum of thirty additional regularly graded credits at UVM before a degree may be awarded; these credits are not open to the pass/no pass option. Those electing the reprieve option may qualify for honors at graduation only on the same basis as any transfer student, i.e., completion of sixty or more regularly graded credits at UVM.

Persons electing the reprieve option will be required to meet degree requirements of the catalogue in effect on the date of the student's application for readmission.

The Academic Reprieve Policy applies solely to regular undergraduate degree programs. Graduate programs are specifically excluded.

Please note: the University of Vermont is required to include all courses, whenever taken, in evaluating a student's satisfactory academic progress as it relates to a student's financial aid eligibility. There is no provision made for courses that have been granted academic reprieve. Please contact Student Financial Services at (802)

656-5700 if you have questions concerning your financial aid eligibility.

Low Scholarship

Following are the general university regulations relating to low scholarship. The Studies committee of each college/school may determine more stringent requirements. Students with questions regarding their academic standing should consult their college/school dean.

"On Trial": This is an intermediate status between good standing and dismissal in which students remain enrolled according to stated academic conditions of their college/school.

Students are placed "on trial" by their dean or designated committee of their college/school. Special academic conditions may be set in each case. Normally the period of "trial" status is one semester.

This policy applies in the following instances:

- (1) Students, having been dismissed for low scholarship, are placed "on trial" upon readmission.
- (2) Students may be placed "on trial" if in any semester they have failed one-half or more of their semester credits, but have been permitted to continue in college/school.
- (3) Students whose records have been consistently below the graduating average or generally unsatisfactory in any semester may be placed "on trial" or continued "on trial" even though they do not come within the provisions that apply to "separation".

Separation: Students are dismissed from UVM if they receive grades below passing in one-half or more of their semester credits in any semester, unless they are allowed to continue by action of the designated committee.

Students who fail to meet the condition of their trial or whose record has been unsatisfactory and consistently below the graduation average may be dismissed for low scholarship even though they do not come within the "on trial" provisions.

Students dismissed for low scholarship must address their application for readmission to their college/school and receive written approval from their dean before enrolling in any university course.

Students dismissed for disciplinary reasons must receive written approval from the vice president for Student and Campus Life before enrolling in any university course.

Transcripts

An official transcript is the reproduction of a complete, unabridged permanent academic record validated with the university seal, facsimile signature of the registrar, and date of issue. A rank-in-class entry is made upon completion of undergraduate degree requirements.

Students and alums may request an official transcript of their permanent academic record online or by contacting the Office of the Registrar, 360 Waterman Building. Transcripts are not released when there is indebtedness to the university.

WAYS TO EARN CREDIT

- Advanced Placement Exams of the College Board
- International Baccalaureate
- College-level courses taken through high school cooperatives, such as Syracuse University Project Advance (SUPA)

Transfer of Credit

Students seeking to transfer academic credit may do so only for courses that are taken at a regionally accredited degree granting institution and are comparable in content, nature, and intensity to courses taught in the corresponding discipline at the University of Vermont. Credit is not given for transfer courses with grades lower

than C. To ensure transferability of courses to be taken elsewhere, degree students must secure prior approval for each course in writing from the Office of Transfer Affairs. Questions regarding credit transfer should be directed to the Office of Transfer Affairs, 339 Waterman, (802) 656-0867 or email: transfer@uvm.edu.

Credit by Exam

A degree student may, under the following conditions, receive credit for a course by taking a special exam and paying the special exam fee charge of \$50 per credit. The exam fee must be paid prior to taking the exam.

A request for such an exam must be made in writing at least one month before the date of the exam, and it must be approved by the student's advisor, the chair of the department in which the course is given, and the dean, in that order. The student must not have audited, previously received a grade or mark, or have attempted a prior special exam in this course at UVM or at any other institution of higher education. Only specific university courses may be challenged using a special exam. Readings and Research, Honors Research, etc., are specifically excluded. Special Topics may be challenged only if that course is offered during the semester in which the special exam is being requested. The student may not take a special exam in a course whose content is presupposed by courses already taken; or in a course for which transfer credit has been received; or in a currently enrolled or previously taken course. In cases of uncertainty, the department chair shall decide whether it is appropriate for the student to take a special exam for credit in a particular course. Upon passing the special exam, as determined by the examiner and the chair of the department in which the course is given, the student receives credit, but not a grade, for the course. Credit by Exam forms are available at <http://www.uvm.edu/~rgweb/>.

College Level Examination Program (CLEP)

The university considers credit for most of the thirty specific subject CLEP exams providing the student has not previously attempted a similar course of study at a college-level. Scores acceptable for credit are comparable to attaining a level of accomplishment equal to a C in a graded course situation with exception for language exams. Individual exams may earn a student three, six, or eight credits depending on the nature and scope of the material covered. Credit is not granted for the general exams.

Credit granted for CLEP exams may be applied toward distribution requirements and to the total credits specified for a particular degree program when approved by the dean of the college/school in which the student is subsequently a candidate for a degree. Information about CLEP is available at the Office of Transfer Affairs, 360 Waterman, (802) 656-0867 or email: transfer@uvm.edu.

Credit for Academic Learning Integrated with Volunteer Experience (ALIVE)

Through this program, the University of Vermont offers college credit to members of AmeriCorps VISTA (Volunteers in Service to America). VISTA members participating in ALIVE can earn up to nine undergraduate or graduate credits in a variety of disciplines for structured reflection of their service experience. VISTA scholars will attend workshops, create portfolios and work with faculty advisors during residency weekends on campus that will not detract from their time serving in communities. UVM will annually award six scholarships to Vermont VISTA scholars who participate in ALIVE.

Credit for Military Service

University of Vermont degree students may have their military service record reviewed for possible transfer credit. Veterans should present form DD 214 to the Office of Transfer Affairs; active duty personnel should have form DD 295 sent directly from the educational officer on the base. Army personnel seeking credit other than for physical education should have an AARTS transcript

sent directly from: AARTS Transcript Manager, AARTS Operations Center, 298 Grant Ave., Ft. Leavenworth, KS 66027-1254. Transcripts of exams sponsored by the Defense Activity for Non-Traditional Educational Support (DANTES) are available at a nominal charge from: DANTES Contractor Representative, Educational Testing Service, P.O. Box 6605, Princeton, NJ 08541-6605. All documents except form DD 214 should be sent directly to the Office of Transfer Affairs, University of Vermont, 360 Waterman Building, Burlington, VT 05405.

Students should contact the Office of Transfer Affairs, 339 Waterman Building, (802) 656-0867, or email: transfer@uvm.edu for more information.

DEGREE REQUIREMENTS FOR UNDERGRADUATES

Undergraduate degrees are conferred on the recommendation of the colleges/schools. Specific degree requirements may be found in the catalogue sections devoted to the respective colleges/schools.

To be eligible for graduation, a student must have attained a cumulative grade-point average sufficient to meet the minimum requirements for the college/school in which the student is officially enrolled. Beginning with the class of 1984, the minimum grade-point average for graduation is 2.00. Grades in courses accepted for transfer credit are excluded in computing this average.

Every degree candidate must have taken thirty of the last forty-five credits in residence at the university before being awarded their degree. An exception to this rule exists for those students who have completed three years of pre-medical study in the university and are awarded their degrees after successful completion of one year of study in any approved college of medicine. Other exceptions to this rule may be made only upon decision of the dean or the appropriate faculty committee of the student's college/school. To earn another bachelor's degree, the student must fulfill the requirements of that degree. Please note: pursuing multiple majors within the same degree does not result in earning multiple degrees. Multiple bachelor's degrees are only conferred when the degrees are different: Bachelor of Arts, Bachelor of Science, Bachelor of Music, etc.

Beginning with the class entering during the fall 2008 semester, all undergraduates must successfully complete the University Approved Diversity courses: one three-credit course from Category One (Race and Racism in the U.S.) and a second three-credit course from either Category One or Category Two (Human and Societal Diversity). These requirements will apply as well to undergraduate transfer students receiving bachelor's degrees from May 2012 onward. (See the Diversity section of this catalogue for a list of approved courses.)

An undergraduate student may choose to pursue an academic minor. An academic minor at UVM shall be composed of a set of courses that reflect a coherent body of knowledge in one or more disciplines. A minor shall require between fifteen and twenty credits of course work, of which at least nine credits must be at the 100-level or above. A minor shall require no more than the credit equivalent of three standard classroom courses (nine to twelve credits) of prerequisites that are not part of the minor, although exceptions to this rule may be allowed with just cause.

Requirements for Academic Minors for Undergraduates

An undergraduate student may choose to pursue an academic minor. An academic minor at UVM shall be composed of a set of courses that reflect a coherent body of knowledge in one or more disciplines. A minor shall require between fifteen and twenty hours of course work, of which at least nine credits must be at the 100-level or above. A minor shall require no more than the credit equivalent of three standard classroom courses (nine to twelve credits) of prerequisites that are not part of the minor, although exceptions to this rule may be allowed with just cause.

At least half of the courses used to satisfy the minor must be taken at UVM. The student may choose any set of applicable courses from his/her transcript to satisfy the minor requirements. The grade-point average of these chosen courses must be at least 2.00. Courses used to satisfy a minor may not be taken pass/no pass.

Graduating with Honors

The bachelor's degree may be conferred with honors, by vote of the Faculty Senate, in recognition of general high standing in scholarship. Three grades are distinguished and indicated by inscribing on the diploma the words "cum laude", "magna cum laude", or "summa cum laude".

Honors are determined in the following manner: within the graduating class of each college/school, students in the top one percent will receive summa cum laude; the following three percent will receive magna cum laude; the next six percent will receive cum laude. The total number of honors awarded will not exceed ten percent of the graduating class of each college/school.

Honors will be calculated on all grades received at UVM. To be considered, a student must have taken at least sixty credits at UVM in which a letter grade of A, B, C, D, or F has been awarded.

Honors College Scholars

Honors College students who complete all curricular requirements of the Honors College as well as a degree in one of the seven undergraduate colleges and schools at UVM will graduate as Honors College Scholars.

RIGHTS AND RESPONSIBILITIES OF UNDERGRADUATE STUDENTS

Please find current policies at:
<http://www.uvm.edu/~uvmppg/ppg/?Page=alphalist.php>.

Classroom Code of Conduct

Faculty and students will at all times conduct themselves in a manner that serves to maintain, promote, and enhance the high quality academic environment of the University of Vermont. To this end, it is expected that all members of the learning community will adhere to the following guidelines:

1. Faculty and students will attend all regularly scheduled classes, except for those occasions warranting an excused absence under the University Attendance Policy (e.g., religious, athletic, and medical).
2. Students and faculty will arrive prepared for class and on time, and they will remain in class until the class is dismissed.
3. Faculty and students will treat all members of the learning community with respect. Toward this end, they will promote academic discourse and the free exchange of ideas by listening with civil attention to comments made by all individuals.
4. Students and faculty will maintain an appropriate academic climate by refraining from all actions that disrupt the learning environment (e.g., making noise, ostentatiously not paying attention, and leaving and reentering the classroom inappropriately).

Attendance Policy

Students are expected to attend all regularly scheduled classes. The instructor has the final authority to excuse absences. It is the responsibility of the instructor to inform students of his or her policy for handling absences and tardiness, and the penalties that may be imposed. Notification should be done both verbally and in writing at the beginning of each semester.

It is the responsibility of the student to inform the instructor regarding the reason for absence or tardiness from class, and to discuss this with the instructor in advance whenever possible. The instructor has the right to require documentation in support of the student's request for an absence from class. If an out-of-class exam is scheduled which conflicts with a regularly scheduled class, the regularly scheduled class has priority.

The instructor has the right to disenroll any student from a course if that student (1) does not meet the prerequisites of the course, or (2) fails to attend a scheduled course by the third instructional day of a semester or the second scheduled class session of a course, whichever comes later, unless the student has notified the instructor and has been excused. To disenroll a student, the instructor must notify the registrar by the add/drop deadline. Upon such notification, the registrar shall remove the student's name from the class list and the course from the student's schedule. The student is responsible for determining whether she or he is enrolled in a class.

**When a student is unable to attend class for a health reason, the student may give permission for the instructor to discuss the situation with a representative from the Center for Health and Wellbeing. As with all absences, the faculty member has final authority to excuse students from classes.*

Athletic-Academic Conflicts Students participating in inter-collegiate athletics should plan their schedules with special care, recognizing the primary importance of all of their university academic responsibilities. Each semester, members of UVM varsity and junior varsity teams are responsible for documenting in writing any conflicts between their planned athletic schedule and the class schedule to their instructors by the end of the second full week of classes. Students and instructors should then discuss potential conflicts between course requirements and intercollegiate competitions. When an unavoidable conflict exists, the student and instructor should seek a resolution which permits the student to address the course requirement and participate in the athletic competition. The instructor has final authority on this matter.

Religious Holidays Students have the right to practice the religion of their choice. Each semester students should submit in writing to their instructors by the end of the second full week of classes their documented religious holiday schedule for the semester. Faculty must permit students who miss class for the purpose of religious observance to make up the course work.

Each student is held responsible for knowledge and observance of these rules and regulations, including those concerned with academic honesty. Please refer to the Code of Student Rights and Responsibility at:
<http://www.uvm.edu/policies/student/studentcode.pdf>.

Academic Integrity

The principal objective of the Academic Integrity Code is to promote an intellectual climate and support the academic integrity of the University of Vermont. Academic dishonesty or an offense against academic honesty includes acts that may subvert or compromise the integrity of the educational process. Such acts are serious offenses that insult the integrity of the entire academic community.

Each student is responsible for knowing and observing this code. Please review the Academic Integrity Code at:
<http://www.uvm.edu/~uvmppg/ppg/student/acadintegrity.pdf>.

UNIVERSITY RESPONSIBILITY

Many courses involve instruction in and the use of various types of power equipment, laboratory apparatus, and specialized facilities. The university takes every precaution to provide competent instruction and supervision of such courses. It is expected that students will cooperate by following instructions and exercising precaution. In case an accident resulting in personal injury does occur, the university can assume no responsibility.

FERPA Rights

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. These rights include:

1. The right to inspect and review the student's education records within 45 days of the day the university receives a request for access. Students should submit to the registrar, their dean, the head of their academic department, or other appropriate official written requests that identify the record(s) they wish to inspect. The university official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the university official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.
2. The right to request an amendment to the student's education records that the student believes are inaccurate or misleading. Students may ask the university to amend a record that they believe is inaccurate or misleading. They should write the university official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading. If the university decides not to amend the record as requested by the student, the university will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.
3. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent. One exception which permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the university in an administrative, supervisory, academic, research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the university has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.
4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University of Vermont to comply with the requirements of FERPA. The name and address of the office that administers FERPA:

Family Policy Compliance Office
U.S. Department of Education
600 Independence Avenue, SW
Washington, DC 20202-4605

Directory Information Exclusion

The Family Educational Rights and Privacy Act of 1974 allows the University of Vermont to release, without written consent, those items specified as directory information. Students may opt out or suppress disclosures of information for all items of directory information listed below:

Name
Address (including e-mail address)
Telephone number
Dates of attendance
Class
Previous institution(s) attended
Major field of study
Enrollment status
Awards
Honors (including Dean's List)
Degree(s) conferred (including dates)
Past and present participation in officially recognized sports and activities
Physical factors (height, weight of athletes)
Photograph

Students who do not wish to have the above information released should request a directory exclusion via myUVM. Please refer to: <http://www.uvm.edu/~uvmppg/ppg/student/ferpa.pdf> on FERPA and information exclusion.

Academic Options

In addition to the areas of study detailed in the following sections of the catalogue, a number of curricular options are available which provide unique opportunities for UVM students.

STUDY ABROAD

The Office of International Education (OIE), located in B162 of the Living/Learning Center, is an advising and resource center for students interested in a year, semester, short-term or summer study abroad experience. Study abroad advisors maintain extensive information about study abroad programs, institutions, and internship opportunities. They, in conjunction with the academic advisor and the Office of Transfer Affairs, help students identify programs appropriate to their needs and arrange credit approval from UVM. All students intending to study abroad and receive approved transfer credit from UVM are required to complete the Study Abroad Approval form prior to departure. Contact the OIE for deadlines. Official approval is required for students to be guaranteed that their programs of study are eligible for transfer credit and that financial aid will apply. There is a \$500 study abroad fee for semester and year-long programs and a \$250 fee for summer and semester break external programs.

To be eligible to apply for a semester or more, a student must meet eligibility requirements listed below for UVM, as well as for the approved study abroad program and/or foreign institution.

- Have been admitted to UVM as a degree-seeking student and be enrolled in UVM classes the semester before the planned study abroad term. (Continuing Education students are only eligible to study abroad on short-term UVM programs.)
- Have completed one semester at UVM and have attained at least sophomore standing.
- Have a minimum UVM cumulative GPA of 2.50. Students with a cumulative GPA under a 2.50 and above a 2.00 may seek permission to study abroad by submitting an Academic Eligibility form (AEF) to their academic dean's office for consideration. Contact OIE to make an appointment with a study abroad advisor to discuss eligibility requirements and to pick up an AEF.
- Have not been academically dismissed or be on academic trial or probation.
- Under no circumstances will a student on disciplinary suspension the semester before studying abroad, and/or the semester they are scheduled to study abroad, receive UVM approval for overseas study.
- Students who are on a leave of absence or otherwise are not enrolled in UVM classes the semester prior to the planned study abroad term must be granted permission by the assistant director of Study Abroad.

Students need to maintain good academic and social standing at UVM until departing to study abroad.

For more information about eligibility requirements for study abroad, visit the Office of International Education website at: <http://www.uvm.edu/oie>.

LIVING/LEARNING CENTER

For over 35 years, the Living/Learning Center has served as an academic resource whose mission is to create an environment for students to integrate their academic studies and their residential experiences. To expand the intellectual horizons of students, the center encourages faculty, staff, and student programs that foster innovative and interdisciplinary academic experiences that bring the intellectual life of the university in close alliance with the students' lives outside the classroom. Every program sponsors educational activities to which the entire UVM community is invited, making the

Living/Learning Center a focus of campus cultural, intellectual and artistic activity. An evening's activities might include international tea tasting, conversational German, artistic performances, gallery exhibits, faculty lectures, or a presentation by one of the center's programs. In addition to being an academic and student support unit, the Living/Learning Center is also a residence, housing 582 students, as well as faculty and administrative offices, including ACCESS, Career Services, the Office of International Education, and the Learning Cooperative.

The foci of the Living/Learning Center are the 35 to 40 academic programs, each of which is a year-long plan of course work, independent study, seminars, field trips, and other special activities which support a specific program theme. Recent programs include: Africa House, Music Appreciation, La Maison Francaise, Integrated Humanities, Integrated Social Sciences, Global Social Justice, the Art of Photography, and Literary Appreciation. Programs are designed and directed by students or faculty members and reflect educational interests of the program leaders and participants. Living/Learning is also home to the Global Village and the Arts Initiative Residential Learning Communities. The center provides a unique environment for each of the university's colleges and schools to offer particular curricular elements in an atmosphere which fosters broad opportunities for intellectual discourse.

Students from all class years reside in the center and live with fellow program members in five-, six-, or seven-person suites adjoining a living room and private bathroom facilities. This fosters close friendships and communication among the program members. Suites are located in each of the five interconnected buildings, as are classrooms, laundry rooms, common lounges and kitchens, as well as apartments for resident faculty and their families. The center has a reading room/reference library, computer laboratory, music practice room, the University Marché dining facility, Alice's Café, mailroom, art gallery and a central fireplace lounge featuring a weekly coffeehouse. Through the efforts and expertise of accomplished staff artists, the center has pottery and photography studios that provide direct program support for the Living/Learning Center community, as well as providing all members of the university and greater Burlington communities with the opportunity for informal instruction and access to the facilities and equipment.

The Living/Learning Center contributes to the university's mission in its emphasis on the integration of the personal, professional, and intellectual growth of the student. The center further encourages programs with interdisciplinary, international, and multicultural themes that promote creative excellence. The Living/Learning Center offers the opportunity to be part of a community of people – students, faculty, and administrative staff who share the goal, work and excitement of improving the breadth and quality of their university experience. To learn more about the center, visit our website at <http://www.uvm.edu/lcenter/programs/>.

PRE-PROFESSIONAL OPTIONS FOR UNDERGRADUATE STUDENTS

Pre-med, pre-dental and other pre-health options are offered to students of all majors. Advising is coordinated through Career Services' Pre-health advisor who works with the faculty Pre-med committee. Students are strongly encouraged to consult the Pre-health advisor early and throughout their college career. For more information visit the Career Services website at: <http://www.uvm.edu/career>.

Pre-law preparation is available to students of any major and is coordinated through Career Services' Pre-law advisor and several faculty members. For more information visit the Career Services website at: <http://www.uvm.edu/career>.

Pre-vet preparation and advising is offered in Animal Sciences, a major in the College of Agriculture and Life Sciences.

ACCELERATED DEGREE PROGRAMS

UVM offers accelerated degree and combined bachelor's and master's programs in several areas. These include, but are not limited to, the following:

Accelerated Master's Programs A number of departments and programs provide opportunities for selected undergraduates to participate in Accelerated Master's Programs (AMPs). This option is available for admission to graduate programs in animal and food sciences, biology, biostatistics, civil engineering, computer science, education, electrical engineering, history, materials science, mathematics, mechanical engineering, microbiology and molecular genetics, nursing, public administration, and statistics. The AMP allows early admission to graduate studies with up to six concurrent credits double-counted toward the bachelor's and master's degrees.

Accelerated Licensure/Master of Arts in Teaching (MAT) in Secondary Education or in Middle Level Education Students apply during their junior year at UVM.

4+1 MBA Program Available to business majors and business minors. Students apply in their junior year.

Consult the Graduate College catalogue or appropriate dean's office for information about these or other accelerated degree programs.

RESEARCH OPPORTUNITIES FOR UNDERGRADUATE STUDENTS

Undergraduate students work one-on-one or in small teams on research projects under the supervision of a faculty mentor. By pursuing undergraduate research, students learn how knowledge is acquired; they begin to define and focus their academic and career interests; and they garner academic credit. They have an opportunity to present their research papers at the annual Student Research Conference held every April.

The Office of Undergraduate Research helps students identify mentors and research projects in natural and social sciences, engineering and mathematics, humanities and fine arts, and the professions. It consults with students, maintains a database of faculty mentors and provides scheduling for appointments.

Undergraduate research projects may be funded or supported by structured programs. The Office of Undergraduate Research coordinates the Undergraduate Research Endeavor Competitive Awards (URECA) Program, the Pre-medical Enhancement Program (PEP), Summer Research Internships, Women in Science Program (WISP), Research Minigrants, Office of the Chief Medical Examiner Internships, among others.

To begin, visit or contact: Undergraduate Research Coordinator, Office of Undergraduate Research, Honors College, 50 University Heights North, Room 17B; ugresearch@uvm.edu; (802) 656-5533; <http://www.uvm.edu/ugresearch/>.

MILITARY STUDIES

Army Reserve Officer's Training Corps (ROTC) Program

The Army ROTC program offers men and women the opportunity to develop leadership and management skills that can lead to commission as an officer and second lieutenant in the United States Army, Army Reserve, or Army National Guard. Instruction focuses on leadership, problem-solving, decision-making, ethics, and military doctrine. Students complete individual and group exercises and assignments in classroom and field environments, and are encouraged to attend various national level seminar opportunities such as Mountain Warfare School; Basic Military Parachuting School; Military Helicopter Operations School; Language and Cultural Immersion in Africa, the Middle East, and Europe; and a fully funded semester abroad.

Department Course Offerings The four-year Military Studies program at UVM consists of a two-year Basic Course (freshman and sophomore years) and a two-year Advanced Course (junior and senior years). A fully funded 30-day Leader's Training Course (LTC) conducted at Fort Knox, Kentucky is offered as an alternative to the Basic Course of study, and meets all prerequisites for students wishing to start ROTC at the end of their sophomore year. The department offers military physical training classes Mondays, Wednesdays, and Fridays for all cadets as a student-led activity.

Interdepartmental Course Offerings The Military Studies department also offers one-credit courses in related fields on behalf of the UVM Department of Physical Education including: PEAC 014 - Orienteering, PEAC 017 - Military Fitness, and PEAC 019 - Back-packing. Students do not need to participate in ROTC to take these courses. These PEAC courses incur no military obligation.

Army ROTC Scholarships and Financial Aid

Scholarships: Two, three, and four year Army ROTC scholarships paying full tuition, full fees, and \$1,200 a year for books are available to qualified applicants. Application for the four-year Army ROTC scholarship is made during the high school senior year by applying electronically at <http://www.goarmy.com>. All other Army ROTC scholarship applications are made through the department.

Financial Aid: Contracted sophomore, junior, and senior ROTC students can earn up to \$6,300 a year through the simultaneous membership program (SMP), which involves participation in the Army National Guard or Army Reserves.

Subsistence Allowance: All contracted cadets receive a monthly ROTC stipend. The stipend is for freshmen: \$300/month, sophomores: \$350/month, juniors: \$450/month, seniors: \$500/month.

The Department of Military Studies is located at Adams House, 601 Main Street, (802) 656-2966.

E-mail: goldbar@uvm.edu

Homepage: <http://armyrotc.com/edu/univvt/index.htm>

Norwich University - Air Force ROTC

Through a dual-enrollment agreement with University of Vermont and Air Force ROTC, we are able to provide commissioning opportunities to students who wish to become United States Air Force officers. Additionally, the Air Force has scholarship funds available to assist qualified candidates to continue their studies while earning commissions as second lieutenants in the Air Forces. For more information, contact the Unit Admissions Officer at Air Force ROTC Detachment 867, Norwich University, 158 Harmon Drive, Northfield, Vermont.

Call 1-800-468-6679 (press "1" for admissions, then ask for the Air Force ROTC department) or go to their website:

<http://www.norwich.edu/cadets/airforcerotc/index.html>.

CONTINUING EDUCATION

Continuing Education serves the University of Vermont's commitment to lifelong learning and statewide outreach. Through the development and delivery of courses and programs on the UVM campus, online, and at designated off-campus locations (regionally, nationally, and internationally), Continuing Education connects the resources of the university with the needs of diverse non-degree students year-round and undergraduate and graduate students during the summer and winter sessions. Continuing Education's innovative courses, programs, certificates, and professional education opportunities attract more than 8,000 individuals from Vermont and beyond.

The Continuing Education office is located at 322 South Prospect Street, (802) 656-2085 / (800) 639-3210. Continuing Education's web address is: <http://learn.uvm.edu> and our email address is learn@uvm.edu.

Student Services

Student services are available to individuals enrolled in Continuing Education credit courses and professional educational workshops and seminars. Student services coordinators guide non-degree students through the back to school process, and help current and potential students gain the necessary credentials to attain admission to a degree and/or professional school program. Continuing Education (CE) representatives are available to help anyone register for any CE learning opportunity. Serving as the dean's office for non-degree students, Continuing Education provides access to the university's academic resources and support services and helps direct students to the most appropriate office within the larger university. Non-degree students are encouraged to become familiar with our office and learn how to maximize their educational experience. Please call (802) 656-2085 or (800) 639-3210 to access our student services staff.

Academic Year and Summer Session

During the academic year, more than four hundred credit courses are offered at times most convenient for non-degree students. Early morning, late afternoon, evening, weekend and online courses provide greater access for the almost 3,000 non-degree students who enroll annually at the University of Vermont. CE attracts high school students, pre-college and college students, pre-graduate/pre-professional students, and working professionals who are all interested in gaining credits on an official UVM transcript. Individuals who are aged 65+ and Vermont residents may attend, on a space available basis, tuition free. Individuals must pay course fees and comprehensive fees, if applicable. Such credits may be applied to UVM undergraduate and graduate programs and are often used in preparation for advanced and professional studies. Additionally, many students enroll in credit courses for personal enrichment as well as for professional certification and career advancement.

During the summer, more than 450 courses are offered on campus, online, around the state and throughout the world in various travel programs. Course registration is open to all learners. Courses are taught by UVM faculty, visiting professors or practitioners, and apply the same academic rigor as courses scheduled during the academic year.

The summer session offers entry-level courses designed for high school students to get ahead and get a taste of the university experience and for undergraduates to catch up on subjects for which they require more preparation. The summer session can also be an opportunity for undergraduates to take a course in the summer that is in high demand during the academic year. Courses are also available in the summer session for professionals in education, healthcare, library science, engineering, public administration and environmental studies. In addition, advanced and graduate courses are included on the summer session's roster.

Certificates, Course Sequences, and Programs

The following college credit certificates, course sequences, and programs are available through Continuing Education:

Accounting Sequence Individuals interested in preparing for the CPA exam are encouraged to inquire about the availability of required accounting courses. Students who have a bachelor's degree but lack specific accounting courses may enroll through Continuing Education.

Bridge Plan in Engineering Through this program, engineers who possess an associate degree in engineering are able to enroll in a set of required courses and transition directly into a bachelor's degree program offered by the College of Engineering and Mathematical Sciences. Students may enroll through Continuing Education and continue on in their degree program as part-time or full-time students.

Computer Software Certificate This certificate program attracts individuals who are interested in gaining the knowledge necessary

to change their career, advance their professional credentials, or prepare for entrance in the graduate computer science program.

Complementary Healthcare Sequence Individuals who are interested in gaining more knowledge about the art and science of complementary healthcare are encouraged to enroll in this dynamic sequence of courses. Students may choose to enroll for college credit or participate for non-credit/professional credit.

Ecological Economics Certificate The Gund Institute for Ecological Economics offers non-degree students an opportunity to enroll in a solution-oriented learning experience. Professionals and others may enroll in this certificate through Continuing Education.

Educational Technology Online Sequence This eighteen credit online sequence of courses leads to a broad understanding of the role of technology in learning and instruction. For educators who are already certified, the six basic courses will provide competencies to use in their current position or will, upon transcript review by the Vermont State Department of Education, allow an endorsement on their teaching license as a school technology specialist. This sequence may also be used as a concentration toward the Curriculum and Instruction master's degree in the College of Education and Social Services.

Faculty Lead Programs Abroad In collaboration with the Office for International Education, Continuing Education provides diverse educational opportunities at worldwide locations including the semester long program for undergraduate students in Oaxaca, Mexico. Courses are available year-round, during winter and summer sessions, providing up to a full semester of credits for full-time students and an immersion experience for both degree and non-degree students.

Gerontology Certificate This undergraduate certificate program focuses on topic areas relevant to the aging population. The program is also equivalent to the cross-college minor in Gerontology and is offered statewide via the Vermont Interactive Television Network and online.

Guaranteed Admission Program This individually designed program allows non-degree students to build the necessary academic credentials for admission to a UVM undergraduate degree program. Each student's program is approved by the participating academic dean's office and the Office of Undergraduate Admission. Students are required to maintain a cumulative grade-point average of 3.00 in a minimum of eighteen credits in order to qualify for guaranteed admission.

Post-Baccalaureate Certificate in Medical Laboratory Science Individuals who have completed a bachelor's degree in a science area and wish to become certified Clinical Laboratory Scientists or certified Medical Technologists should contact Continuing Education about enrolling in this program.

Post-Baccalaureate Pre-Medical (Pre-Health) Program Each year, outstanding students who have already completed their bachelor's degree, enroll in UVM's post-baccalaureate program to prepare for medical, veterinary, and dental schools, as well as a wide variety of graduate level health professional programs. Admission to this program is highly selective and attracts student regionally, nationally, and internationally. More than 90% of UVM post-baccalaureate students gain admission to their first choice health professional program. The program has a linkage agreement with the UVM College of Medicine (COM) guaranteeing an admissions interview with the college to those who meet the UVM COM guidelines, as well as other linkage programs.

Pre-MBA Sequence Students interested in enrolling in the required courses for application to a Master in Business Administration (on-campus and on-line) should contact CE. This sequence allows a student with a bachelor's degree to gain the knowledge and credentials necessary to pursue an MBA.

Pre-MAcc Sequence Students interested in enrolling in the required courses for application to a Master in Accountancy (on-campus and on-line) should contact CE. This sequence allows a student with a bachelor's degree to gain the knowledge and credentials necessary to pursue an MAcc.

Pre-MPA Sequence Students interested in enrolling in the required courses for application to a Master in Public Administration (on-campus and on-line) should contact CE. This sequence allows a student with a bachelor's degree to gain the knowledge and credentials necessary to pursue an MPA.

School Library Media Sequence This series of courses is designed to help licensed educators apply to the Vermont State Department of Education for transcript review, which would lead to a second endorsement on their license as school library media specialists. The sequence may also be used as a concentration in a Curriculum and Instruction master's degree in the College of Education and Social Services.

Speech-Language Pathology Assistant Sequence The online School-Based Speech-Language Pathology Assistant program is designed to help individuals develop an understanding of communication disorders and intervention strategies for speech-language services for students in school settings. Completion of this sequence can lead to employment as a SLPA or can serve as preparation for entering the Department of Communication Sciences and Disorders undergraduate or graduate programs. Several courses in this program also serve as prerequisites for the SLP master's program.

Non-Credit or Professional Credit

There are also non-credit and professional opportunities provided by Continuing Education:

Vermont Educators Teachers, administrators, and paraprofessionals take advantage of UVM's expertise in education and social services through enrollment in on-campus, on-line and via the Vermont Interactive Television network, the Springfield Howard Dean Education Center, and public schools through the state. Some of the courses for educators offered through CE, besides the Educational Technology, the School Library Media, and the Speech-Language Pathology sequences previously described, are Campus Sustainability Leadership and Legal Issues in Higher Education.

Center for Leadership and Innovation In partnership with the School of Business Administration, the Center for Leadership and Innovation (CLI) was created to address the needs of growing companies in our region. The CLI offers a professional leadership and management certificate program, numerous professional development seminars and corporate training. The CLI collaborates with UVM faculty to provide content in the areas of sustainability, social innovation, collaborative management and leadership training. To learn more, go to the CLI website: <http://learn.uvm.edu/center-for-leadership-and-innovation/>.

EXCHANGE PROGRAMS WITH NEW ENGLAND STATE UNIVERSITIES

The six New England land-grant universities (Universities of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut) participate in an exchange program to enable students at the subdegree level to take advantage of a course or combination of courses not available at the home institution. In order to participate in the program, state university students must:

1. Identify a course or combination of courses related to their area of academic interest and not available on the home campus.
2. Receive permission from the appropriate university exchange authorities at both the sending and receiving institutions.
3. Meet minimum eligibility requirements which include the following: students must be in good standing and have at least a 2.50 grade-point average; must be degree candidates; and must be at least

first semester sophomores (application may be made as early as the second semester of the first year). There is no upper limit in terms of class standing on participation.

Exchanges may not exceed a total period of two academic semesters, but these need not be taken consecutively. Summer sessions are not considered part of the exchange program. Course work approved by the student's host institution and completed satisfactorily is fully transferable to the home institution. Transferability of grades and inclusion in grade-point averages are subject to home institutional policy.

The student will pay normal tuition and required fees to the home institution and room and board (where applicable) to the host institution. Students on financial aid must contact their home institution's financial aid office to determine eligibility for continued scholarship assistance.

Participation in the exchange program will not affect a student's residence status either at the home or host institution, nor does participation improve or prejudice possibilities for transfer.

Undergraduate Majors

Animal Science	Japanese
Anthropology	Latin
Art History	Latin American and Caribbean Studies
Art: Studio Art	Linguistics
Asian Studies	Mathematics
Athletic Training Education	Mechanical Engineering
Biochemistry	Medical Laboratory Science
Biological Science, Integrated	Microbiology
Biology	Molecular Genetics
Business Administration	Music
Canadian Studies	Music Performance
Chemistry	Natural Resources
Chinese	Neuroscience
Civil Engineering	Nuclear Medicine Technology
Classical Civilization	Nursing
Communication Sciences and Disorders	Nutrition and Food Sciences
Community and International Development	Parks, Recreation and Tourism
Community Entrepreneurship	Philosophy
Computer Science	Physics
Computer Science and Information Systems	Plant Biology
Dietetics, Nutrition and Food Sciences	Political Science
Ecological Agriculture	Psychology
Economics	Public Communication
Education: Individually Designed Program	Radiation Therapy
Electrical Engineering	Religion
Engineering	Russian
Engineering Management	Russian/East European Studies
English	Self-Design
Environmental Engineering	Social Work
Environmental Sciences	Sociology
Environmental Studies	Spanish
European Studies	Statistics
Exercise & Movement Science	Sustainable Landscape Horticulture
Film and Television Studies	Teacher Education: Art Education (PreK-12)
Forestry	Teacher Education: Early Childhood Education (Birth-Gr3)
French	Teacher Education: Early Childhood Special Education (Birth-6)
Geography	Teacher Education: Elementary Education (K-6)
Geology	Teacher Education: Middle Level Education (5-9)
German	Teacher Education: Music Education (PreK-12)
Global Studies	Teacher Education: Physical Education (PreK-12)
Greek	Teacher Education: Secondary Education (7-12)
History	Theatre
Human Development and Family Studies	Wildlife and Fisheries Biology
Individually Designed	Women's and Gender Studies
Italian Studies	Zoology

Undergraduate Minors

Accounting	Green Building and Community Design
African Studies	History
ALANA U.S. Ethnic Studies	Holocaust Studies
Animal Science	Human Development and Family Studies
Anthropology	Individually Designed
Applied Design	Italian
Art History	Italian Studies
Asian Studies	Japanese
Biochemistry	Latin American and Caribbean Studies
Biology	Latin Language and Literature
Business Administration	Linguistics
Canadian Studies	Mathematics: Pure
Chemistry	Microbiology
Chinese	Middle East Studies
Classical Civilization	Molecular Genetics
Communication Sciences and Disorders	Music
Community and International Development	Nutrition and Food Sciences
Community Entrepreneurship	Parks, Recreation and Tourism
Computer Science	Pharmacology
Consumer Affairs	Philosophy
Consumer and Advertising	Physics
Dance	Plant Biology
Ecological Agriculture	Political Science
Economics	Psychology
Electrical Engineering	Public Communication
English	Religion
Environmental Sciences: Biology	Russian
Environmental Sciences: Geology	Russian/East European Studies
Environmental Studies	Sexuality and Gender Identity Studies
European Studies	Sociology
Film and Television Studies	Soil Science
Food Systems	Spanish
Forestry	Special Education
French	Speech and Debate
Geography	Statistics
Geology	Sustainable Landscape Horticulture
Geospatial Technologies	Theatre
German	Vermont Studies
Gerontology	Wildlife Biology
Global Studies	Women's and Gender Studies
Greek Language and Literature	Zoology

Studying the Environment at UVM

MULTIDISCIPLINARY DEGREES ACROSS COLLEGES

One of the distinctive features of UVM is its focus on studying the environment and the problems the environment faces. Students interested in environmental issues have a rich array of academic choices. There are majors within specific disciplines, as well as several interdisciplinary degree programs.

The Colleges of Agriculture and Life Sciences (CALS), Arts and Sciences (CAS), Education and Social Services (CESS), and the Rubenstein School of Environment and Natural Resources (RSENr) jointly offer an **Environmental Studies** curriculum coordinated by the Environmental Program faculty. Emphases range from natural science to policy and humanities, with strong interdisciplinary focus.

CALS, CAS, and RSENr jointly offer an **Environmental Sciences** major with emphases in agriculture and the environment, conservation biology and biodiversity, ecological design, environmental analysis and assessment, environmental biology, environmental chemistry, environmental geology, environmental resources, and water resources.

The College of Engineering and Mathematical Sciences (CEMS) offers students the opportunity to pursue a degree in **Environmental Engineering**.

ENVIRONMENTAL STUDIES

Environmental Studies (ENVS) is a university-wide undergraduate environmental curricular option offered cooperatively by four colleges and professional schools and coordinated by faculty with full or partial appointments in the Environmental Program. This option is one of UVM's most distinctive and popular academic programs — unique nationally in its breadth and interdisciplinary nature.

Students entering UVM may apply for admission to Environmental Studies through four of the undergraduate divisions. Choice of the appropriate college or school will depend on the individual's interests, and career and educational objectives.

The Environmental Program involves students and faculty from throughout the university, as well as community professionals, recognizing that study of the environment must draw upon all academic disciplines and professional fields. The activities of the program include undergraduate education, research, and community service dedicated to the study and improvement of the cultural and natural environments essential to the quality of life on earth.

The program serves a wide range of environmental interests as diverse as environmental education, international development, sustainable agriculture, environmental law and policy, religion and ecology, and landscape restoration. Working closely with the faculty, each student plans an individualized program that combines a broad, comprehensive understanding of the environment with depth in a specific concentration of study. Major concentrations can be in the advising areas of: ecology and conservation; food, land, and community; nature, culture, justice; environmental policy and development; sustainability studies; environment and health; or individually designed.

Many graduates continue their education in graduate or professional schools; others work in public and private sectors in highly diverse fields throughout Vermont, the nation, and in countries around the globe.

Program offices and a Student Services Center are located in Bittersweet, where students are encouraged to visit with the staff and faculty regarding their academic plans, to gain assistance with research or action projects, and to seek information about academic programs, internships, international study opportunities, graduate studies, and future careers.

Degree Programs

The Bachelor of Science degree in Environmental Studies is awarded through CALS and RSENr.

The Bachelor of Arts degree in Environmental Studies is awarded through CAS.

Degree Requirements

Students must complete the distribution and credit requirements of their college or school and then work with a faculty advisor to develop a focused program of study for their major.

Curriculum

The curriculum in Environmental Studies offers students several alternatives leading to an individualized program of studies. The major in Environmental Studies provides a unique academic program for the student seeking an interdisciplinary major leading to the B.S. or B.A. degree, including an opportunity for Honors Studies. The minor in Environmental Studies fulfills the minor requirement for students in CAS and is available as an elective minor in other schools and colleges. For selected students, a double major offers the opportunity for combining interdisciplinary studies with a traditional major.

Major In Environmental Studies This interdisciplinary major offers students the opportunity to combine studies in several disciplines and professional fields. In addition to a core of interdisciplinary courses, each student's program includes an individually-designed plan of study directed toward a specific focus area. The major is suited equally to the student seeking a broad liberal education with an environmental emphasis and to the student focusing on a particular science, humanities, social studies, or a technical discipline.

In addition to course requirements, this major includes a required senior capstone which may be a thesis, internship, or advanced course sequence. Requirements for Secondary Education majors differ. Consult the appropriate sections of this catalogue for the exact requirements of each college or school.

Required Courses

Credits

Environmental Studies Major Core

Intro. to Environmental Studies (ENVS 001)	4
International Environmental Studies (ENVS 002)	4
Intermediate Environmental Studies (ENVS 151)	3
Senior Capstone	9

Individually Designed Program

Individually designed program of studies	18 - 30
<i>(Intermediate and advanced courses, including courses in environmentally-related natural sciences, humanities, social sciences, and international studies)</i>	

Students are strongly encouraged to undertake internships, independent projects, study abroad, and cross-cultural experiences.

Minor in Environmental Studies For students in several colleges and schools, this program combines the basic interdisciplinary skills and perspectives necessary for understanding complex environmental issues to complement a traditional disciplinary major.

In addition to two introductory Environmental Studies courses and at least three intermediate or advanced ENVS courses, students complete a major in a related discipline or professional field.

Students in CAS may elect this minor to fulfill the minor requirements in that college. Minor programs are available on an elective basis in most other schools and colleges.

Consult appropriate sections of this catalogue for the exact requirements of each college or school.

ENVIRONMENTAL SCIENCES

Integrated across the College of Agriculture and Life Sciences, the College of Arts and Sciences and the Rubenstein School of Environment and Natural Resources, the B.S. degree program in Environmental Sciences (ENSC) draws from a breadth of scientific inquiry on the environment that reflects the diversity of this naturally multidisciplinary endeavor. All ENSC majors receive a strong foundation in the basic sciences coupled with an in-depth exposure to and experience in today's environmental sciences. This prepares students to successfully compete in the environmental sciences job market as well as continue their education in the environmental sciences or a related field.

Each unit has a unique perspective on the discipline, and students are free to explore the environmental sciences within a context that best fits their interests and future plans:

- In **CALS**, faculty research has a strong orientation toward applied environmental problems, not only in agricultural settings but also in the disciplines of plant biology, microbiology, soil science and international development. Students are engaged in experiential learning and hands-on research. Graduates have attained positions with environmental consulting firms, government and non-government environmental organizations, or have continued with further education in a variety of fields.
- In **CAS**, the environmental sciences serve as a hub for a broad-based liberal arts education. Drawing from traditional science disciplines, such as biology, chemistry and geology, this interdisciplinary degree program aims to develop in students the analytical skills and scientific background necessary for understanding the environment and environmental problems. By participating in active research programs that study environmental problems, students are able to integrate and apply fundamental scientific inquiry and methodology.
- In **RSENR**, an in-depth knowledge of the environmental sciences is coupled with a familiarity with the social/policy aspects of environmental issues in order to analyze and solve problems caused by human impacts on the environment. Blending hands-on field and laboratory instruction with real-world environmental internship, research, and study abroad opportunities, students acquire the skill set needed to tackle complex environmental problems. With the school's emphasis on such cutting-edge areas as ecological design, restoration of damaged ecosystems and environmental risk assessment, RSENR graduates are equipped with the latest tools to protect our woods, waters and landscapes.

Degree Requirements

The Bachelor of Science degree in Environmental Sciences is offered by the College of Agriculture and Life Sciences, the College of Arts and Sciences and the Rubenstein School of Environment and Natural Resources. Students must complete the distribution and credit requirements of their college or school in addition to the following specific requirements of the Environmental Sciences curriculum. CAS students enrolled in the program must complete 84 credits in courses offered by the departments and programs within the college. In the college or school in which they are enrolled, students will be assigned an advisor in Environmental Sciences who will assist them in selecting an appropriate program of study.

A. Foundation Courses (eleven to twelve credits)

- CHEM 042* (141 or 143**) (*Organic Chemistry*)
- GEOL 055*** (*Environmental Geology*) or PSS 161 (*Fundamentals of Soil Science*)
- STAT 141 (*Basic Statistical Methods*) or 211 (*Statistical Methods I*) or NR 140 (*Natural Resources Biostatistics*)

*CHEM 141/142 or CHEM 143/144 are acceptable alternatives to CHEM 042.

**CHEM 141 or 143 is required for the Environmental Biology and Chemistry Focus Tracks.

***GEOL 055 is required for the Environmental Geology Focus Track.

B. Core Courses (fourteen to sixteen credits)

- ENSC 001 (*Introduction to Environmental Sciences*)
- ENSC 130 (*Global Environmental Assessment*)
- ENSC 160 (*Pollutant Movement through Air, Land and Water*)

For CALS/RSENR Students:

- ENSC 201 (*Recovery and Restoration of Altered Ecosystems*)
- ENSC 202 (*Ecological Risk Assessment*)

For CAS Students:

- BCOR 102* (*Ecology and Evolution*)
OR
- CHEM 142 or 144** (*Organic Chemistry II*)
OR
- GEOL 110*** (*Earth Materials*)

*BCOR 102 is required for the Environmental Biology Focus Track.

**CHEM 142 or 144 is required for the Environmental Chemistry Focus Track.

***GEOL 110 is required for the Environmental Geology Focus Track.

C. Focus Tracks (fourteen to seventeen credits)

Students must complete the course requirements in one of the following areas. Up-to-date lists of approved course work in these areas will be available in the dean's offices of the three participating academic units and posted on the website for the Environmental Sciences Program. Students may petition to develop a Self-Design track.

- **Agriculture and the Environment** (fourteen credits) – impacts of agriculture on the environment and strategies for minimizing environmental degradation.
- **Conservation Biology and Biodiversity** (fourteen credits) – endangered species and ecosystems, and strategies for conserving the diversity of the earth's life forms.
- **Ecological Design** (fourteen credits) – use of ecological systems to improve environmental quality.
- **Environmental Analysis and Assessment** (fourteen credits) – techniques for measuring environmental impacts and managing environmental data.
- **Environmental Biology** (sixteen credits) – ecological and molecular analysis of endangered populations, phenomena affecting biological diversity, the interrelationship of organisms and their environments, and conservation genetics.
- **Environmental Chemistry** (seventeen credits) – analytical methods for measuring and monitoring air, ground, and water pollutants.
- **Environmental Geology** (sixteen credits) – earth science, geomorphology, and the analysis of ground water.
- **Environmental Resources** (fourteen credits) – environmental processes in air, soil, and water.
- **Water Resources** (fourteen credits) – effects of pollutants on the structure and function of aquatic ecosystems.

D. Prerequisites and Co-requisite Courses

(twenty-two to thirty-two credits)

- BCOR 011/012
- MATH 019/020 or 021/022
- CHEM 031/032 or 035/036
- PHYS 011/012 or 031/042 (*Chemistry Focus Track only*)

ENVIRONMENTAL ENGINEERING

The B.S. degree in Environmental Engineering is an ABET (Accreditation Board for Engineering and Technology) accredited program housed within the College of Engineering and Mathematical Sciences. The Program provides students with course work, skills, and experiences necessary for working on today's complex environmental problems. This includes course work in basic sciences (biology, chemistry, earth sciences, physics, and mathematics), basic engineering sciences (environmental engineering, environmental chemistry, hydraulics, soils, and environmental systems), and environmental engineering design (water and wastewater engineering, air pollution control, and groundwater remediation).

The Environmental Engineering Program provides an education that develops students' quantitative problem solving skills and their ability to apply computational tools to environmental problems. In addition, this program provides 1) real-world projects that integrate social, political, regulatory and economic considerations within environmental solutions, 2) laboratory and field experiences, 3) opportunities to build teamwork skills, and 4) practice in developing strong communication skills. Graduates go on to successful careers with consulting firms, governmental agencies, and business and industry, both in the U.S. and abroad. Some graduates continue their education in environmental engineering or other graduate programs.

Environmental engineers work on a variety of environmental problems including air pollution, bioremediation, groundwater and surface water issues, hazardous waste site management and remediation, pollution prevention, sustainable treatment technologies, and water and wastewater issues. With the myriad of complex environmental problems today, environmental engineering is no longer a subset of other engineering areas (e.g., civil or chemical engineering) but instead has evolved into its own discipline, with its own society (American Society of Environmental Engineers) and professional licensing.

The Environmental Engineering Program at the University of Vermont is different from most other programs in the nation in that it utilizes a systems approach to environmental problem solving integrating course work with Catamount Community Service-Learning Projects. Service-learning provides a needed service to the community partner and real-world learning experiences for students, including learning about civic engagement and the importance of actively contributing to the communities in which we live. Working with Catamount Community as part of their required courses allows students a mechanism for constructing and personalizing a true systems approach to defining and solving real-world problems. Our advisors also work with students interested in international education and work experiences, as well as those interested in complimentary minors. Students are encouraged to discuss these aspects early in their program.

The key to a systems approach is focusing on interrelationships and connections, rather than breaking everything down into disconnected pieces. That goes for the curriculum as well. Although there are still individual courses, we have integrated much of the material and transformed the way we teach. For example, three required courses (Transportation Engineering, Engineering Economics and Introduction to Environmental Engineering) have been reformulated into three integrated systems courses that begin in the sophomore year. These are: CE 132 Environmental Systems; CE 133 Transportation Systems; and CE 134 Engineering Systems Modeling.

For a detailed curricular description of the B.S. program in Environmental Engineering, please refer to the College of Engineering and Mathematical Sciences section of the catalogue.

The College of Agriculture and Life Sciences

The programs of the College of Agriculture and Life Sciences (CALS) emphasize life sciences, agriculture and food systems, environmental protection, and the preservation of healthy rural communities. In cooperation with the Agricultural Experiment Station and the University of Vermont Extension Service, the college performs the four public functions of teaching, research, disseminating information, and providing related services.

As an integral part of the University of Vermont, the College of Agriculture and Life Sciences helps fulfill the university's mission to discover, interpret and share knowledge; to prepare students to lead productive, responsible, and creative lives; and to promote the application of relevant knowledge to benefit the State of Vermont and society as a whole.

The college faculty strive for excellence in undergraduate education as evidenced by a sustained and enviable record of university teaching award winners. The college emphasizes the importance of each individual student and promotes significant student-faculty interaction. Students are provided with a firm foundation in the social and life sciences in order to excel and meet the challenges in future professional careers. Faculty and peer advisors provide a broad range of support to help students develop high-quality academic programs that meet individual needs.

Opportunities abound for off-campus experiences such as internships, independent study, and study abroad. Graduates of the college are successfully meeting the requirements to pursue advanced education. Career choices are broad, but focus primarily on agribusiness, dietetics, international and rural development, agriculture, veterinary and human medicine, biotechnology, nutrition, research and teaching, horticulture, and the plant sciences.

Academic study is enhanced by the on-campus and field facilities, the labs, and the research for which the college is renowned. Many CALS faculty, working through the Agricultural Experiment Station, conduct mission-oriented, applied agricultural research and encourage undergraduate participation.

The College of Agriculture and Life Sciences welcomes applications from international students. The specific procedures and requirements are outlined in the Admissions section found in this catalogue.

The office of the dean of the college is located in Rooms 106 and 108 in Morrill Hall. For more information, contact the Student Services office at calsstudentservices@uvm.edu or call 802-656-2980.

ORGANIZATION

The college's instructional units include six departments: Animal Science; Community Development and Applied Economics; Nutrition and Food Sciences; Microbiology and Molecular Genetics (a department shared with the College of Medicine); Plant and Soil Sciences; Plant Biology; and interdepartmental programs in Biochemistry, Biological Science, Environmental Sciences, and Environmental Studies.

MAJOR DEGREE PROGRAMS

The Bachelor of Science degree is awarded for the following programs:

Animal Science – with concentrations in:
Dairy Production/Farm Management
Equine Science
General Animal Science
Pre-Veterinary/Pre-Professional Science
Biochemistry
Biological Science
Community Entrepreneurship
Community and International Development
Dietetics, Nutrition and Food Sciences

Ecological Agriculture
Environmental Sciences
Environmental Studies
Microbiology
Molecular Genetics
Nutrition and Food Sciences
Plant Biology – with concentrations in:
General Plant Biology
Plant Molecular Biology
Ecology and Evolutionary Biology of Plants
Public Communication
Self-Designed Major
Sustainable Landscape Horticulture

MAJOR DEGREE REQUIREMENTS

All programs in the College of Agriculture and Life Sciences lead to the Bachelor of Science degree and require:

- A. The successful completion of a minimum of 120 credits of course work.
- B. A minimum cumulative grade-point average of 2.00.
- C. Completion of the CALS Core Competencies (see below).
- D. CALS 001 and CALS 002 (Foundations) or equivalent courses.
- E. The university requires two courses addressing diversity for all incoming first-year and incoming transfer students. At least one course must be completed from the Category One list. These diversity credits will also satisfy six of the twelve social science and humanities requirements for the college.
- F. All courses as specified in individual program majors.

The applicability of courses to specific areas of study is based on content and not departmental label. Applicability of courses to fulfill requirements rests with the student's advisor and, if necessary, concurrence of the dean of the college.

CALS CORE COMPETENCIES

Students in the College of Agriculture and Life Sciences develop a set of knowledge, skills, and values through satisfactory completion of an integrated series of courses and academic experiences such as internships and research apprenticeships. CALS believes these competencies are essential to effectively function in society and that they foster an attitude that promotes lifelong learning and responsible citizenship.

A. Knowledge

Students develop a fundamental base of knowledge that will serve as a foundation for lifelong learning.

1. **Science:** Students use the scientific method to understand the natural world and the human condition.
 - a. Physical and Life Sciences: Competency may be met by satisfactory completion of **two courses** in subjects such as anatomy, animal science, biology, chemistry, ecology, entomology, food science, forestry, geology, horticulture, genetics, microbiology, nutrition, physics, physiology, plant biology, and soil science.
 - b. Social Sciences: Competency may be met by satisfactory completion of **two courses** in subjects such as anthropology, community development, economics, geography, history, political science, public policy, psychology, and sociology.
2. **Humanities and Fine Arts:** Students develop an understanding and appreciation for the creative process and human thought. Competency may be met by satisfactory completion of **two courses** in subjects such as art, classics, history, literature, music, philosophy, religion, language, and theater.

B. Skills

Students develop abilities and use tools to effectively communicate, analyze, problem solve, think critically, and work well with others.

1. **Communication Skills:** Students express themselves in a way that is easily understood at a level that is appropriate for the audience.
 - a. Oral: Students show confidence and efficacy in speaking before a group. Competency may be met by satisfactory completion of **one course:** CALS 001 or CALS 183 (or equivalent) where the primary focus is public speaking, and an additional course or series of courses in which students present a minimum of three graded speeches to a group.
 - b. Written: Students effectively communicate in writing. Competency may be met by satisfactory completion of **two courses:** any ENGS 001-099 course and an additional course or series of courses that uses the writing process (redrafting) for a minimum of three graded papers.
2. **Information Technology:** Students demonstrate mastery of technology for communication, data gathering and manipulation, and information analysis. Competency may be met by satisfactory completion of **one course:** CALS 002 or CALS 085 (or equivalent).
3. **Quantitative Skills:** Students demonstrate the ability to use numbers and apply and understand statistical methods.
 - a. Mathematics: Students demonstrate the use of numbers for problem solving. Competency may be met by satisfactory completion of **one course:** MATH 009 or higher.
 - b. Statistics: Students demonstrate the use of numbers for data analysis and inference. Competency may be met by satisfactory completion of **one course:** STAT 111 or higher or equivalent.
4. **Critical Thinking Skills:** Students demonstrate ability to comprehend, judge, and present written/oral arguments and to solve problems. Students learn how to distinguish between fact, conjecture, and intuition.
5. **Interpersonal Skills:** Students demonstrate the ability to work well with other people by understanding and using skills of leadership, conflict resolution, and group process.

C. Values

Students are exposed to values that are expressed through relationships with community, the environment, and themselves that are consistent with the mission of the College of Agriculture and Life Sciences and the University of Vermont campus compact known as "Our Common Ground."

1. **Citizenship and Social Responsibility:** Students develop an understanding, appreciation, and empathy for the diversity of human experience and perspectives. Students are exposed to solving problems for a community and contributing to the common good.
2. **Environmental Stewardship:** Students develop sensitivity for the interconnected relationship between human beings and the natural world and the responsibility for stewardship of the environment.
3. **Personal Growth:** Students develop an understanding and appreciation of a healthy lifestyle and a love for learning that will lead to continuous growth and development throughout their lives. Students continue to improve themselves by developing and affirming the values of respect, integrity, innovation, openness, justice, and responsibility.

REGULATIONS GOVERNING ACADEMIC STANDARDS

The College of Agriculture and Life Sciences Studies committee reviews the semester grades of all students in the college whose semester or cumulative grade-point average falls below the 2.00

minimum, as well as the academic progress of all students placed on academic probation the previous semester. Detailed information may be obtained from the CALS Student Services office, 106 Morrill Hall, (802) 656-2980.

Guidelines A student whose semester grade-point average falls below a 2.00 will be placed "on trial" and will be given a target semester average to achieve by the end of the following semester. A student whose semester grade-point average is below a 1.00 or who fails to achieve the stated target average while "on trial", may be placed on "intermediate trial." Any student with a prolonged history of poor grades, including students who consistently fail to achieve the target semester average, may be placed on "final trial". A student who does not achieve the target semester grade-point average while on "final trial" is a candidate for dismissal from the university.

Additional Guidelines for CALS Academic Probation Any student who has been dismissed can return to the College of Agriculture and Life Sciences assuming the student has satisfied the stipulations stated in their dismissal letter. Upon re-entry to the university, the student will be placed on "intermediate trial" and will not be allowed to take more than twelve credits during the semester in which they are re-admitted.

If a student is dismissed twice during their undergraduate degree program, the student will be required to take one academic year off as a matriculated student. During this period, courses may be taken through Continuing Education at the University of Vermont or elsewhere. Upon re-entry to the university, the student will be placed on "intermediate trial" and will not be allowed to take more than twelve credits during the semester in which they are re-admitted.

If the student is dismissed for a third time, the dismissal is final and not appealable. Readmission to the university will only be permitted if the student is granted an Academic Reprieve. Please refer to the Academic Reprieve section under Academic and General Information in this catalogue for details on this policy.

Appeal A student may appeal a dismissal by submitting a written appeal to the CALS Studies committee within two working days of the receipt of the dismissal letter. The student will be asked to appear in person before the Studies committee to appeal the case.

Continuing Education and Readmission A student who has been dismissed from the college may take up to six credits of course work through UVM Continuing Education or another institution in an attempt to improve his/her grades. To gain readmission to the college, the student must achieve no less than a 2.67 semester average on the six credits. If six credits are to be taken at another institution, the student should work with the UVM Office of Transfer Affairs to ensure transferability.

DISTINGUISHED UNDERGRADUATE RESEARCH (DUR) COLLEGE HONORS PROGRAM

The CALS Academic Awards committee promotes and encourages independent research by recognizing those students who especially excel in their creative, innovative, responsible, and independent pursuit of research. DUR Committee Guidelines for student projects may be obtained in the Student Services office in Morrill Hall or they are available on the CALS website:
http://www.uvm.edu/~cals/?Page=awards.html&SM=current_submenu.html

Independent research can be an important aspect of a student's education. Scientific research, independent projects, and internships or field practice are examples of independent research which benefit students as they pursue graduate study or seek employment. Over the years a number of undergraduate research projects have been published in well-known scientific journals and manuals, videotapes, and other products of special projects have been incorporated into classes to enhance the learning environment in the college.

The completed research, in a form appropriate to the discipline, is evaluated first by a departmental review committee. Independent

research of the highest quality will be chosen for college Honors by the Academic Awards committee. Students are recognized at the CALS Honors Day.

HONORS PROGRAM

The CALS Honors program is a four-year Honors sequence for CALS students who are accepted into the university Honors College. It is designed for highly qualified and motivated students desiring an academically challenging undergraduate experience in the broad areas of the life sciences and agriculture.

In their first two years, Honors scholars will join Honors students from across the university in small, interdisciplinary Honors seminars conducted by renowned scholars from the University of Vermont and other institutions. In their junior and senior years, Honors scholars do Honors work within the College of Agriculture and Life Sciences. The program culminates with an Honors thesis: an opportunity to conduct independent scholarly research under the guidance of a faculty advisor.

Entering first-year students with outstanding academic records will be invited to participate in the Honors College. Scholars will be required to maintain a minimum grade-point average, participate in program activities, enroll in Honors classes and successfully complete a Senior Honors thesis.

Students in CALS who demonstrate academic excellence during their first year may apply for sophomore admission to the Honors College.

PRE-PROFESSIONAL PREPARATION

Students striving for admission to professional colleges, such as dentistry, medicine (including naturopathic), chiropractic, osteopathic, and veterinary medicine, can meet the undergraduate requirements for these programs through enrollment in CALS majors. The Pre-Veterinary/Pre-Professional Science option is advised through the Animal Science major. Upon admission, each student will be assigned a faculty advisor knowledgeable in pre-professional preparation. Competition for admission to professional schools is very keen, and a superior academic record throughout an undergraduate program is necessary to receive consideration for future admission. Due to the intense competition, only a small percentage of those first-year students declaring an interest in professional schools are eventually admitted after completion of the baccalaureate. Consequently, students must select a major, in an area of their choice, to prepare them for a career other than medical sciences. The pre-professional requirements will be met concurrently with the major requirements for the B.S. degree. Students interested in human medical sciences often enroll in biochemistry, biological sciences, nutrition and food sciences, microbiology or molecular genetics. Those interested in veterinary medicine usually enroll in animal science or biological science.

Each student prepares a four-year program of courses, with the guidance of a faculty advisor, to meet requirements for a B.S. degree in their major. It is recommended that students complete the following courses to meet minimum requirements of most professional schools. It is the responsibility of each student to contact the professional schools of their choice to determine the exact entrance requirements.

Human Medical and Dental Schools

- Biology with laboratory:
BIOL 001, 002 or BCOR 011, 012
- Chemistry with laboratory:
CHEM 031, 032 (Inorganic Chemistry)
CHEM 141, 142 (Organic Chemistry)
- Physics with laboratory:
with math - PHYS 011/021, 012/031
with calculus - PHYS 031/021, 042/031
- Mathematics (requirement varies):
MATH 019, 020

Humanities, Social Sciences, Languages:

Students must complete the minimum college requirements in this area that includes English composition and speech. Advanced composition and additional courses in this area are encouraged as time allows.

Veterinary Medical Schools

All of the courses listed above under Human Medical and Dental Schools plus:

- BiochemistryPBIO 185, 187
- Written English.....two out of the following three:
ENGS 001, 050 or 053
- GeneticsBCOR 101 or ASCI 168
- Microbiology.....MMG 101
- Nutrition.....ASCI 110

Several schools require a course in introductory animal sciences, vertebrate embryology, immunology, molecular genetic cell biology or statistics. Students should consult their advisor regarding specific requirements for various veterinary schools.

Finally, both human and veterinary medical schools want to see a history of interest in medicine. It is important for students to work with physicians or veterinarians and gain first-hand knowledge of their chosen profession. Volunteer or paid work in hospitals, nursing homes or emergency centers is important. Commercial farm experience is also valuable for pre-veterinary students.

Students applying to CALS who express an interest in medicine or pre-veterinary medicine should present evidence of high performance in high school level science and mathematics courses, plus additional supporting documentation such as high SAT scores, strong letters of recommendation, and a motivational summary statement.

Pre-Medical Enhancement Program

The Pre-Medical Enhancement Program (PEP) is a joint offering of the College of Arts and Sciences, the College of Agriculture and Life Sciences, and the College of Medicine to provide enhanced opportunities for a select group of highly qualified pre-medical students. Interested students apply to PEP in the second semester of their first year. Those students accepted into PEP will be assigned a practicing physician-mentor who will introduce the concepts of patient care and practice management through regularly scheduled office-based/clinical experiences. The PEP coordinator in the College of Medicine will provide information on opportunities for medical research experience and volunteer/employment possibilities in the health sciences or health policy fields. On a monthly basis, students will receive listings about special educational offerings at the College of Medicine and the Academic Medical Center. PEP students will also be able to participate in practice interviews with members of the University of Vermont Pre-Medical committee. In their junior year, PEP students will be able to apply to the University of Vermont College of Medicine. More information is available on PEP at: www.uvm.edu/career/?Page=med_resources.html#premed_enhancement.

Pre-Veterinary Opportunities

UVM/Tufts School of Veterinary Medicine Program

Tufts University Cummings School of Veterinary Medicine offers undergraduates at UVM an opportunity to apply for admission in the spring of their sophomore year. A limited number of students are admitted; they are guaranteed a space in the veterinary school class once they graduate if they have maintained the required grade-point average upon graduation.

Participants in this program are offered the assurance of veterinary school admission without the substantial investments of time and energy that other pre-veterinary students typically make in the process of preparing, researching, and applying to numerous veterinary schools and preparing for optimal scores on the GRE. Program participants can select any undergraduate major, explore

other areas of interest during their junior and senior years or choose to study abroad, thus broadening their undergraduate experience.

To be eligible to apply, candidates for this program must be sophomores and must have demonstrated academic proficiency in their course work, particularly in the pre-veterinary science courses.

It is expected that competitive applicants will have:

- Completed at least two science sequences (most typically the year of introductory chemistry and the year of introductory biology) by the spring semester of their sophomore year.
- Completed prerequisite courses at their undergraduate institution or at other universities by special permission of the veterinary school's admissions office.
- Achieved a highly competitive cumulative grade-point average.

AP credit is acceptable as long as it appears on the student's transcript. The GRE is not required for applicants to this joint program; the applicant's SAT scores will be considered during the admissions process.

For more details on the application process and program requirements go to:

http://asci.uvm.edu/?Page=current/pre_vet.html&SM=currentmenu.html.

UVM/Ontario Veterinary College

The University of Vermont and the University of Guelph Ontario Veterinary (OVC), an accredited veterinary school which provides a degree in Doctor of Veterinary Medicine, have an agreement whereby OVC will hold two places in the first year of the program for students from the University of Vermont who meet the requirements for admission. These places may not be occupied by students who are Canadian citizens or who hold Canadian Permanent Residency status. The places will be held until the end of March for entrance in September of the same year.

Students may apply for admission to the program via the Veterinary Medical College Application Service or directly to OVC through its normal application process for international applicants. For admission, students must have a minimum GPA of 3.00 in the sciences and meet the minimum score for the Graduate Record exam (GRE). Additional course work includes two semesters each of inorganic chemistry, organic chemistry, physics, and biology (all with labs) and one semester each of calculus, statistics, biochemistry, genetics, and cell biology. Applicants must have a minimum of fifteen credits in each of their eight semesters of undergraduate work at UVM. For additional information, contact Helen Maciejewski, Department of Animal Sciences, College of Agriculture and Life Sciences, 102 Terrill Hall, UVM, Burlington, VT 05405, call 802-656-0155, or email Helen.Maciejewski@uvm.edu

UVM/Royal (Dick) School of Veterinary Studies, The University of Edinburgh (UoE, R(D)SVS) Placement Agreement

The University of Vermont (UVM) and the Royal (Dick) School of Veterinary Studies, the University of Edinburgh (UoE, R(D)SVS) have entered into an early entrance admission placement program that will make available three guaranteed places for UVM early application students. Application to the UoE, R(D)SVS early admission program can be made at the end of the second year (four semesters) with predetermined science and math courses completed and a minimum GPA of 3.40. If accepted, the 3.40 or above GPA has to be maintained until the time of graduation. Admitted students must receive adequate animal handling experience throughout their residence at UVM. The type of experience required can be coordinated between the student and the UoE, R(D)SVS. Opportunity will exist to credit some components of UVM teaching in animal husbandry and animal handling as accredited prior learning for the Edinburgh degree. Advice will be given by UoE, in consultation with UVM, as to what courses can be credited. If requested, opportunity to undertake a four week vacation clinical placement (companion animal and/or equine) at R(D)SVS will be available to all students in the program.

Vermont Technical College/UVM 2+2 FARMS Program

Students graduating from the Vermont Technical College/UVM 2+2 FARMS Program will have the knowledge, skills and training to be effective and competitive members of the Vermont dairy industry. During the four year program it is expected that the following competencies will be gained:

- Understanding dairy businesses as systems
- Developing communication skills needed for coaching a management team
- Becoming autonomous lifelong learners
- Achieving confidence in application of practical knowledge

The Vermont Legislature, through the Department of Agriculture, with generous industry support, provides scholarships to Vermont residents who begin the program at Vermont Technical College (VTC) and maintain a B grade average each year of their college career. Students may transfer into this program from other colleges but it is advisable that a core of courses similar to the VTC dairy management courses be taken. To enter this program, interested students should contact VTC for acceptance into their Dairy Management Associate Degree program then, during their sophomore year, apply to the University of Vermont for admission to either the Animal Science or the Community Entrepreneurship Bachelor of Science degree program. Requirements for admissions into both programs include:

- An interest in and a proven aptitude for the Vermont dairy industry
- A minimum combined verbal/math SAT score of 1100
- High school chemistry and algebra
- Two years of a foreign language

Combined with the hands-on experiences at VTC and UVM, a semester in residence at W. H. Miner Institute in Chazy, NY is required for students in this program giving them the opportunity to focus on the real problems of managing a dairy farm in today's challenging economic climate.

MAJORS: DEPARTMENTAL REQUIREMENTS

Animal Science Major

Domestic animals play a major role in our lives through agriculture, recreation, biomedical science, and companionship. The mission of the Department of Animal Science is to provide a high quality, broad-based education emphasizing domestic animals and their interactions with humans.

Graduates enter veterinary or other professional schools, pursue careers in biomedical science, agribusiness, companion animal care and breeding, zoos and aquaria, or education. To provide the necessary flexibility to achieve this diversity, students work closely with faculty advisors to individualize their programs.

To advance the pre-veterinary program, the Department of Animal Science has established, with Tufts University School of Veterinary Medicine in Massachusetts, Ontario Veterinary College in Guelph, Ontario and the Royal Dick School of Veterinary Studies in Edinburgh, Scotland, highly competitive programs for early acceptance/guaranteed admission to these veterinary colleges. For further information on these options contact the Department of Animal Science directly at (802) 656-0155 or email: helen.maciejewski@uvm.edu.

An option for the outstanding student with an interest in a graduate degree is the Accelerated Master's Program in which students commence study for their master's degree in their senior year and have the potential to obtain a B.S. and M.S. in a five-year period.

The Department of Animal Science actively encourages participation in undergraduate research, internships, and study abroad. By combining classroom, laboratory, and practical experience, students

maximize their performance in a friendly environment and develop responsibility for and control over their education.

Core Courses for All Animal Science Majors:

Animal Science: ASCI 001, 110, 122, 141, 181, 215, plus two additional Animal Science courses
 Animal Health: one course chosen from ASCI 117, 118, 263, 264; MMG 101, 222, 223, 225; MLRS 242
 Biology: BIOL 001, 002 or BCOR 011, 012
 Chemistry: CHEM 023 or 031; and 026, 042 or 141
 Genetics: ASCI 168 or BCOR 101
 Mathematics: MATH 009 or higher
 Statistics: STAT 111, 141 or 211

Additional courses are selected with the help of the advisor. See specific academic offerings for additional course requirements. In addition, each student must complete all college and university requirements for graduation.

The Animal Science program deals with a range of options from basic sciences through companion and zoo animal care to farm management. Although programs are highly individualized by students working with the advisors, there are four basic options:

Dairy Production Designed for the student seeking in-depth training in dairy herd management and milk production with strong links to agribusiness. Experiential learning is emphasized through the Cooperative for Real Education in Agricultural Management (CREAM) Program and the Vermont Technical College/UVM 2+2 FARMS Program.

For students interested in dairy production, the Vermont Technical College/UVM 2+2 FARMS Program provides Vermont residents with scholarships and the opportunity to earn a bachelor's degree after a two-year associate degree in Dairy Farm Management from the Vermont Technical College.

A possible curriculum in Dairy Production:

FIRST YEAR	Credits
CALS 001/CALS 002-Foundations	6
Diversity Elective	3
ASCI 001-Introductory Animal Science	4
Organic Chemistry	4
Inorganic Chemistry	4
Mathematics	3
CDAE 166-Intro Community Entrepreneurship	3
Written English 001-099	3
General Electives ¹	<u>3/6</u>
Total	33/36

SOPHOMORE YEAR	Credits
ASCI 110 - Animal Nutrition, Metabolism and Feeding	4
ASCI 134 - CREAM	8
Biology	8
Financial Management	3
Statistics	3
ASCI 122 - Animals in Society/Animal Welfare	3
ASCI 181- Career Seminar	1
General Electives ¹	<u>0/3</u>
Total	30/33

JUNIOR YEAR	Credits
ASCI 141 - Anatomy and Physiology of Domestic Animals	4
ASCI 004 - Dairy Cattle Judging	2
Advanced Feeds	3
ASCI 234 - Advanced Dairy Management	15
Accounting	3
Diversity Elective	3
General Electives ¹	<u>6/9</u>
Total	36/39

SENIOR YEAR	Credits
ASCI 215 - Physiology of Reproduction	4
CDAE 266 - Decision Making	3
Marketing	3
ASCI 220 - Lactation Physiology	3
Senior Project	4/8
CDAE 264 - Risk Anal and Forecast Procedures	3
General Electives ¹	<u>9/15</u>
Total	29/39

Equine Science Specialized courses are offered on the care, management, breeding, training, and health of horses. Students can specialize in either a teaching/training track or a management track.

The world-famous Morgan Horse Farm at Middlebury, about 45 minutes from campus, is also part of the department and offers opportunities for study and research. Students may also enroll in equine courses at the Miner Agricultural Research Institute in Chazy, New York.

A possible curriculum in Equine Science:

FIRST YEAR	Credits
CALS 001/CALS 002 - Foundations	6
Diversity Elective	3
ASCI 001 - Introductory Animal Science	4
Inorganic Chemistry	4
Written English 001-099	3
Organic Chemistry	4
Mathematics	3
ASCI 115 - Intro to Equine Studies	4
General Electives ¹	<u>0/5</u>
Total	31/36

SOPHOMORE YEAR	Credits
Principles of Biology	8
ASCI 117 - Horse Health and Disease	3
Emergency First Aid	2
ASCI 110 - Animal Nutrition, Metabolism and Feeding	4
Financial Management	3
CDAE 166 - Intro Community Entrepreneurship	3
Diversity Elective	3
General Electives ¹	<u>3/6</u>
Total	29/32

JUNIOR YEAR	Credits
ASCI 141 - Anatomy and Physiology of Domestic Animals	4
ASCI 215 - Physiology of Reproduction	4
Microbiology	4
PSS 011 - Plant Science	3
ASCI 119 - Equine Training Techniques or ASCI 121 - Equus	3 or 4
ASCI 122 - Animals in Society/Animal Welfare	3
Statistics	3
ASCI 108 - Equine Enterprise Management	2
ASCI 181 - Career Seminar	1
Marketing	3
General Electives ¹	<u>3/9</u>
Total	33/40

¹Include courses to meet college requirements and advanced courses for specific options.

SENIOR YEAR	<i>Credits</i>
ASCI 215 - Physiology of Reproduction	4
Equine Instructing Techniques	3
ASCI 143 - Forage Crops	3
ASCI 208 - Equine Industry Issues	3
Genetics	3
Equine Internship	3/6
Specialized Topic	1/3
CDAE 266 - Decision Making	3
General Electives ¹	<u>2/13</u>
Total	25/41

General Animal Science Under this concentration, students design a program to suit their needs or pursue a broader-based program to meet a particular career goal. For example, this option is often used by students who have an interest in human/animal interactions, animal welfare, and zoo animals. The student and advisor select a combination of basic science, production or companion animal courses and balance these with courses available elsewhere in the college or university. An internship experience is highly recommended.

A possible curriculum in General Animal Science:

FIRST YEAR	<i>Credits</i>
CALS 001/CALS 002 - Foundations	6
Diversity Elective	3
ASCI 001 - Introductory Animal Science	4
Organic Chemistry	4
Inorganic Chemistry	4
Mathematics	3
Biology	4
Written English 001-099	3
General Electives ¹	<u>0/3</u>
Total	31/34

SOPHOMORE YEAR	<i>Credits</i>
ASCI 110 - Animal Nutrition, Metabolism and Feeding	4
ASCI 171 - Zoos, Exotics and Endang Species	3
Biology	8
Environmental Biology	3
WFB 174 - Principles of Wildlife Management	3
Statistics	3
General Electives ¹	<u>3/8</u>
Total	27/32

JUNIOR YEAR	<i>Credits</i>
ASCI 141 - Anatomy and Physiology of Domestic Animals	4
WFB 130 - Ornithology	3
WFB 273 - Terrestrial Wildlife	3
ASCI 272 - Advanced Zoos, Exotics and Endangered Species	3
ASCI 154 - Dog Training and Behavior	3
ASCI 122 - Animals in Society/Animal Welfare	3
ASCI 118 - Appl Animal Health	3
ASCI 181 - Career Seminar	1
PSYC 109 - Psychology Research Methods I	4
Diversity Elective	3
General Electives ¹	<u>6/9</u>
Total	36/39

SENIOR YEAR	<i>Credits</i>
ASCI 215 - Reproductive Physiology	4
PSYC 220 - Animal Behavior	3
ASCI 216 - Endocrinology	3
ASCI 263 - Clinical Topics in Companion Animal Medicine	3
ASCI 195/ASCI 196 - Field Experience	12
General Electives ¹	<u>5/11</u>
Total	30/36

Pre-Veterinary/Pre-Professional Science This option is for students who intend to enter veterinary, professional or graduate school. It provides the necessary background in the sciences, as well as opportunities for advanced study related to production, companion, and zoo animals.

A possible curriculum in Pre-veterinary/Pre-professional Science:

FIRST YEAR	<i>Credits</i>
CALS 001/CALS 002 - Foundations	6
Diversity Elective	3
Inorganic Chemistry	8
Math	3
ASCI 001 - Introductory Animal Science	4
BCOR 012 - Biology	4
General Electives ¹	<u>3</u>
Total	31

SOPHOMORE YEAR	<i>Credits</i>
Organic Chemistry	8
ASCI 110 - Animal Nutrition, Metabolism and Feeding	4
Statistics	3
ASCI 141 - Anatomy and Physiology of Domestic Animals	4
Written English	3
BCOR 011 - Exploring Biology	4
General Electives ¹	<u>3/6</u>
Total	29/32

JUNIOR YEAR	<i>Credits</i>
ASCI 122 - Animals in Society/Animal Welfare	3
ASCI 117 - Horse Health and Disease	3
Microbiology	4
Physics	10
English Composition	3
ASCI 181 - Career Seminar	1
Diversity Elective	3
General Electives ¹	<u>3/6</u>
Total	30/33

SENIOR YEAR	<i>Credits</i>
ASCI 263 or 264 - Clinical Veterinary Medicine	3
ASCI 118 - Applied Animal Health	3
ASCI 215 - Physiology of Reproduction	4
ASCI 216 - Endocrinology	3
Biochemistry	4
Genetics	3
ASCI 154 - Dog Training and Behavior	3
General Electives ¹	<u>6/12</u>
Total	29/35

¹Include courses to meet college requirements and advanced courses for specific options. Many of the electives are normally taken in advanced science options.

Biochemistry Major

Biochemistry is the basic science that explores the chemical and physical properties of living organisms and the chemical changes that occur in these organisms. It is integral to the study of multiple disciplines within the life and biomedical sciences, including biology, chemistry, microbiology, genetics, anatomy, physiology, pharmacology, nutrition and food sciences, animal sciences, plant biology, and plant sciences. The Bachelor of Science in Biochemistry is an interdisciplinary undergraduate degree program offered through the College of Agriculture and Life Sciences and the College of Arts and Sciences (CAS) in conjunction with the College of Medicine (COM). It draws upon a broad set of university resources from CALS, CAS, and COM to provide students with a modern science-based education designed to emphasize fundamental knowledge of chemistry and biology along with advanced courses specializing in biochemistry and related life and biomedical sciences. The biochemistry curric-

ulum offers students with a strong academic ability in the sciences an opportunity to explore upper-level courses in areas of modern biochemistry and is designed to meet the needs of students wishing to compete in the job market at the B.S. degree level as well as students planning to continue with advanced studies in a graduate or professional degree program.

Students may apply to the program either through CALS or CAS, which vary in their college distribution requirements. The distribution categories and the number of required courses in each category differ slightly. In CAS, students are required to fulfill distribution requirements in all of the following seven categories: foreign languages, fine arts, literature, humanities, social sciences, physical sciences, and mathematics, plus complete the University Approved Diversity requirements. In CALS, students are required to fulfill distribution requirements in science, humanities and fine arts, communication skills, information technology skills, quantitative skills, critical thinking skills, interpersonal skills, citizenship and social responsibility values, environmental stewardship values, and personal growth values. Regardless of the college through which students choose to apply, all students must take a core set of basic courses in chemistry, biology, and mathematics in their first two years followed by advanced courses in biochemistry, chemistry, and/or molecular biology in their third and fourth years. Since biochemistry is a "hands-on" science, involvement of students in undergraduate research projects, most of which qualify as Honors projects in either college, is strongly encouraged. For more information, contact Professor Sylvie Doublé (Sylvie.Doublé@uvm.edu).

In addition to the CALS or CAS college distribution requirements, the Biochemistry core requires satisfactory completion of BCOR 011, 012; MATH 021, 022; PHYS 051, 152; CHEM 035, 036; CHEM 143, 144; CHEM 162; BIOC/CHEM/MMG 205, 206, and 207; BCOR 101, 103; and nine credits of advanced biochemistry-related electives. In addition, students must select one course from the following group of intermediate-level laboratory electives: CHEM 121; MMG 104, 201; BIOL 204 or 205. Students may substitute BIOL 001, 002 for BCOR 011, 012; PHYS 011, 012 with PHYS 021, 022 for PHYS 051, 152; CHEM 031, 032 for CHEM 035, 036; and CHEM 141, 142 for CHEM 143, 144. However, the program of study recommended above will provide a better preparation for advanced course work in biochemistry.

Biological Science Major

Many of the most exciting developments with the potential to benefit society are in biological science. For example, consider how often the fields of biotechnology, medicine, ecology, and genetics are mentioned in the daily news. For students concerned about contemporary issues and who love the sciences, the Bachelor of Science program in Biological Science (BISC) offers the flexibility, rigor and comprehensiveness to prepare for a dynamic and challenging career. Veterinarian, marine biologist, physician, lab technician – these are among the several hundred careers in which CALS graduates are employed. Many use their degree as a professional stepping stone to medical, veterinary or graduate school.

BISC is the generic Bachelor of Science in Biological Science. Flexibility and quality are its biggest attractions. As a cross-college integrated major, BISC draws its expertise of faculty from several departments in the College of Agriculture and Life Sciences, the Department of Biology in the College of Arts and Science, and from other parts of the university, especially the College of Medicine. BISC students take two years of fundamental course work: mathematics, chemistry, introductory biology, genetics, ecology and evolution, and cell and molecular biology. During the junior and senior years, students study physics, statistics, advanced biology, and often do internships and undergraduate research working one-on-one with a professor in the student's area of interest. Students use their advanced electives to develop a rich expertise in biology or to concentrate in specialized areas such as genetics, plant biology, biochemistry, nutrition, and microbiology. Others expand their solid foundation by adding a second major or a minor in a complementary field selected from the offerings in CALS or CAS.

The wealth of faculty among the diverse biological sciences allows students to gain personal attention engaging with a professor in undergraduate research in the student's chosen field of interest. Students are encouraged to participate in the lab or field research of a UVM professor, chosen from the full range of life science disciplines at UVM. UVM has extensive teaching and research facilities, e.g., state-of-the-art laboratories and greenhouses, protected Natural Areas (from alpine tundra to Lake Champlain), Proctor Maple Research Center, Horticultural Farm, Morgan Horse Farm and Miller Research Center. Students find opportunities in biotechnology splicing genes and working on HIV; others examine how one gene may affect a cancer patient's sensitivity to chemotherapy drugs. One student contributed to research on how drug-eluting stents affect the potential for blood clots. Another biological science student worked on a project studying how pH affects phosphorus level in streams; while another, in a biomedical engineering lab, helped design a way to simulate skiing injuries (the data to be used to manufacture a safer ski boot).

Internships, a path for students to get experience in the working world while still in college, are of growing importance on a graduate's resume. In the BISC major, a broad range of opportunities are offered to the students.

Specific Requirements:

The Biological Science B.S. core curriculum requires satisfactory completion of BCOR 011, 012 (Exploring Biology); BCOR 101 (Genetics); BCOR 102 (Ecology and Evolution); BCOR 103 (Molecular and Cell Biology); CHEM 031, 032, 141, 142; PHYS 011 and 012 or PHYS 031 and 042 (either sequence must include laboratory sections 021 and 022); MATH 019, 020 or 021, 022; STAT 141 or 211. In addition and in consultation with their academic advisor, students will design a course of study that includes an additional twenty-six credits of advanced life science electives.

Within the advanced elective courses, and excluding the BCOR courses, no more than eight credits at the 100-level may be applied to the major except with written permission from an advisor and not exceeding three 100-level courses. From the advanced level electives, students must complete twelve credits from courses with a statistical component, three credits that stress oral communication and three credits that stress written communication. The advanced credits may include up to six credits of undergraduate research at the 200-level.

For more information contact the CALS director of the program: Dr. Donald Stratton (Donald.Stratton@uvm.edu).

Community Development and Applied Economics Majors

The challenges affecting our communities and world are complex, interconnected and ever changing, fueling the demand for professionals with a unique set of knowledge and skills. The Department of Community Development and Applied Economics (CDAE) uses economic, social, and environmental principles to identify community needs, analyze problems and advance sustainable solutions in partnership with organizations and communities.

The CDAE Mission: CDAE supports sustainable local and international community development through interdisciplinary research, education, and outreach that serves the public interest.

CDAE offers three innovative majors: Community Entrepreneurship, Community and International Development, and Public Communication. Students in CDAE focus on the application of economic principles and their relationship to leadership and management, economic and enterprise development, environmental sustainability, and social responsibility. CDAE offers many courses with experiential learning, including service-learning courses in which students partner with community organizations to work on real-world issues.

CDAE also offers seven minors: Community Entrepreneurship; Community and International Development; Public Communication; Applied Design; Consumer Affairs; Consumer and Advertising; and Green Building and Design. CDAE also participates in the College of Agriculture and Life Sciences interdepartmental Food Systems minor.

Expertise among the CDAE faculty includes economics (both ecological and neoclassical), ecological design and renewable energy, public policy, community entrepreneurship, consumer affairs, food systems and political process. CDAE's research and outreach is global (e.g., Honduras, St. Lucia, Belize) and local (e.g., dairy farming and farmers' markets in Vermont).

More information on CDAE and the majors/minors offered, including faculty, student, and alumni profiles, is available online: <http://www.uvm.edu/cdae>. Inquiries are accepted by email at cdae@uvm.edu or by phone at 802-656-2001.

CDAE General Requirements:

Students majoring in any of the three majors within the department must complete the CDAE Core Curriculum, which includes the following courses: CDAE 002, 015 or CDAE 024 (CID or CENT only), 061, 102, 127, 250. Additionally required are: POLS 021; CALS 001, 002; plus two courses from the Humanities and Fine Arts and two three-credit University Approved Diversity courses. Except for PCOM majors, MATH 019, STAT 141 and EC 001 are also required.

Community Entrepreneurship or CENT (B.S) Major

Successful entrepreneurship is fundamental to a healthy community. Students majoring in Community Entrepreneurship are able to test the entrepreneurial waters in courses designed to give them firsthand experience in launching or strengthening a product or service. Students build skills applying economics, management, strategic planning, marketing and public policy on the enterprise level. This major emphasizes enterprises that promote community development with sound stewardship of natural resources and regard for social capital.

Students must complete CDAE 157, 166, 167, 168, 253, 254, 255, 266 and 267.

Community and International Development or CID (B.S) Major

Building on an applied economics foundation, the Community and International Development curriculum offers students the academic and professional experience that enables them to address community development both locally and globally. Students in Community and International Development are provided opportunities to analyze and learn from development issues in Vermont and New England; students learn while engaging in real world problem solving. Over the past decade, students and faculty members within CDAE have also nurtured relationships with communities in Belize, Honduras, and St. Lucia. CID students have the opportunity to partner with these organizations to address real world development issues, through carefully designed service learning courses and faculty led trips abroad.

Students must complete CDAE 166, 253, 254, 255, and seven of the following courses: CDAE 106, 157, 171, 218, 237, 251, 272, 273, transfer credit, or CDAE Special Topics courses, as appropriate.

Public Communication or PCOM (B.S) Major

Public Communication is the practice of understanding, designing, implementing, and evaluating successful communication campaigns within a framework of public service. It is used to inform and persuade, to build relationships, and to encourage open dialog in the public interest. This is accomplished by crafting successful messages through the application of research, theory, technical knowledge, and sound design principles. Students majoring in Public Communication use an integrated approach to communication in the public interest to critically analyze situations, manage information, and craft messages that work in an increasingly global society.

Students must complete CDAE 014, 024, 120, 124, 129, 295 (PCOM Capstone), PA 206 and five of the following courses: CDAE 128, 157, 159, 166, 168, 231, 251, SOC 043/243 or SOC 150 or POLS 137.

Environmental Sciences and Studies Majors

The environment is a common theme in the courses offered at UVM. CALS partners with the Rubenstein School of the Environment and Natural Resources and the College of Arts and Sciences to offer two interdisciplinary majors: Environmental Science and Environmental Studies, described in "Studying the Environment at UVM" in this catalogue.

Environmental Sciences (B.S.) Major

Degree Requirements

Environmental Sciences majors through the College of Agriculture and Life Sciences must fulfill the following requirements for graduation:

- A. General CALS distribution requirements.
- B. Core distribution requirements for the major (which also fill CALS distribution requirements): CDAE 002; CDAE 208; PSS 010 or PSS 021; BCOR 102; MMG 101.
- C. Environmental Science minimal basic science/quantitative courses (which also fill college core requirements): BCOR 011 and BCOR 012; CHEM 031, CHEM 032, CHEM 042*; GEOL 055 or PSS 161**; MATH 019, MATH 020; NR 140 or STAT 141.

**Students should consider taking CHEM 141 / CHEM 142.*

*** PSS 161 is required for many PSS courses in several curricular concentrations; most students should take this course.*

- D. Environmental Sciences foundation courses: ENSC 101, ENSC 130, ENSC 160, ENSC 201, ENSC 202.
- E. Concentration requirement: fourteen to seventeen credits in one of the following Focus Tracks: Agriculture and the Environment, Conservation Biology and Biodiversity, Ecological Design, Environmental Analysis and Assessment, Environmental Biology, Environmental Chemistry, Environmental Geology, Environmental Resources, Water Resources. Up-to-date course requirements for each Focus Track are available from the student's advisor or the department, or by going to the Focus Areas section of the Environmental Sciences website. Students may elect to petition to develop a Self-Designed curriculum track. For more information, contact Dr. Donald Ross: Donald.Ross@uvm.edu.

Environmental Studies (B.S.) Major

Degree Requirements

Environmental Studies students majoring through the College of Agriculture and Life Sciences must complete a minimum of 120 credits, with a minimum GPA of 2.00, and fulfill the following requirements:

- A. The CALS Core Competencies;
- B. The Environmental Studies major core and the Individually Designed program: thirty credits of approved environmentally-related courses at the 100-level or above, including three credits at the 200-level, with at least one environmentally related course in each of the following areas: natural sciences, humanities, social sciences, and international studies (may be fulfilled with study abroad experience). For more information, contact Elizabeth Getchell (Elizabeth.Getchell@uvm.edu).

Microbiology and Molecular Genetics Majors

Undergraduates who undertake studies in the Department of Microbiology and Molecular Genetics receive instruction in the classroom and in state-of-the-art teaching and research laboratories. If you are interested in attending medical school or graduate school, then majoring in Microbiology (MICR) or Molecular Genetics (MGEN) may be appropriate. Fascinating recent developments in medicine and biomedical sciences, such as stem cell research, emerging

microbial infectious diseases, genetic engineering, and cancer therapeutics, have emerged from a detailed understanding of the molecular events that underlie the routine functions of cells and organisms. Microbiology majors study in detail the microbes involved in infectious disease, human health, industrial manufacturing, ecology, and basic science research. Molecular genetics majors investigate the chemical, biological, and genetic principles that underlie all living processes at the molecular level.

Small classes, hands-on/intensive classroom laboratory experiences, and a strong commitment to undergraduate advising give students many opportunities to interact with the faculty, including a First-year Colloquium in which students meet directly with the faculty to discuss on-going research projects and contemporary issues in microbiology and molecular genetics. Undergraduates are encouraged to get involved in cutting-edge research projects in the department and the College of Medicine in such areas as DNA repair, infectious diseases, bioinformatics, structural biology, developmental genetics, and other fields. Internship opportunities outside of UVM with the local hospital, Fletcher Allen Health Care, the Department of Health, and the Office of the Chief Medical Examiner are also available to pre-med students. Approximately 85 percent of MICR and MGEN majors take advantage of either research or internship opportunities.

The program is flexible enough to allow students to minor in another scientific discipline such as animal sciences, biochemistry, biological sciences, chemistry, computer science, mathematics, medical technology, nutrition, and pharmacology -- or in a field that is altogether different. Students have graduated with minors in French, business administration, psychology, and statistics, allowing them to put together a career plan that spans a wide range of opportunities. The program is also flexible enough to allow students to experience a study abroad semester. For more information please email Douglas.Johnson@uvm.edu or call him at (802) 656-8203.

Microbiology Major

Students who choose the microbiology major usually will have a concentration in clinical, applied or general microbiology. Microbiology majors must fulfill the basic distribution requirements for a Bachelor of Science (B.S.) degree from the College of Agriculture and Life Sciences. Microbiology majors also take a core set of courses, totaling 65 credits, including: First-year Colloquium, Senior Seminar, Microbiology and Infectious Diseases, Recombinant DNA Lab, Molecular Cell Biology, general biology, biochemistry, genetics, general and organic chemistry, calculus, physics, and statistics. In addition to the core requirements, microbiology majors take a minimum of fifteen credits from an array of upper-level microbiology courses, including Clinical Microbiology, Immunology, Mammalian Cell Culture, Eukaryotic Virology, Bioinformatics, internships, and undergraduate research. These courses meet the prerequisites for applying to medical school or to graduate school to do life sciences or biomedical research.

Molecular Genetics Major

Students who choose the molecular genetics major must also fulfill the basic distribution requirements for a Bachelor of Science (B.S.) degree from the College of Agriculture and Life Sciences and a core set of courses, totaling 65 credits, including: First-year Colloquium, Senior Seminar, Microbiology and Infectious Diseases, Recombinant DNA Lab, Molecular Cell Biology, general biology, biochemistry, genetics, general and organic chemistry, calculus, physics, and statistics. In addition, molecular genetics majors take Prokaryotic Molecular Genetics and a minimum of twelve credits from an array of upper-level molecular genetics courses, including Molecular Cloning, Eukaryotic Genetics, Bioinformatics, Eukaryotic Virology, Protein-DNA Interactions, internships, and undergraduate research. These courses meet the prerequisites for applying to medical school or to graduate school to do life sciences or biomedical research.

Nutrition and Food Sciences Majors

The Department of Nutrition and Food Sciences (NFS) prepares students to enter the rapidly expanding field of dietetics, food science, nutrition, health, and fitness. Nutrition and Food Science, unique fields of study, are rooted in the physiological, chemical, and biochemical sciences but are comprehensive in scope since they integrate knowledge learned in the social and psychological sciences. Through formal course work, field experience, and independent research, students prepare themselves in the biochemical, psychological, and socioeconomic aspects of diet, nutrition and foods. Thus, NFS majors are able to meet the current and future needs in nutrition and food science and assume innovative leadership roles in society and industry.

The credits earned in NFS provide background in preventive and therapeutic nutrition as well as nutrient requirements for human growth, development, health, and fitness throughout the life cycle. Other courses focus on the physical, chemical, and nutritional properties of food, food safety, and consumer aspects of food related to socioeconomic status, life style, cultural beliefs, and health. Although a series of courses providing knowledge in these areas is required of all majors, each student has a generous amount of free elective credits to pursue personal interests.

Departmental majors may elect to meet the undergraduate requirements needed for admission to medical schools (including naturopathic, chiropractic or osteopathic) or graduate school in nutrition, food science or dietetics.

Depending on current interests and future plans, majors may select one of two departmental majors:

Dietetics, Nutrition and Food Sciences Major

Dietetics is a profession concerned with the science and art of human nutritional care, an essential component of human health science. The didactic program in Dietetics is accredited by the Accreditation Council for Education and Dietetics (ACEND) of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, 312/899-0040 ext. 5400. This program prepares students for careers as Registered Dietitians by providing the undergraduate requirements needed to apply to dietetic internships.

To become a Registered Dietitian, students must complete the didactic program in Dietetics, complete an ACEND accredited supervised practice/internship program, and pass the National Registration Examination for Dietitians. This major prepares graduates to counsel people about the preventive and therapeutic role of nutrition in the maintenance of health and fitness.

Nutrition and Food Sciences Major

This customized major is designed to provide a strong background in preventive nutrition, food science, and basic science. Students have an opportunity to integrate course work in medical, biochemical, biological, physiological, psychological, and sociological sciences or business. This option can prepare students for careers in the commercial food processing industry or in professions where the knowledge of food and beverage, nutrient content of foods, eating behavior, and the role of food in society is critical. The demand for qualified professionals with education and training in the food science arena greatly exceeds the number of graduates available thus making this option highly desirable for the career motivated student.

Through appropriate selection and advisement, students in either DNFS or NFS may meet the undergraduate requirements needed for admission to medical school (including naturopathic, chiropractic or osteopathic) or graduate school.

Course requirements for all NFS Department Majors
Credits required = 53-54

I. General Education Studies for all Majors	<i>Credits</i>
A. Communication Skills	6
English 001 (or equivalent)	
CALS 183 (or equivalent)	
B. Fine Arts and Humanities	6
Any two humanities courses	
(Note: See diversity course substitute for Humanities.)	
C. Social Science Core	6
PSYC 001	
SOC 001 or ANTH 021 or HLTH 105	
D. Basic Science Core	20
General Chemistry CHEM 023 or 031	
Organic Chemistry CHEM 042 or 141	
ANPS 019/ ANPS 020	
Survey of Biochemistry PBIO 185	
Survey of Biochemistry Lab PBIO 187	
E. Analytic Sciences Core	9/10
NFS: Math Placement	
(if test score less than or equal to 6, take MATH 009;	
if equal to or greater than 7 take MATH 019)	
DNFS: BSAD 065 Accounting (required in place of math)	
Elements of Statistics STAT 111	
Computer Applications CALS 085 (or equivalent)	
F. CALS Orientation for first year students only	6
Diversity (may substitute for Humanities; see list)	
CALS 001 and 002 (first year students only)	
II. Dietetics, Nutrition and Food Science Core	
A. NFS 223, 244, 250, 260, 262, 263	25/27
BSAD 120; HLTH 095	
Practical Experience: choose from NFS 196, 197,	1-3
198, 274, 296	
Electives	20
B. Nutrition and Food Sciences	12
In consultation with the student's academic advisor,	
select four additional didactic courses, at least	
two of which must be at the 200-level.	
Electives	35
III. Nutrition and Food Science Core	22
A. NFS 043, 044, 053, 054, 143, 153, 154, 203, and 243	
B. Speech and Computer Science courses are only required	
of transfer students who have not taken CALS 001 and 002.	
C. ANTH 021 and HLTH 105 fulfill the Category Two Diversity	
requirement.	
D. Students wishing to apply to medical, naturopathic, chiro-	
practic, osteopathic, dental or graduate school should take:	
CHEM 031 and 141 (in place of CHEM 023 and 042) plus use	
electives to take CHEM 032, 142; BIOL 001, 002; PHYS 011 and	
012 or 031 and 042 plus Physics Lab 021, 022. MATH 019 and	
020 or 021 and 022 are optional and depend on the profes-	
sional school the student plans on applying to.	

For more information about the University Approved Diversity requirement, see the Diversity Course section of this catalogue. Students planning to attend medical or graduate school should have biology (one year), chemistry (two years), and physics (one year). One year of calculus is also recommended.

Plant Biology Major

This undergraduate program is designed to provide flexibility in course of study and mentorship via undergraduate research experiences and one-on-one advising. Each student plans an individualized program of study in consultation with a faculty advisor. Students have many opportunities to interact closely with faculty through field, lab and research experiences. Areas of student research include ecology, evolution, cell and molecular biology, growth and development, and physiology (see the departmental website for a list of completed student projects). Popular study opportunities include a biennial trip to Costa Rica and student-initiated research projects at the internationally known Proctor

Maple Research Center or at the Pringle Herbarium, the third largest plant collection in New England.

Students select from three concentrations: General Plant Biology, Plant Molecular Biology, and Ecology and Evolutionary Biology of Plants. Basic courses that are required for all of the concentrations, and additional courses specific for each concentration, are listed below. Students may petition the Department of Plant Biology to substitute similar courses for those listed. Study of a modern foreign language is encouraged for those attracted to the many international career opportunities in plant biology.

Basic Course Requirements (45-48 credits) – required for all concentrations:

BCOR 011, 012, 101
 PBIO 104
 CHEM 031, 032, 141, 142*
 MATH 019, 020 or 021, 022
 PHYS 011 or 031 and accompanying lab 021
 STAT 141, 211 or NR 140

* Students desiring an especially strong foundation in chemistry may instead enroll in the equivalent courses for chemistry majors: CHEM 035, 036, 143, 144.

General Plant Biology This concentration offers broad training at all levels of plant biology ranging from molecular biology to plant communities. Students have the flexibility to study plants from many perspectives and to understand how the diverse areas are interrelated. Students, in consultation with a faculty advisor, can choose courses that meet their individual needs and interests. Students are encouraged to perform undergraduate research working directly with departmental faculty on laboratory or field projects in plant biology.

In addition to the basic course requirements for the departmental major (listed above), this concentration has the following requirements and electives:

Concentration Requirements (eight credits):

PBIO 108 or 109
 BCOR 102

Concentration Electives (eighteen+ credits):

At least eighteen credits (including at least two 200-level plant biology courses) selected in consultation with the student's advisor. An up-to-date list of approved courses for this concentration may be found on the department's website.

Ecology and Evolutionary Biology of Plants This concentration offers broad training in organismal biology, with emphasis on population and physiological ecology, community structure and function, and plant evolution and diversity. Students choose from a menu of options in fulfilling most requirements; this flexible curriculum enables students to select from a wide range of courses while achieving proficiency in the ecology and evolution of plants. Students are encouraged to initiate an independent research project with a member of the departmental faculty.

In addition to the basic course requirements for the departmental major (listed above), this concentration has the following requirements and electives.

Concentration Requirements (twelve credits):

PBIO 108 and 109
 BCOR 102

Concentration Electives (fifteen+ credits):

At least fifteen credits (including at least one ecology course and two 200-level plant biology courses) selected in consultation with the student's advisor. An up-to-date list of approved courses for this concentration may be found on the department's website.

Plant Molecular Biology This concentration focuses on the inner workings of plants at the molecular, cellular, and organismal levels. Although the basic cellular functions of plants are the same as those of animals, plants face unique challenges and have evolved interesting solutions. To understand the unique biology of plants within a context of what is known about other organisms, courses examining

the biochemistry and molecular biology of plants are supplemented by courses on the molecular functions and development of other organisms. In addition to course work, students are encouraged to get hands-on laboratory experience by taking advantage of the many opportunities to participate in independent research with departmental faculty.

In addition to the basic course requirements for the departmental major (listed above), this concentration has the following requirements and electives:

Concentration Requirements (twelve - sixteen credits):

PBIO 185, 187 or BIOC 205, 206, 207
MMG 101
BCOR 103

Concentration Electives (twelve+ credits):

At least twelve credits (including at least two 100- or 200-level plant biology courses) selected in consultation with the student's advisor. An up-to-date list of approved courses for this concentration may be found on the department's website. To learn more about the undergraduate program, visit the Plant Biology department's website at www.uvm.edu/~plantbio/.

Plant and Soil Science Majors

Majors in the Department of Plant and Soil Science include both Ecological Agriculture and Sustainable Landscape Horticulture that allow students to expand their knowledge of science and apply it to plant production, landscape design, and environmental issues related to plants, insects, soil, and water management. This program provides a unique, interdisciplinary opportunity to study plant/soil ecosystems that are managed for food, feed or fiber production, for landscape purposes, or for recycling/waste utilization, areas that are very important from societal and environmental perspectives. PSS faculty represent the disciplines of entomology, soil science, horticulture, landscape design, agronomy, plant pathology, and water pollution control.

The Plant and Soil Science program integrates classroom and field experiences incorporating relevant environmental, social, and economic issues into the curriculum. The program is flexible, allowing students to pursue their interests in plant production, landscape design, and environmental issues related to plants, pathogens, pests, soils, and water management while preparing for career opportunities and graduate studies. Faculty help students develop individualized courses of study to match their interests and career goals. For more information, email: pss@uvm.edu or call (802) 656-2630.

Ecological Agriculture Major

Ecological Agriculture (ECAG) is a degree that provides a foundation in the natural sciences with an emphasis on the application of ecological principles to the production of horticultural or agronomic crops. Disciplinary synthesis is attained through advanced courses in soils, plant pathology, entomology, and integrated farm management. Students are prepared to become practitioners through internship experiences and completing cross-disciplinary courses in ethics, policy and economics.

Specific Requirements:

PSS 021, 106, 112, 117, 138, 158, 161, 162, 212, and 281; BIOL 001 and 002; BCOR 102 or NR 103; CDAE 061, 166 or BSAD 120; CDAE 208; PBIO 104; CHEM 023 and 026; MATH 010 or 019; STAT 111 or 141 or NR 140; and twelve credits of PSS courses at the 100-level or higher (excluding PSS 195/196 Special Topics and PSS 197/198 Independent Study or online courses unless prior approval is obtained by the student's advisor). All students must get a C- or better in all courses required by the ECAG major.

Sustainable Landscape Horticulture Major

Sustainable Landscape Horticulture (SLH) provides professional education in the use and care of trees, shrubs, flowers, lawn grasses, and other plants in the human environment. The program integrates professional training in landscape design and plant sciences with courses in business and liberal arts. The emphasis is on the preparation of students for the changing future and a variety of careers in the

expanding field of Sustainable Landscape Horticulture. Students are required to participate in internships related to their studies.

Specific Requirements:

PSS 010, 106, 112, 117, 123, 125, 137, 138, 145, 158, 161, 162, 238, 281; FOR 021; BIOL 001 and 002; BCOR 102 or NR 103; CDAE 061, 166 or BSAD 120; PBIO 104; NR 025 or 143 or CDAE 101; CHEM 023 and 026; MATH 010 or 019; STAT 111 or 141 or NR 140. All students must get a C- or better in all courses required by the SLH major.

The Self-Designed Major

Undergraduate students have the opportunity to define a personalized program of study when their educational objectives fall outside curricula defined by departments and programs of the college. Each student is asked to formulate their own program of study by working in association with a faculty advisor and the committee of faculty which oversees the major. Designing a major requires examination of personal goals and acquiring information about formal courses and other possible learning experiences (e.g., internships, independent studies, special topics and studies, and independent research). The information is then formulated into a package of proposed course work and other learning experiences.

The objective is to design a coherent and unique plan of study to meet the specific learning needs of the student and by which the student will achieve an advanced state of skills, knowledge, and values in their chosen field. The student must justify the designed package in two ways: (1) value to the student; (2) uniqueness and deviation from curricula already available. The Self-Designed major usually comprises about sixty + credits of study in the junior and senior years (after the college core requirements have been fulfilled).

Self-Designed majors must complete a minimum of forty credits in the College of Agriculture and Life Sciences; twenty credits of this total must be at the 100-level or higher and outside of the CALS Core Competency requirements.

The design of the major is itself an intensive learning experience; therefore, students should plan to spend some time each week over the course of one semester designing their major. For more information, please contact: Dr. Jonathan Leonard (Jonathan.Leonard@uvm.edu).

MINORS

For the requirements, refer to the "Undergraduate Minors" section in this catalogue.

Any student interested in enrolling in one of the minors listed below should contact the department supervising the minor. If accepted, the student will be assigned a minor advisor from that department who must approve all program plans and course selections.

Animal Science

Applied Design

Biochemistry

Community and International Development

Community Entrepreneurship Arts and Sciences students should note that BSAD 065, MATH 019, and CS 002 or instructor permission are listed as prerequisites for some of the upper level courses.

Consumer Affairs CDAE majors must take CDAE 250 as their elective.

Consumer and Advertising

Ecological Agriculture

Environmental Studies

Food Systems This is a cross-departmental minor. Contact the Department of Nutrition and Food Science, Plant and Soil Science or Community Development and Applied Economics.

Green Building and Community Design

Microbiology

Molecular Genetics

Nutrition and Food Science

Plant Biology

Public Communication

Soil Science

Sustainable Landscape Horticulture

The College of Arts and Sciences

The College of Arts and Sciences at UVM combines the advantages of a small liberal arts college and the resources of a major research institution. It provides students with a sound liberal education through close interaction with nationally and internationally noted scholars. This close interaction helps students acquire knowledge and scholarly discipline that enables them to think critically about issues they will confront in their professional and personal lives. The college's academic programs acquaint students with the intellectual, cultural and aesthetic heritage of our complex world. The college's programs also seek to prepare students for entry into rewarding careers in a variety of fields and for advanced study that may be prerequisite to other opportunities. More and more professional schools, corporate managers and graduate schools seek individuals who have a fine liberal arts background.

In UVM's College of Arts and Sciences, students are encouraged to develop depth and breadth of knowledge, and critical thinking and communication skills that are the hallmarks of a liberal education. Students begin developing these skills in a first-year seminar and, as they complete degree requirements, they have the opportunity to explore a wide range of disciplines spanning literature, the humanities, the fine arts, foreign languages, the natural and social sciences and mathematics. The college offers over forty majors from which students may choose.

The dean's office of the College of Arts and Sciences is located at 438 College Street.

ORGANIZATION AND DEGREE PROGRAMS

The Bachelor of Arts degree program may be completed with an approved major in one of the following fields:

Anthropology	Individually Designed Major
Art History	Italian Studies
Art - Studio	Japanese
Asian Studies	Latin
Biology	Latin American and Caribbean
Canadian Studies	Studies
Chemistry	Linguistics
Chinese	Mathematics
Classical Civilization	Music
Computer Science	Philosophy
Economics	Physics
English	Plant Biology
Environmental Studies	Political Science
European Studies	Psychology
Film and Television Studies	Religion
French	Russian
Geography	Russian/East European Studies
Geology	Sociology
German	Spanish
Global Studies	Theatre
Greek	Women's and Gender Studies
History	Zoology

The Bachelor of Science degree program may be completed with an approved major in one of the following fields:

Biochemistry	Neuroscience
Biological Science	Physics
Chemistry	Psychology
Environmental Sciences	Zoology
Geology	

The Bachelor of Music degree program may be completed with an approved major in Music Performance.

All Bachelor of Arts candidates must complete a MINOR as part of their degree program. Please refer to the section on "Undergraduate Minors" in this catalogue for specific requirements for each minor.

FIRST-YEAR PROGRAMS

The first year of university-level study is challenging. The College of Arts and Sciences offers students two programs that help them complete the first year successfully and acquire the skills and background necessary for success throughout their university careers.

In their first semester, students are encouraged to enroll in the Teacher-Advisor Program (TAP), which is designed to help students begin a successful liberal arts education. TAP combines interactive courses with careful academic advising. In TAP seminars, students approach significant issues from a variety of points of view, develop their critical thinking, and improve their skills in oral and written communication. Students' TAP instructors are also their academic advisors and help first-year students discover their interests and reach academic goals. TAP courses all satisfy the college's Distribution Requirements. Typical topics for TAP courses include "Science as a Way of Knowing", "Coming to America: Autobiography and Ethnicity", "Geology and Ecology of Lake Champlain", "Rationality: Belief in God", and "Student Movements in the Twentieth Century". More than fifty different courses like these are available to first-year students each year.

As students enter their second semester, it is important for them to continue developing the critical thinking, speaking and writing skills cultivated in TAP, and also to reflect on their choices of majors and minors. The second-semester program, Academic Introduction to the Major (AIM), is designed to facilitate the transition into a potential major. Courses identified in the AIM program encourage the intellectual shift from a broad exposure to the liberal arts to in-depth study in a particular field. The AIM program identifies courses in all disciplines that serve as "gateway" courses to the major, giving students an opportunity to begin exploring the discipline in a more substantial manner in course work that introduces them to the nature of inquiry typical in the major.

PRE-PROFESSIONAL PREPARATION

Whether a student is interested in medical, dental or law school, or graduate work in other fields, the College of Arts and Sciences offers excellent opportunities to complete a pre-professional education.

Medicine and Dentistry

Minimum requirements for entry into medical and dental schools include one year each of biology, general chemistry, organic chemistry, physics and calculus. Increasing numbers of medical and dental schools also are requiring a year of English, work in the humanities, social sciences, and languages. There is however no required or preferred major. As long as a student completes the courses required by his/her chosen professional school, s/he may pursue any undergraduate major in UVM's College of Arts and Sciences. Medical and dental schools are primarily concerned with the overall scope and quality of undergraduate work. Only about half the first-year students in medical or dental schools have majored in a science, for example. Thus, students should follow their true interests and work to achieve the academic standing necessary. Academic advisors will help students plan their programs. In addition, the Career Services office coordinates pre-medical and pre-dental advising, and has information about the requirements of specific medical and dental schools.

Because the UVM College of Arts and Sciences offers the advantages of a small liberal arts college within a comprehensive university, students have the opportunity to do research with faculty who are nationally and internationally recognized leaders in their fields. The college has an excellent record of placing graduates in medical and dental schools. Among the institutions where recent pre-medical graduates are now studying are Albert Einstein College of Medicine, Baylor, Boston University, Columbia, Cornell, Dartmouth, Hanaman Hospital and the Mayo Clinic, while pre-dental graduates are studying at Boston University, Columbia, NYU, Northwestern, and University of Pennsylvania.

The Pre-Medical Enhancement Program (PEP) is a joint offering of the College of Arts and Sciences, the College of Agriculture and Life Sciences, and the College of Medicine to provide enhanced opportunities for a select group of highly qualified pre-medical students. Interested students apply to PEP in the second semester of their first year. Those students accepted into PEP will be assigned a practicing physician-mentor who will introduce the concepts of patient care and practice management through regularly scheduled office-based/clinical experiences. The PEP coordinator in the College of Medicine will provide information on opportunities for medical research experience and volunteer/employment possibilities in the health sciences or health policy fields. On a monthly basis, students will receive listings about special educational offerings at the College of Medicine and the Academic Medical Center. PEP students will also be able to participate in practice interviews with members of the University of Vermont Pre-Medical Committee. In their junior year, PEP students will be able to apply to the University of Vermont College of Medicine. More information is available at: <http://www.uvm.edu/career/>.

Law

A significant number of UVM students consider attending law school immediately or a few years after graduation. UVM is successful in placing its graduates in leading law programs around the country, including Yale University, New York University, Columbia University, and the University of Michigan.

The University of Vermont provides guidance to its pre-law students through the Career Services and faculty and staff advisors in Arts and Sciences. The college begins working with students as soon as they express an interest in law and provide guidance throughout their undergraduate career.

Unlike pre-medical programs, where students must take a prescribed set of courses, there is no pre-law curriculum. "What law schools seek in their entering students is not accomplishment in mere memorization," states the Association of American Law Schools, "but accomplishment in understanding, the capacity to think for themselves, and the ability to express their thoughts with clarity and force." The Association does not prescribe a specific course of study to prepare undergraduates for law school, but rather suggests a broad approach to liberal arts including work in English, humanities, logic, mathematics, social sciences, history, philosophy, and the natural sciences.

Graduate Study in Other Fields

Arts and Sciences students pursue graduate education in a variety of fields ranging from ethnomusicology to journalism or immunology. Recent UVM College of Arts and Sciences graduates have been accepted at such institutions as the University of Wisconsin, Brandeis, Harvard, University of Michigan, Yale, New York University, Princeton, Cornell, Berkeley, Tufts, and Duke.

Secondary Teaching

Students in the College of Arts and Sciences who are interested in becoming eligible to teach in secondary grades (7-12) should review the College of Education and Social Services section titled Teacher Education. All requirements must be fulfilled as listed in the CESS Secondary Education State Approved program and not simply the sequence of professional courses.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE

Students must comply with the degree requirements as stated in a single catalogue edition in place during the time they are enrolled. The catalogue edition to be followed is the one in effect at the time the student matriculates at UVM, unless the student requests in writing to follow an edition that is published subsequently during his/her enrollment at UVM. Students may not mix requirements from different catalogues.

Students who do not complete the degree within seven years must comply with the requirements in the catalogue current at the date of readmission. Disputed rulings may be appealed to the Committee on Academic Standing.

A. A student must earn a cumulative grade-point average of 2.00 in a program comprised of a minimum of 120 semester credits. Students receiving degrees from the College of Arts and Sciences may apply no more than eight credits of physical education toward the 120 required for graduation. Of the 120 credits required, students electing a minor offered by the college must complete 96 credits in courses offered by departments and programs in the College of Arts and Sciences. The remaining 24 credits may be taken in courses offered by any academic unit at the University of Vermont. Students electing an approved minor offered by another school or college of the university must complete 84 credits in courses offered by the departments and programs in the College of Arts and Sciences. The remaining 36 credits, to include courses required for the minor, may be taken in courses offered by any academic unit of the University of Vermont.

No more than eight credits of military studies may apply toward the degree. Courses taken on a pass/no pass basis may not be used toward completion of any requirement listed below under sections D, E, and F.

B. A student must be matriculated in the College of Arts and Sciences and in residence at the University of Vermont during the period in which s/he earns 30 of the last 45 credits applied toward the degree.

C. College of Arts and Sciences Guidelines for Second Bachelor's Degree:

- The Bachelor of Arts and the Bachelor of Science in the College of Arts and Sciences are not tagged degrees. As a consequence, someone who has completed either a B.A. or a B.S. in Arts and Sciences will not receive a second degree should s/he complete an additional major within the same degree.

- If a B.A. or B.S. graduate of Arts and Sciences is readmitted and/or completes an additional major beyond the one used toward the original diploma, the additional major and course work will be added to the transcript. A second degree will only be awarded when the additional course work completed satisfies the requirements for a different degree with a different major from the one initially awarded (i.e., B.A. graduate with major in physics completes requirements for B.S. with major in chemistry).

- Students who do not complete the degree within seven years must comply with the requirements in the catalogue current at the time of readmission. Students readmitted to complete a second degree, or to complete an additional major within the same degree must also comply with this rule.

D. A student must complete the following courses which comprise the general and Distribution Requirements for the Bachelor of Arts degree. All courses used to satisfy these requirements must carry at least three credits and may not be taken on a pass/no pass basis. Each semester, Special Topics courses and cross-listed courses (095, 096, 195, 196, 295, 296) are offered which may meet general and Distribution Requirements. Contact the dean's office with questions about a specific course.

General Requirements

Non-European Cultures: One course, other than a foreign language, which deals with non-European cultural traditions. The course selected to satisfy this requirement may also be used to fulfill the Distribution Requirement.¹

Distribution Requirements

Students completing the B.A. degree will be required to complete all seven of the Distribution Requirement categories (Foreign Language, Mathematical Sciences, Fine Arts, Literature, Humanities, Social Sciences, and Natural Sciences). No more than two courses from the same department may be used to satisfy the Distribution Requirements. No single course may satisfy more than one category, except that a foreign language course which fulfills the literature category simultaneously fulfills the category of foreign language. Courses which satisfy major and minor requirements may also be used to satisfy Distribution Requirements.

1. **Foreign Language:** Two courses in the same foreign language* at the appropriate level, as determined by the offering department.** A student who has achieved a score of 4 or better on an appropriate Advanced Placement (AP) Test and receives AP credit for two semesters of language has satisfied this requirement.²

* The following courses are NOT approved for this category: CHIN 020, 095, 096; FREN 095, 096; ITAL 095, 096; JAPN 010, 095, 096, 121, 122, 221, 222; SPAN 010, 095, 096. Approved for this category are ASL 001, 002, 051, and 052 and all other courses in Arabic, French, Spanish, Italian, German, Russian, Hebrew, Chinese, Japanese, Greek, Portuguese, and Latin.

** Students with previous high school course work in French, German, or Spanish must take an online placement exam in order to register for courses used to satisfy this requirement in one of these languages. See department websites for access to online placement exams.

2. **Mathematical Sciences:** One mathematics course at MATH 017 or higher, or STAT 051 or higher, or CS 014 or higher, or PHIL 013.

3. **Fine Arts:** One course in studio art or art history, dance (DNCE), music³, theatre⁴, or Film and Television Studies.

4. **Literature:** One course selected from a list of approved offerings in classics, English, French, German, world literature, Greek, Italian, Latin, Russian, and Spanish⁵.

5. **Humanities:** Two courses from a list of approved offerings in ALANA U.S. Ethnic Studies, art history, classics, Greek, history, Latin, philosophy, political science, and religion⁶.

6. **Social Sciences:** Two courses from a list of approved offerings in anthropology, economics, geography, Global and Regional Studies, linguistics, political science, psychology, sociology, Vermont Studies, and Women's and Gender Studies⁷.

7. **Natural Sciences:** Two courses, one of which must include laboratory experience, chosen from GEOG 040, 140, 143, MMG 065, and all offerings in astronomy, biology (including BCOR), plant biology, chemistry, geology, physics.

E. A student must complete an approved major in the College of Arts and Sciences by satisfying the requirements specified by the department or program supervising the major and by maintaining a cumulative grade-point average of 2.00 in the major field. Unless specifically required, no more than 45 credits in courses with the same departmental prefix may be used toward completion of the 120 credits required for graduation. At least one-half of the credits used toward the major requirements must be taken at the University of Vermont. Of these, at least twelve credits must be at or above the 100-level. Application of credits earned elsewhere to completion of the major is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of major requirements may be taken on a pass/no pass basis.

F. A student must complete a minor approved by the College of Arts and Sciences in a field other than the major by satisfying the requirements specified by the department or program supervising the minor⁸. Also, a student must maintain a cumulative grade-point average of 2.00 in the minor field⁹. Completion of a second major, either as part of the student's B.A. degree program or as part of another degree program at UVM, will satisfy the minor requirement as long as there is no more than one common course used to satisfy the requirements for both majors. As with the major, at least one-half of the credits used toward completion of the minor requirements must be taken at the University of Vermont, and application of credits earned elsewhere toward completion of the minor is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of the minor requirements may be taken on a pass/no pass basis.

¹ Courses in this category may also fulfill the University Approved Diversity requirement. Check the listing of University Approved Diversity courses found elsewhere in this catalogue. The following courses have been approved for this category: ANTH 021, 024, 028, 059, 104, 130, 152, 161, 162, 163, 165, 166, 172, 179, 180; ARTH 008, 146, 185, 187, 188, 189, 192, 285; CLAS 145, 149; DNCE 005 031; EC 040, 045; ENGS 179, 182; GEOG 050, 150, 151, 154, 156; GRS 001, 200; HST 009, 010, 035, 036, 040, 041, 045, 046, 055, 062, 063, 067, 106, 107, 140, 141, 146, 150, 151, 211, 240, 250, 252; MU 007, 105, 107; PHIL 121, 221; POLS 157, 168, 174, 175, 176, 177, 266; REL 020, 021, 026, 029, 130, 132, 141, 145, 163, 167, 234; SOC 171, 212, 218, 272; WGST 116; WLIT 020, 109, 119, 145, 062, 063, 067, 140, 141, 146, 150, 151, 240, 250, 252; MU 007, 107; PHIL 121, 221; POLS 157, 168, 174, 175, 176, 177, 266, 280; REL 020, 021, 026, 029, 130, 132, 141, 145, 163, 167, 234; SOC 171, 212, 272; WGST 116; WLIT 020, 109, 119, 145.

² See Admissions Section for information concerning academic credit for Advanced Placement Testing.

³ Music Performance courses may be used to satisfy the fine arts requirement if the cumulative credit total is equal to or greater than three.

⁴ Speech courses will not satisfy the fine arts requirement.

⁵ The following courses have been approved for this category: CLAS 037, 042, 153, 155, 156; all English courses except: ENGS 001, 004, 005 (writing courses only), 050, 053, 101, 102, 103, 104, 105, 107, 114, 117, 118, 119, 120; all French courses numbered 141 or higher except courses numbered FREN 200-219 or 290-294; all world lit courses; all German courses numbered above 100 except: GERM 103, 104, 121, 122, 201, 202, 213; all Greek courses numbered above 200; all Italian courses above 100 except ITAL 101; all Latin courses numbered above 100 except: LAT 211,

212, 255; all Russian courses numbered above 100 except: RUSS 101, 121, 122, 141, 142, 161, 221, 222, 251, 271; all Spanish courses numbered 140 or higher except courses numbered 200-219, or 290-294 or 299.

⁶ The following courses have been approved for this category: all art history, history, and religion courses; ALAN 055, 159; CLAS 021, 022, 023, 024, 035, 121, 122, 149, 154, 157, 158, 159, 221, 222; DNCE 050; GRK 203, 205; LAT 255; MU 001, 005, 006, 010, 015, 105, 106, 111, 112; all philosophy courses except 013; POLS 041, 141, 142, 143, 144, 146, 147, 148, 241, 242, 244, 245, 249.

⁷ The following courses have been approved for this category: all anthropology, economics, linguistics, psychology, and sociology courses; CSD 020, 080, 090, 094, 162, 165; GRS 091; all geography courses except: 040, 140, 143; all political science courses except: 041, 141, 142, 143, 144, 146, 147, 148, 241, 242, 245, 249; VS 052; WGST 073.

⁸ Only one course may be applied toward completion of both a major and a minor requirement.

⁹ The minor grade-point average will be calculated from the first set of courses which satisfy the minor requirements. However, if a student's grade-point average in these courses falls below 2.00, and there are additional courses which are approved for inclusion in the minor, a student may elect to drop for purposes of the grade-point calculation, one course graded below C and to replace this course with an approved alternate.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE

Students must comply with the degree requirements as stated in a single catalogue edition in place during the time they are enrolled. The catalogue edition to be followed is the one in effect at the time the student matriculates at UVM, unless the student requests in writing to follow an edition that is published subsequently during his/her enrollment at UVM. Students may not mix requirements from different catalogues.

Students who do not complete the degree within seven years must comply with the requirements in the catalogue current at the date of readmission. Disputed rulings may be appealed to the Committee on Academic Standing.

A. A student must earn a cumulative grade-point average of 2.00 in a program comprised of a minimum of 120 semester credits. Students receiving degrees from the College of Arts and Sciences may apply no more than eight credits of physical education toward the 120 required for graduation. Of the 120 credits required, 96 credits must be taken in courses offered by departments and programs in the College of Arts and Sciences (except for the B.S. in biological science which requires 84 Arts and Sciences credits). The remaining 24 credits may be taken in courses offered by any academic unit of the University of Vermont, although no more than eight credits of military studies may apply toward the degree. Courses taken on a pass/no pass basis may not be used toward the completion of any requirement listed below under sections D, E, F and G.

B. Students must be matriculated in the College of Arts and Sciences and in residence at UVM during the period in which they earn 30 of the last 45 credits applied toward their degree.

C. Guidelines for a Second Bachelor's Degree

- The Bachelor of Science in the College of Arts and Sciences is not a tagged degree. As a consequence, students who have completed a B.S. in Arts and Sciences will not receive a second degree should they complete an additional major within the same degree.
- If a B.S. graduate of Arts and Sciences is readmitted and/or completes an additional major beyond the one used toward the original diploma, the additional major and course work will be added to the transcript. A second degree will only be awarded when the additional course work completed satisfies the requirements for a different degree with a different major from the one initially awarded (e.g., a B.S. graduate with a major in chemistry completes requirements for a B.A. in physics).
- Students who do not complete the degree within seven years must comply with the requirements in the catalogue current at the time of readmission.

D. General Requirements

A student must complete the following courses which comprise the General Requirements for the Bachelor of Science degree. All courses used to satisfy these requirements must carry at least three credits and may not be taken on a pass/no pass basis. Each semester, Special Topics and cross-listed courses (095, 096, 195, 196, 295, 296) are offered which may meet General and Distribution Requirements. Contact the dean's office with questions about a specific course.

Non-European Cultures: One course, other than a foreign language, which deals with non-European cultural traditions. (See footnote under Bachelor of Arts Distribution Requirements.)

E. Distribution Requirements

A student must complete the Distribution Requirements for the Bachelor of Science degree by completing FIVE of the following

SIX categories: (i) fine arts and literature (2 courses - one course in each area), (ii) foreign language (2 courses in the same language at the appropriate level), (iii) humanities (2 courses), (iv) natural sciences (2 courses with lab as defined by the major requirements), (v) mathematical sciences (2 courses as defined by the major requirements), or (vi) social sciences (2 courses). Note that students opting for a B.S. degree in psychology may not use psychology courses to fulfill the social sciences category. See Bachelor of Arts Distribution Requirements for the courses which fit into the remaining categories. No courses applied toward satisfaction of the Distribution Requirements may be taken on a pass/no pass basis.

F. A student must complete an approved major in the College of Arts and Sciences by satisfying the requirements specified by the department or program supervising the major, and by maintaining a cumulative grade-point average of 2.00 in the major field. Unless specifically required, no more than 50 credits in courses with the same departmental prefix may be used toward completion of the 120 credits required for graduation. At least one-half of the credits used toward the major requirements must be taken at UVM. Of these, at least twelve credits must be at or above the 100-level. Application of credits earned elsewhere toward completion of the major is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of major requirements may be taken on a pass/no pass basis.

G. Bachelor of Science (with optional minor) Degree

A student electing this degree program must satisfy all of the requirements specified in sections A, B, C, D, E and F (above), as well as:

A student must complete an approved minor in a field other than the major by satisfying the requirements specified by the department or program supervising the minor and by maintaining a cumulative grade-point average of 2.00 in the minor field. Students electing a minor offered by the college must complete 96 credits in courses offered by departments and programs in the College of Arts and Sciences. The remaining 24 credits may be taken in courses offered by any academic unit at the University of Vermont. Students electing an approved minor offered by another school or college of the university must complete 84 credits in courses offered by the departments and programs in the College of Arts and Sciences. The remaining 36 credits, to include courses required for the minor, may be taken in courses offered by any academic unit of the University of Vermont. At least one-half of the credits used toward completion of the minor requirements must be taken at the University of Vermont, and application of credits earned elsewhere toward completion of the minor is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of the minor requirements may be taken on a pass/no pass basis. No more than two of the courses from Distribution Requirements may be applied toward the completion of the minor requirements.

Only one course may be applied toward completion of both a major and a minor requirement. The minor grade-point average will be calculated from the first set of courses which satisfy the minor requirements. However, if a student's grade-point average in these courses falls below 2.00 and there are additional courses which are approved for inclusion in the minor, a student may elect to drop, for purposes of the grade-point average calculation, one course graded below C and to replace this course with an approved alternate.

REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE

Students must comply with the degree requirements as stated in a single catalogue edition in place during the time they are enrolled. The catalogue edition to be followed is the one in effect at the time

the student matriculates at UVM, unless the student requests in writing to follow an edition that is published subsequently during his/her enrollment at UVM. Students may not mix requirements from different catalogues.

Students who do not complete the degree within seven years must comply with the requirements in the catalogue current at the date of readmission. Disputed rulings may be appealed to the Committee on Academic Standing.

- A. A student must earn a cumulative grade-point average of 2.00 in a program consisting of a minimum of 120 credits for a Bachelor of Music degree with a concentration in performance. Students receiving degrees from the College of Arts and Sciences may apply no more than eight credits of physical education toward the 120 required for graduation. Courses taken on a pass/no pass basis may not be used toward the completion of any requirement listed below under sections C, D, and E.
- B. Students must be matriculated in the College of Arts and Sciences and in residence at UVM during the period in which they earn 30 of the last 45 credits applied toward their degree.
- C. A student must complete the Distribution and General Requirements identical to that required for the Bachelor of Arts degree.
- D. A student must complete a major with a concentration in performance by satisfying the requirements specified by the department, and by maintaining a cumulative grade-point average of 2.00 in the major field. Admission is by audition at the end of the first year. At least one-half of the credits used toward the major requirements must be taken at the University of Vermont. Of these, at least twelve credits must be at or above the 100-level. Application of credits earned elsewhere to completion of the major is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of major requirements may be taken on a pass/no pass basis.

E. *Bachelor of Music (with optional minor) Degree*

A student electing this degree program must satisfy all of the requirements specified in sections A, B, C, and D (above) as well as:

A student must complete an approved minor in a field other than the major by satisfying the requirements specified by the department or program supervising the minor and by maintaining a cumulative grade-point average of 2.00 in the minor field. Students electing a minor offered by the college must complete 96 credits in courses offered by departments and programs in the College of Arts and Sciences. The remaining 24 credits may be taken in courses offered by any academic unit at the University of Vermont. Students electing an approved minor offered by another school or college of the university must complete 84 credits in courses offered by the departments and programs in the College of Arts and Sciences. The remaining 36 credits, to include courses required for the minor, may be taken in courses offered by any academic unit of the University of Vermont. At least one-half of the credits used toward completion of the minor requirements must be taken at the University of Vermont, and application of credits earned elsewhere toward completion of the minor is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of the minor requirements may be taken on a pass/no pass basis.

INTERNSHIPS

Arts and Sciences students are encouraged to do internships and may count up to twelve internship credits toward their B.A. or B.S. Full information on internships and the regulations governing them is found on the College of Arts and Sciences website:
http://www.uvm.edu/artsandsciences/foruvmstudents/?Page=resources_and_opps/internships.html.

REGULATIONS

Governing Independent Study

A student may receive credit for a project or program of independent study which is supervised by an academic department or program within the university. Such independent study projects may be carried out under registration in courses entitled Readings and Research or Internship. All such projects must conform to university guidelines for independent study. There is no limit on the number of independent study credits which may be earned, but prior approval by the Committee on Honors and Individual Studies is required if a student wishes to select nine or more such credits in a single semester.

Governing College Honors

- A. The College Honors program, designed for the superior student with unusual initiative and intellectual curiosity, provides an opportunity for a student to pursue two semesters (six credits) of independent research or a creative project under the direction of a faculty sponsor. Students in the College of Arts and Sciences may apply for College Honors if they have a cumulative GPA of 3.40 or higher at the time the application is submitted. The research or project must have been approved by the sponsoring department and by the Honors Committee. All application materials must be turned in to the committee by the deadlines posted on the College Honors website, typically during the first semester of the candidate's senior year. Students must present a satisfactory written report and pass an oral exam upon completion of the Honors project. Students who wish to consider undertaking a College Honors project during the junior year should contact the office of the dean for information concerning the circumstances in which such an exceptional arrangement is possible.
- B. Some departments in the college, including economics, English, geography, history, mathematics, and political science, sponsor departmental Honors programs. Participation in these programs is limited to those students who are specifically recommended by their department. Each department will define what is required to earn departmental Honors. A student who successfully completes this program is granted a degree with departmental Honors. These programs are administered directly by the sponsoring department and information concerning them may be obtained from faculty advisors.

Governing Study Abroad

Students should refer to the general university regulations and procedures pertaining to study abroad. For Arts and Sciences students the following additional policies pertain to the application of credit earned in a study abroad program:

- A. Regardless of the number of credits accepted in transfer by the university, a maximum of sixteen credits earned in a one-semester study abroad program will be applied toward satisfaction of degree requirements. For year-long programs, a maximum of thirty-two credits will be applied toward the degree.
- B. Students must complete thirty of the last forty-five credits in residence at UVM. One-half of the credits applied toward the satisfaction of major requirements, including twelve credits at the 100-level or higher, must be completed at the University of Vermont. One-half of the credits applied toward the satisfaction of minor requirements must be completed at the University of Vermont.
- C. Under no circumstances will a student in the College of Arts and Sciences be permitted to enroll in a university-sanctioned study abroad program while on trial.

Governing Transfer into the College

A student who wishes to transfer into the College of Arts and Sciences from another college or school at the university must comply with the Intercollege Transfer policy in the Academic and General Information section of this catalogue. Applications for internal transfer may be submitted to the dean's office at any time, and they will be reviewed on a continuous basis.

Governing Academic Standards

The following criteria for academic trial and dismissal, while making allowances for the student in the first semester, are designed to encourage academic work of quality at least equal to the minimum required for graduation.

Trial

A. A student who earns a semester grade-point average higher than that which merits dismissal but below 2.00 is placed on trial. In order to avoid dismissal from the university, a student who has been placed on trial must in the following semester earn a 2.00 semester average, enroll in all courses for a letter grade, and maintain a program of twelve or more credits. No student will be removed from trial until both the semester and cumulative averages are at least 2.00. A student who is on trial may not enroll in a university-sanctioned study abroad program.

B. First-Year Students: Following the first semester of enrollment, a student who earns a semester grade-point average higher than that which merits dismissal, but below 1.67, is placed on trial and must in the following semester satisfy the same probationary requirements as described above. All first-year students who have a cumulative grade-point average which is below 2.00 after completion of the second semester will be placed on trial.

Dismissal

C. A student who does not satisfy the conditions of trial, or who earns a semester grade-point average of 1.00 or lower, or who earns failing grades in one-half of the semester credits attempted (excluding courses in physical education and military studies) will be dismissed for low scholarship. The period of dismissal is one year. Dismissed students must receive written approval from the College of Arts and Sciences dean's office before enrolling in any university course.

Readmission Following Dismissal

D. A dismissed student who presents evidence of his/her ability to perform satisfactorily may be considered for readmission on trial. A student who has been dismissed for a second time will not be considered for readmission on trial until at least three years have elapsed. Further information regarding readmission may be obtained from the dean's office.

MAJORS: DEPARTMENT REQUIREMENTS

Bachelor of Arts, Bachelor of Science, and Bachelor of Music requirements are found under the appropriate department headings.

Individually Designed Major

The IDM is a nondepartmental, interdisciplinary major for those College of Arts and Sciences Bachelor of Arts candidates whose academic interests are not met by the major programs currently offered by the college. An IDM may not be a program of narrow professional training. Rather, it must lead to an intensive investigation of some broad area of human knowledge which is not covered by a single departmental discipline. During the senior year, IDM majors engage in a three-credit tutorial for which they complete a paper or an equivalent project which demonstrates the essential coherence of the major. A college Honors project (six credits) may be substituted for the tutorial requirement. Application to pursue an IDM should be approved by the Committee on Honors and Individual Studies before the end of the candidate's junior year. No more than eighteen credits

of the proposed major may be completed at the time of application. Additional information about the IDM program is available in the dean's office.

Anthropology

Thirty-three credits in Anthropology:

- Four core courses (twelve credits): ANTH 021, 024, 026, 028
- Fifteen credits at the 100-level or higher, including three credits at the 100-level in each of two different areas of anthropology (six credits total), chosen from the following four subfields: Archaeology; Biological Anthropology; Cultural Anthropology; Linguistic Anthropology. Each semester, the department indicates which subfield requirements ANTH 195/196 offerings fulfill.

Archaeology Subfield: ANTH 104, 130, 133, 134, 135, 160, 161, 164, 167, 188

Biological Anthropology Subfield: ANTH 140, 172, 174, 187, 189

Cultural Anthropology Subfield: ANTH 102, 103, 123, 125, 127, 151, 152, 153, 155, 156, 160, 161, 162, 163, 164, 165, 166, 167, 169, 172, 174, 179, 180, 181, 183, 184, 187, 189

Linguistic Anthropology Subfield: ANTH 142, 176 (may repeat for credit with different content), 178

Six credits at the 200-level. Only three credits from ANTH 197, 198, 200, 297, 298; HON 202, 203 may count toward the major. ISSP thesis (ANTH 190) and internship (ANTH 201) courses will not count toward the thirty-three credits required for the anthropology major. Students planning to pursue a graduate degree are encouraged to take an appropriate mixture of methods and theory courses at the 200-level.

Art and Art History

Art History

Thirty credits in art history, including six credits from ARTH 005, 006 and 008; twelve credits to include three credits from four of the following five categories (courses numbered 196 in these categories also qualify): Ancient and Medieval - (ARTH 146, 148, 149, 155); Early Modern European - (ARTH 158, 161, 164, 165); Modern, American, and Canadian - (ARTH 170, 172, 174, 177, 180); Asian - (ARTH 185, 187, 188, 192); Other Non-Western Traditions, New Approaches to Art History, and Contemporary Art - (ARTH 140, 179, 189, 199). Twelve additional art history credits, to include at least one course (three credits) ARTH 282 or higher to be taken during the junior or senior year, preferably during the senior year. Six credits of studio art; the study of a foreign language through 051-052 (French or German is strongly recommended for students considering eventual graduate work in art history).

Art: Studio Art

Thirty credits in studio art, including nine credits in foundation courses from ARTS 001, 002, 003 with three different instructors; fifteen credits at the 100-level (only three of which may be ARTS 197; six of which may be ARTS 195) with two different instructors, including courses in the areas of two-dimensional study (drawing, painting, printmaking, photography, film, and video) and of three-dimensional study (sculpture, ceramics, fine metals); and six credits at the 200-level, three of them in the senior year; nine credits of art history, including two of the following: ARTH 005, 006, or 008 and one of the following: ARTH 140, 170, 172, 174, 177, 179, 180, or 199 when approved for this requirement (permission depends upon topic; check with the Department of Art and Art History).

Note: A studio art major may not take more than one Evening Division course per semester in studio art.

Asian Studies

The Asian Studies major consists of at least thirty-three credits in courses from the Asian Studies listing (see Courses of Instruction: Asian Studies) to include the following:

- A. Completion of two years' (normally sixteen credits) study of a language of the geographic subarea of concentration (e.g., Chinese, Japanese). No more than sixteen credits of language study may be counted toward the major. Students who have demonstrated fluency in the language of the subarea of concentration (for instance, native speakers of the language), may substitute other Asian Studies courses to fulfill the thirty-three credit requirement.
- B. The remaining credits must include at least nine credits at the 100-level and three credits at the 200-level. These credits must be selected from at least three academic disciplines. Language courses may not be used to fulfill this requirement.

Note: Courses that have a significant but not exclusive Asian component may be counted toward a student's major requirements only if papers or projects relevant to their Asian subarea or their Asian thematic focus have been completed. The dean's office must receive written approval from the advisor in order for these courses to be counted toward the major.

Students who major in Asian Studies and minor in an Asian language may overlap only one course as stipulated in the section on Distribution Requirements.

Biochemistry

The biochemistry core requires satisfactory completion of BCOR 011, 012 (Introductory Biology); MATH 021, 022 (Calculus); PHYS 051, 152 (Physics); CHEM 035, 036 (Introductory Chemistry); CHEM 143, 144 (Organic Chemistry); CHEM 162 (Thermodynamics); BIOC/CHEM/MMG 205, 206, and 207 (Biochemistry); BIOC/CHEM/MMG 284 (Senior Seminar) or HON 275, 276 (Honors: Biochemistry); BCOR 101 (Genetics); BCOR 103 (Cell Biology); and nine credits of advanced biochemistry-related electives. In addition, students must select one course from the following group of intermediate-level laboratory electives: CHEM 121 (Quantitative Analysis), MMG 104 (Introduction to Recombinant DNA Technology), MMG 201 (Molecular Cloning Laboratory), BIOL 204 or 205 (Advanced Genetics Laboratory). Students may substitute BIOL 001, 002 for BCOR 011, 012; PHYS 011, 012 with PHYS 021, 022 for PHYS 051, 152; CHEM 031, 032 for CHEM 035, 036; and CHEM 141, 142 for CHEM 143, 144. However, the program of study recommended above will provide a better preparation for advanced course work in biochemistry.

Students completing the B.S. in Biochemistry may not also receive the B.A. with a chemistry major in either the Biomolecular or Environmental concentrations.

Biology

The Bachelor of Arts in Biology provides a general biology program that can be structured to meet student interests in a variety of concentrations including Pre-Professional (human or veterinary medical, dental, or allied health fields), Cell and Molecular Biology, Environmental Biology (Ecology, Evolution, Animal Behavior), Genetics, Forensic Biology, or Neurobiology. Students should consult frequently with departmental faculty advisors to choose a structured set of elective biology courses.

Bachelor of Arts in Biology

CHEM 031, 032 or 035, 036 to be taken the first year if possible; CHEM 141, 142; PHYS 011 and 021, or 051 (PHYS 012 and 022, or 152 recommended); MATH 019, 020 or 021, 022. Thirty-three credits of biology including Introductory Biology (BCOR 011 and 012 is preferred, or BIOL 001 and 002 is accepted); BCOR 101, 102, 103; BIOL 255, and three additional 200-level biology courses (including at least one with a laboratory). One course may be taken from outside the department from approved offerings in other departments;

consult the Department of Biology office. Neither HON 208, 209 nor BIOL 297/298 will count toward the required major credits.

NOTE: Most professional schools (e.g., medicine, dentistry, veterinary, physical therapy) require the equivalent of PHYS 012, 022, or 152.

Bachelor of Science in Biological Science

The Integrated Biological Science B.S. core requires satisfactory completion of BCOR 011/012 (Exploring Biology); BCOR 101 (Genetics); BCOR 102 (Ecology and Evolution); BCOR 103 (Molecular and Cell Biology); CHEM 031/032; CHEM 141/142; PHYS 011/012 or PHYS 031/042 (either sequence must include laboratory sections PHYS 021/022); MATH 019/020 or MATH 021/022; STAT 141 or 211.

In consultation with their academic advisor, students will design a course of study that includes an additional twenty-six credits of advanced life science electives. From the advanced-level electives, students must complete twelve credits from courses with a statistical component, three credits that stress oral communication and three credits that stress written communication. Consult the Integrated Biological Science advisors for a list of approved advanced courses including those that fulfill the statistical, oral and written communication requirements.

Within the advanced-level elective courses, and excluding the BCOR courses, no more than eight credits at the 100-level may apply toward the major except with written permission from an advisor and not exceeding three 100-level courses. With an advisor's permission, a biologically relevant 300-level course may be applied toward the advanced-level course requirement.

Up to six credits of undergraduate research in any biological discipline may be applied to the twenty-six credits of advanced electives. Only three of these can be taken for credit at the 100-level, and these will be counted in the eight credits allowed at the 100-level.

In their second year, all students are expected to meet with their advisor to map a plan of study for completing their higher-level courses. The plan will be signed by both the advisor and student and will become a part of the student's record.

Students majoring in the B.S. program in biological science are required to take at least eighty-four credits of course work in the College of Arts and Sciences. This does not apply to CALS students.

Canadian Studies

The Canadian Studies major requires at least thirty credits to consist of the following:

- A. Three required courses: GRS 091 (Introduction to Canada); HST 065 (History of Canada); GRS 296 (Seminar on Modern Canada).
- B. Seven additional courses, of which at least six must be at the 100-level or higher, and of which at least five must be chosen from the following 100 percent Canadian content list: GRS 195, 196, 295; ANTH 167; ARTH 180, 282 (when topic is Canadian); ENGS 180; FREN 293, 285; GEOG 152; GEOL 272, 273 (when this field course goes to Canada); HST 065, 165, 265; POLS 173.
- C. Majors will study French language through the intermediate level (FREN 052) or higher.

Majors are strongly encouraged to acquire an intermediate/advanced proficiency by completing at least FREN 201. Majors pursuing intermediate/advanced proficiency should consult with the Canadian Studies faculty of the Department of Romance Languages and Linguistics to determine an appropriate plan of study.

Chemistry

Students may elect either of two degree programs:

Bachelor of Arts

Students choose to concentrate in one of three areas: General, Biomolecular, or Environmental Chemistry. All three are acceptable degrees for continuation to a variety of advanced degree programs in chemistry or other sciences as well as medicine, veterinary science, law, or business.

General Concentration: CHEM 035, 036 (or 031, 032; or 031, 036), 121, 143, 144 (or 141, 142; or 141, 144), 146, 161, 162, 167, 201, 202, 221, 231, 282; MATH 021, 022; PHYS 051 and 152.

Biomolecular Concentration: CHEM 031 or 035, 032 or 036, 121, 141 or 143, 142 or 144, 162, 201, 205, 231, 282; MATH 021, 022; PHYS 011/021 or 051, 012/022 or 152; BIOL 001 or BCOR 011, BIOL 002 or BCOR 012, BCOR 103; and one of the following: BIOC 206 or PHRM 328 or one course chosen from a list of approved courses.

Environmental Concentration: CHEM 031 or 035, 032 or 036, 121, 141 or 143, 142 or 144, 161 (requires CHEM 167 or MATH 121) or 162, 201, 221, 231, 282; MATH 021, 022; PHYS 011/021 or 051, 012/022 or 152; and two courses chosen from a list of approved courses.

Students completing the B.A. with a chemistry major in either the Biomolecular or Environmental concentrations may not also receive the B.S. with the biochemistry major.

Bachelor of Science

Students pursuing a Bachelor of Science degree in chemistry complete an extensive set of courses including research and biochemistry, providing them with a degree that is certified by the American Chemical Society. The B.S. degree is a particularly good preparation for graduate school in chemistry.

CHEM 035, 036 (or 031, 032 or 031, 036), 121, 143, 144 (or 141, 142; or 141, 144), 146, 161, 162, 167, 201, 202, 205, 221, 231, 282; six credits of advanced chemistry-related course work, which must include three credits of CHEM 291 or equivalent; MATH 021, 022; PHYS 051 and 152.

Chinese

Fifteen credits of Chinese language at or above the 100-level, including CHIN 101, 102, 201, 202, or equivalent courses at the 100- and 200-levels; and at least fifteen credits of courses on Chinese history and/or culture, taken in at least two different disciplines, in addition to WLIT 110. Six of those credits must be at the 100-level or higher. All course work should be chosen in consultation with the student's major advisor.

Classics

Latin

Thirty credits in courses above LAT 050, among which LAT 211, 212, and CLAS 122 are required and one classics course above the 100-level and one course in Greek above the 100-level are applicable; a second foreign language, at least through the intermediate level, is recommended.

Greek

Thirty credits in courses above GRK 050, among which GRK 211, 212, and CLAS 121 are required and one course in Literature in Translation above the 100-level and one course in Latin above the 100-level are applicable; a second foreign language, at least through the intermediate level, is recommended.

Classical Civilization

Thirty-six credits consisting of thirty credits in the major discipline and six in related courses. Of the thirty credits in the major discipline, twelve must be at the 100-level or higher.

Major Discipline: All courses in classics, Latin, Greek, ancient history, and ancient art are applicable, of which one course in ancient art (ARTH 146, 148, or 149) and two courses in ancient history are required. The two history courses must be in two different cultural areas, chosen from among the following: Greece (CLAS 201, 121), Rome (CLAS 023, 122), the Near East (CLAS 149); and CLAS 221 and 222 (Seminars in Ancient History) taken when offered and the topic is appropriate.

Related Courses: For a list of approved related courses in fine arts, humanities, social sciences and natural sciences, students should consult with the Department of Classics.

Foreign Language: Fulfillment of the language Distribution Requirements of the College of Arts and Sciences is required, preferably in Latin or Greek. A list of approved related courses is kept on file in the Department of Classics, reviewed annually, and adjusted to meet the special interests of those intending to major in Classical Civilization.

Computer Science

One introductory programming course, chosen from CS 016, 021, or equivalent; with the core: CS 064, 110, 121, 124, 125, 224 or 243, and 292; and twelve additional credits of computer science courses, including nine credits at the 200-level. MATH 019 and 020, or MATH 021 and 022 (MATH 021 and 022 are recommended); STAT 153. It is recommended that the natural sciences Distribution Requirements be fulfilled with a two-semester laboratory science sequence.

Economics

Thirty-three credits in economics and three credits in mathematics as follows: EC 011, 012; MATH 019; three courses numbered EC 020-160 or 194-196, two of which must be numbered 110 or higher; the methods and theory courses in economics numbered EC 170, 171, 172; and three economics courses numbered 200 or higher. No more than three credits from HON 218, 219; EC 291, 292, 297, 298 may be applied toward the major. Students are urged to take MATH 019 early in the program.

English

Thirty-three credits at ENGS 005 or higher to include: ENGS 086 (085 is recommended for first-year students planning to major in English) and at least twenty-one credits at or above the 100-level, at least three of which must be from courses numbered 201-282 (Senior Seminars). Of the credits above the 100-level: (a) at least three credits must be in the study of the English language (listed in departmental offerings as *Category A*); (b) at least three credits must be in Ancient, Medieval and 16th and 17th Century Literary Traditions (listed in departmental offerings as *Category B*); (c) at least three credits must be in 18th and 19th Century Literary Traditions (listed in departmental offerings as *Category C*); and (d) at least three credits must be in 20th and 21st Century Literary Traditions (listed in departmental offerings as *Category D*). One world literature course approved by the Department of English may count toward the major; where appropriate, this course may be substituted for one course in the Distribution Requirement categories. No more than nine credits of Advanced Writing (ENGS 117-120) shall count toward the major. No more than nine credits of Film and Television Studies at any level shall count toward the major.

Environmental Sciences

CHEM 042 or 141* or 143*; GEOL 055**** or PSS 161; STAT 141 or 211 or NR 140; ENSC 001, 130, 160; BCOR 102** or CHEM 142 or 144*** or GEOL 110****; and fourteen to seventeen credits of advanced course work, chosen in consultation with the student's advisor, in one of the following Focus Tracks: *Agriculture and the Environment*, *Conservation Biology and Biodiversity*, *Ecological Design*, *Environmental Analysis and Assessment*, *Environmental Biology*, *Environmental Chemistry*, *Environmental Geology*, *Environmental Resources*, or *Water Resources*. Up-to-date course requirements for each Focus Track are available from a student's advisor or the dean's office; students may elect to petition to develop a Self-Design track.

*Required for Environmental Biology and Environmental Chemistry Focus Tracks.

**Required for Environmental Biology Focus Track.

***Required for Environmental Chemistry Focus Track.

****Required for Environmental Geology Focus Track.

Also: BCOR 011 and 012; CHEM 031 and 032 (or 035 and 036); MATH 019 and 020 (or 021 and 022); PHYS 011 and PHYS 012 (or PHYS 051/052) (*physics is required only for the Environmental Chemistry Focus Track*).

College of Arts and Sciences students majoring in the B.S. program in environmental sciences are required to take at least eighty-four credits of course work in the College of Arts and Sciences.

Environmental Studies

Thirty-eight credits including ENV5 001, 002, 151 and nine credits of senior capstone; plus an Individually Designed program containing eighteen credits of approved environmentally-related courses at the 100-level or higher, including three credits at the 200-level, six credits of environmental studies courses, with at least one course in each of these areas*: environmentally-related natural sciences, humanities, social sciences, and international studies (may be fulfilled by study abroad experience). The courses of the Individually Designed program combine, along with the senior capstone, to provide a coherent major for the student.

*Students are cautioned that courses approved in these areas by environmental studies are not intended to fulfill the Distribution Requirements in the College of Arts and Sciences.

European Studies

A total of thirty-three credits in approved European Studies courses, as described below, to include no more than twelve credits from any one discipline. Only fifteen transfer credits may be applied toward the major. Students must consult closely with their European Studies advisor in the development of a coherent program of courses.

A. European Studies Senior Seminar or Research project: All seniors must complete a senior project for at least three credits at the 200-level on a subject focused on northern, western, or Mediterranean Europe. The requirement may be fulfilled by taking a 200-level senior seminar (approved by the European Studies academic advisor) or by completing an advanced readings and research project or Honors Thesis (GRS 297/298, HON 234/235 or other 200-level research project approved by the European Studies academic advisor). Students should expect to use their competency in a European language (other than English) in this research project where relevant. Upon request, the European Studies subcommittee may approve a research project done in conjunction with a 200-level seminar offered by one of the college's departments.

B. European Culture and Thought: Twelve credits from the approved list to include six credits at the 100-level or higher. ARTH 005, 006, 148, 149, 155, 158, 161, 164, 165, 170, 172, 174, 177, and 179 or 282 (when the content is European); CLAS, 021, 023, 024, 035, 037, 042, 153-158, 161; ENGS 021, 022, 025-028, 102, 131, 135, 136, 137, 138, 140-146, 161, 162, 221, 222, 241, 242; FREN 141, 142, 235, 237, 247, 256, 265, 266, 269, 270, 275,

276, 279, 292; GERM 104, 121, 122, 155, 156, 201, 213, 214, 225, 226, 237, 247, 248, 251, 263, 271, 273, 275, 276, 279, 281, 282; Greek: all courses above 100-level; ITAL 121, 122, 157, 158, 170; Latin: all courses above 100-level; MU 111, 112; PHIL 101, 102, 105, 140, 160; POLS 141, 142; REL 027, 028, 111, 116, 124, 173, 180, 224, 228; SPAN 141, 236, 237, 246, 250, 252, 291, 292; THE 150, 151, 180; WLIT 011, 013, 014, 017, 024, 035, 037, 042, 111, 114, 117, 122, 153, 155, 156, 157.

C. European History and Society: Twelve credits from the approved list to include six credits at the 100-level or higher. CLAS 121, 122; GEOG 159; HST 013, 014, 015, 016, 021, 022, 109, 110, 115, 116, 117, 120-132, 139, 157, 167, 190, 191, 221, 222, 224-228; POLS 171, 257, 276.

D. European Language: Six credits of a European language other than English at or above the 100-level. Students who fulfill nine or more credits of their Culture and Thought requirement through the study of any one such language must fulfill this requirement in a second European language other than English.

Film and Television Studies

Thirty-three total credits in Film and Television Studies to include two introductory courses from: FTS 007, 008, or 009; four core intermediate courses: FTS 121, 122, 123 and one from FTS 130-139; three additional 100-level or higher courses from the FTS offerings; one senior seminar from FTS 271 or 272; one course at any level from the FTS offerings.

The FTS offerings include all FTS courses listed in the catalogue and courses on media studies and production in other departments in the College of Arts and Sciences that are approved by the FTS program and listed on the FTS website each semester including but not limited to: ARTH 140; ARTS 139, 148, 248; SOC 043, 150, 243. Only three credits of FTS 191/192 may count toward the major.

French

Thirty-three credits in French numbered 100 or higher of which fifteen credits must be at the 200-level. Required courses: FREN 101, and 141 or 142. Literature requirement: twelve credits (including FREN 141 or 142). Culture requirement: three credits (FREN 131, 132, 292, or 293).

Note: Only three credits of Readings and Research (FREN 197, 198) and Advanced Readings and Research (FREN 297, 298) may be counted toward the major.

Geography

Thirty-three credits in geography which must include:

- GEOG 040, 060, 070, and 081
- At least eighteen credits at or above the 100-level among which six credits must be at the 200-level
- Three credits at any level

Although repeatable, only three credits of GEOG 191 (Internship) can count toward the 100-level requirement.

Geology

Bachelor of Arts

One introductory geology course (GEOL 001, 005, 055)*, 062, 101, 110, 260. At least three credits of field experience are highly advisable (GEOL 197, 198, 201, field camp or field-based thesis). Three geology courses at the 100-level or higher. Senior seminar (GEOL 291 and 292) or minimum of one semester research (GEOL 197, 198). Three additional courses in geology or approved science, mathematics, engineering or statistics courses at the 100-level or higher selected in consultation with a geology advisor. MATH 019, 020 (or 021, 022); CHEM 031, 032 (or 035, 036); PHYS 011, 021 strongly recommended.

*Geology 007, Earth Hazards, will not count as an introductory course for the major or minor.

Bachelor of Science

One introductory geology course (GEOL 001, 005, 055)*, 062, 101, 110, 260. At least three credits of field experience are required (GEOL 197, 198, 201, field camp or field-based thesis). Three geology courses at the 100-level or higher. Minimum of one semester (three credits) research (GEOL 197, 198). Senior seminar (GEOL 291 and 292) recommended. Two additional courses in geology or approved science, mathematics, engineering or statistics courses at the 100-level or higher selected in consultation with a geology advisor. MATH 021, 022 (or 019, 020, 022); CHEM 031, 032 (or 035, 036); PHYS 051 and 152; STAT 141 or 211.

**Geology 007, Earth Hazards, will not count as an introductory course for the major or the minor.*

German

Thirty credits to include twenty-seven credits in German at the 100-level or higher, including GERM 155, 156; 281 or 282; and three credits from German literature in translation, WLIT 017 or 117.

Global Studies

Thirty credits, including GRS 001 (Introduction to Global Studies); GRS 200 (Seminar in Global Studies); and four core courses drawn from disciplines relevant to Global Studies. To fulfill these core requirements, students should take one course from each of the following three thematic areas, and a fourth core course in the thematic area of their choice.

Political-Economic Perspectives on Globalization: POLS 051, EC 040, CDAE 002

Human and Environmental Perspectives on Globalization: ANTH 021, GEOG 050, ENVS 002

Humanities Perspectives on Globalization: HST 010 or WLIT 020

The remaining twelve credits for the major should be drawn from the list of Global Studies electives each semester, study abroad program, or in consultation with the Global Studies advisor. Nine of these elective credits must be at the 100-level or higher. No more than nine credits used toward the major may be taken from any one discipline. In addition, majors must complete either four courses at or above the 100-level in any foreign language or a minor in a foreign language.

History

Thirty-three credits to include one course at the introductory level (below 100), one history methods course (HST 101), plus nine additional credits at the intermediate 100-level, and three credits at the advanced 200-level. They must also include fifteen credits of concentration in one of the department's three areas of study (the Americas, Europe, Africa/Asia/Middle East/Global) and six credits in each of the others. The fifteen-credit concentration must include one course at the intermediate level and one seminar at the advanced level. (The Americas concentration must include three credits in Canadian or Latin American history.)

Italian Studies

Thirty-three credits chosen from the categories below. Among the courses taught in English, no more than twelve credits may be applied from any one academic discipline. Students should consult with their Italian advisor to assist in selecting a program of courses. Other equivalent courses may be accepted with permission of an Italian advisor and the chair of the Department of Romance Languages and Linguistics.

A. Courses in Italian: At least fifteen credits in courses taught in Italian at the 100-level or higher. One course in Readings and Research (ITAL 197, 198) or Advanced Readings and Research (ITAL 297, 298) may be applied to this category. A college Honors Thesis may be applied to this category if written in Italian.

B. Significant Italian content: Up to eighteen credits from among the following courses: ARTH 149, 161, 164, 282 (if topic significantly Italian); CLAS 023, 035, 037, 042, 122; up to six credits of Latin language/literature at any level; ENGS 163 (Italian American Literature); HST 125; MU 128, 228; PHIL 105; REL 124; THE 150; WLIT 013, 113, 122. A college Honors Thesis may be applied to this category if written in English.

C. Partial Italian content: Up to nine credits from among the following courses: ARTH 005, 006, 155 (category B if significant Italian content); CLAS 154, 155, 156; GEOG 159; HST 009, 010, 013/014, 015, 016, 127, 130; MU 111, 112, 205 (if some Italian content); POLS 141/142 (if some Italian content); REL 173 (if topic pertinent to Italian culture).

Japanese

Fifteen credits of Japanese language at or above the 100-level, including JPN 101, 102, 201, 202 or equivalent courses at the 100- and 200-levels, and at least fifteen credits of courses on Japanese history and/or culture taken in at least two disciplines other than Japanese language. Six of those credits must be at the 100-level or higher. All course work should be chosen in consultation with the student's major advisor.

Latin American and Caribbean Studies

A. Twelve credits selected from the following five courses: ANTH 161; HIST 062, 063; GEOG 156; POLS 174.

B. Two additional semester courses selected from GRS 195, 196, 197, 198 or from courses recommended by the Program of Latin American and Caribbean Studies.

C. Plus six credits of advanced Spanish (SPAN 142, 279, 281, 286, 287, 293, 294).

D. An additional twelve credits from related courses chosen in consultation with an advisor.

Linguistics

Thirty-three credits, including LING 080 and three of the four following courses: LING 165, ANTH 142/LING 166, LING 168, LING 169; twelve credits of linguistics electives, and nine credits of concentration courses. Concentrations include Sociolinguistics, Psycholinguistics, Language Studies, and Formal Linguistics. At least one course must be at the 200-level. The first three credits of an undergraduate thesis may count toward the major and, if it is a 200-level thesis, toward the 200-level course requirement. No more than three credits may come from classes also used to fulfill the student's minor or a second major.

Sociolinguistics Concentration: LING 084, 135, 162, 176, 178.

Psycholinguistics Concentration: CSD 094, 208, 281; LING 171, 177.

Language Studies Concentration: two foreign languages courses beyond the two required for a B.A. plus one class in the linguistics of a foreign language. Selection varies according to the language pursued.

Formal Linguistics Concentration: to be planned with a linguistics advisor.

Additional concentration courses may be substituted with the approval of a linguistics faculty member.

Mathematics

As part of the Bachelor of Arts degree in the College of Arts and Sciences, mathematics majors may choose from the following two concentrations:

Mathematics

MATH 021, 022, 121, 052, and 124, plus eighteen additional credits in mathematics/statistics courses at the 100-level or higher, with at least twelve credits numbered 200 or higher.

Statistics

CS 021. Thirty-three credits of mathematics/statistics courses numbered 021 or higher, including MATH 121 and 124, and STAT 141, 143 or 211, 151 or 251, 201, 221 or 227, 241 or 261, and 281 or 293. At least twelve credits must be at the 200-level or higher.

Music

Bachelor of Arts

In the Bachelor of Arts program, music majors may choose from four concentrations: Music History and Literature, Performance, Theory and Composition, and Jazz Studies.

All students interested in majoring in music must first pass an entrance audition on an instrument or voice. In order to complete the major, all students must attain intermediate level on a single instrument or voice; must have or acquire piano skills sufficient to pass the piano proficiency examination; and must pass a junior standing examination, usually at the end of the sophomore year, *before being permitted to declare a concentration.*

Specific Requirements: Forty credits in music. Majors in all concentrations except Jazz Studies (see below) must take the following core courses: MU 111, 112 (history); MU 054, 056, 109, 110, 154, 156, 209, 210 (theory); and eight credits of performance study (two credits of ensembles plus six credits of lessons, excluding group piano lessons).

Concentration in Music History and Literature: Six additional credits at the 100-level or higher in music history and literature, three credits in music concentration other than history and literature, and MU 211. Students must attain intermediate level on an instrument chosen from the department's offerings.

Concentration in Music Performance: Six additional credits at the 100-level in performance study (lessons only), three credits in a music concentration other than performance, and MU 250. Students must appear each year in departmental recitals.

Concentration in Jazz Studies: Concentrators must take MU 054, 056, 109, 110 (theory); MU 111 or 112 (history); three additional credits selected from the following offerings: MU 106, 107, 113, 201, 203, 205; eight credits of performance study (two credits of ensembles plus six credits of lessons, excluding group piano lessons); MU 024, 025, 105, 159, 257, 259; three additional credits at the 100-level in performance study and MU 250 (senior recital). At least two credits of performance study must be in the "classical" idiom. Additionally, students must appear each year in departmental recitals.

Bachelor of Music

The Bachelor of Music program, with a concentration in Performance, is designed for talented students who wish to pursue a career in music as a performer. To earn the degree, students must demonstrate technical competence, and a broad knowledge of musical style and literature. Performance as a soloist and in ensembles is key. Admission is through audition at the end of the freshman year.

Students must complete the degree requirements (forty credits) for the Bachelor of Arts with Concentration in Performance (see Music - B.A.), and these additional forty credits:

Ensembles	14 credits
Applied lessons	4 credits
Secondary instrument or voice (four semesters of half-hour lessons)	4 credits
Sophomore Recital/Performance Seminar	1 credit
Junior Recital	1 credit
Senior Recital (in addition to the one credit given for MU 250)	1 credit
World Music	3 credits
Electronic Music	3 credits
Music electives (pedagogy courses strongly recommended)	9 credits

Neuroscience

Twenty-five credits of fundamental courses including BCOR 011, 012; CHEM 031, 032; MATH 019, 020; PSYC 001. Fourteen credits of foundation courses including NSCI 110, BCOR 101, PSYC 104 or 121, CHEM 141.

Experimental design and statistics courses out of one of the following categories: (i) PSYC 109 and 110, (ii) STAT 141 (or 211) and STAT 221 and 231, (iii) PSYC 109 and BIOL 202.

NSCI 270 and nine credits of advanced core neuroscience courses out of the following courses: (i) BIOL 261, (ii) CSD 281, (iii) PSYC 221, (iv) ANNB 225.

Twelve credits of optional neuroscience courses, with at least one from each of the following categories: (i) CSD 101 or 208 or PSYC 205 or 220 or 222 or 265, (ii) BCOR 103 or BIOL 296 or PHRM 290 or PSYC 223 or STAT 256, (iii) BIOL 262 or CSD 262 or NSCI 197 or 198 or 297 or 298. No more than six credits of category (iii) may be counted toward the major.

Philosophy

Thirty credits in philosophy including: (a) PHIL 013, 101, and 102; (b) at least four 200-level courses (twelve credits) in philosophy; (c) two additional courses at/above the 100-level (six credits); and (d) one course at any level.

Whenever possible, PHIL 013 (Logic) should be taken in advance of higher level course work in philosophy. PHIL 013 is different from other philosophy courses, however, and is not representative of course work in the major.

Physics

Bachelor of Arts

PHYS 051, 152 (or 031 and 125 with 022), 128, 201 or 202, 211, 213, 273; nine additional credits of approved physics electives at the 100-level or higher; mathematics through MATH 121 and three credits of approved mathematical electives. An additional laboratory science is strongly recommended.

Bachelor of Science

All courses in core and all courses in one of the listed options.

Core: PHYS 051, 152 (or 031 and 125 with 022), 128, 211, 213, 273, 214 or 274; MATH 021, 022, 121, 271 or 230, 124 or 272; CHEM 031 and one additional course in chemistry (CHEM 032 recommended); CS 021.

Options: (a) Pure Physics - PHYS 201, 202, 265 and twelve credits of approved physics electives. (b) Mechanical Engineering - ME 012, 014, 040 with 044, 042, 101, 111, and 143; CE 001; EE 100. (c) Civil and Environmental Engineering - CE 001, 010, 100, 150, 170 and 173; ME 012, 040 with 044; EE 100. (d) Electrical Engineering (Signals and Systems) - EE 003, 004, 081, 082, 120, 121, 171, 174, 275 and one course from 276, 277, 295; recommended elective STAT 270. (e) Electrical Engineering (Circuits and Devices) - EE 003, 004, 081, 082, 120, 121, 131, 163, 183, 184, 221. (f) Astrophysics - PHYS/ASTR 257, PHYS 201, 214, 265; nine credits of approved science or mathematics electives; PHYS 202 and CS 021 may be waived in favor of credit in readings and research.

Plant Biology

Bachelor of Arts

Basic Course Requirements: BCOR 011/012, BCOR 101; PBI0 104; CHEM 031/032, CHEM 141/142*; MATH 019/020 or 021/022; STAT 141, 211 or NR 140 and PHYS 011/021 or 031/021.

**Students desiring an especially strong foundation in chemistry may instead enroll in the equivalent courses for chemistry majors: CHEM 035, 036, 143, 144.*

Students must also complete the requirements for one of the following concentrations:

General Plant Biology Concentration: BCOR 102, PBI0 108 or 109, plus at least eighteen credits (including at least two 200-level plant biology courses) selected in consultation with the student's advisor.

Ecology and Evolutionary Biology of Plants Concentration: BCOR 102; PBI0 108 and 109, plus at least fifteen credits (including at least two 200-level plant biology courses) selected in consultation with the student's advisor.

Plant Molecular Biology Concentration: PBI0 185/187 or BIOC 205/206/207, MMG 101, BCOR 103, plus at least twelve credits (including at least two 100- or 200-level plant biology courses) selected in consultation with the student's advisor.

An up-to-date list of approved courses for each concentration may be found on this website:
<http://www.uvm.edu/~plantbio/undergraddegrees.php>

Political Science

Thirty credits in political science:

- A. Four (twelve credits) core courses (POLS 021, 041, 051, 071).
- B. At least fifteen credits at the advanced 100- or 200-level in political science subject to the following restrictions:
 1. Three credits must be at the 200-level.
 2. Students must complete at least one advanced 100- or 200-level course in three of the four subfields (American politics; political theory; international relations; comparative politics).

3. Twelve of those fifteen credits, including the three credits at the 200-level, must be in UVM political science courses (excluding study abroad, transfer credit, readings and research).

- C. Three additional credits in political science at any level (can include transfer credit).
- D. At least fifteen of the thirty credits used to satisfy this major must be taken at the University of Vermont.

Note: Internships will not count toward the thirty credits required for the major.

Psychology

Bachelor of Arts

Thirty-four credits of psychology including:

- (a) PSYC 001, 109 and 110
- (b) All of the following: PSYC 104, 121, 130, 152, 161
- (c) Two courses (three or four credits each) at the 200-level
- (d) One additional course at/above the 100-level

Bachelor of Science

MATH 019, 020 or 021, 022; BIOL 001, 002 or BCOR 011, 012 and at least three additional credits in an approved science or in statistics. For a list of approved offerings in science and statistics, consult the psychology department's website:
<http://www.uvm.edu/~psych/?Page=bs.html&SM=ugprogramsubmenu.html>.

Forty-six credits of psychology including: (1) PSYC 001, 104, 109, 110, 121, 130, 152, 161; (2) three courses from at least two of the following categories:

- (a) PSYC 205, 206, 207, 215, 220, 221, 222, 223, 224
- (b) PSYC 230, 233, 236, 237, 240, 241, 257*, 261, 262, 264, 265, 266, 267, 268
- (c) PSYC 250, 251, 254*, 255

and (3) nine additional credits at or above the 100-level. Students opting for a Bachelor of Science degree in psychology may not use psychology courses to fulfill the College of Arts and Sciences social sciences Distribution Requirements.

**Category (b) or (c) but not both.*

Approved offerings in science and statistics: biology (any except BIOL 001 and 002), chemistry (any), geology (any), physics (any), statistics (STAT 141 and any at the 200-level), neurobiology (any), animal science (ASCI 043, 122, 141, 142), computer science (any except CS 002, 003, 005, 014).

Religion

Thirty-three credits in religion, including the following:

- A. An introductory course (from the REL 020-027 range)
- B. Interpretation of Religion (REL 100)
- C. Two courses examining different religious traditions from the following list:
REL 114 or 116, 124 or 125, 128, 130, 132, 141, 145, 163 or 167
- D. A course on a comparative topic (from the REL 101-109 range)
- E. The Senior Seminar (REL 201)
- F. An additional seminar at the 200-level
- G. Three credits in related non-departmental courses may count toward the thirty-three credit requirement. A list of pre-approved courses is available from the Department of Religion website:
<http://www.uvm.edu/~religion/?Page=ba.html&SM=ugprogramsubmenu.html>.

Russian

Thirty credits of courses in Russian at the 100-level or higher among which at least one course must be Russian Literature in Translation (WLIT 118); one additional course in English literature or world literature; one Russian history course; and two additional courses chosen from among the listings of the Russian and East European Studies program. All course work to be chosen in consultation with the student's major advisor.

Russian and East European Studies

Required courses: Two courses from ANTH 151; HIST 114, 137, 138; EC 011 or 012; POLS 172; WLIT 118; two courses at the 100-level or higher in Russian; three additional courses in the major, chosen in consultation with an advisor in the major.

Recommended courses: GRS 091.

The Program also offers an interdisciplinary Individually Designed major in Russian and East European Studies and Business. The program of study must be planned with a member of the Russian and East European Studies faculty.

Required courses for the IDM (thirty-five credits): Two courses in Russian at the intermediate level; four courses in economics including EC 011 or 012; one Russian and East European Studies course other than those in economics; two courses in business administration; two approved electives at the 100-level or higher.

Sociology

Thirty-one credits in sociology including SOC 001, 100, and 101; nine additional credits at the 100-level; and nine credits at the 200-level plus STAT 051 or higher which is required as a prerequisite for taking SOC 100. Only three credits of SOC 285/286/288/289 may count toward the 200-level requirements. It is recommended that SOC 001, 100, and 101 be completed before the start of the junior year. SOC 001 and 100, or 001 and 101, or instructor's permission is a prerequisite for enrollment in any 200-level course. Students planning to focus in a particular area of study are strongly encouraged to take an additional 200-level course in that area. Students planning postgraduate training in sociology or related areas are strongly encouraged to take at least two courses from the advanced Theory/Methods area (SOC 274, 275, 279).

The Department of Sociology offers an optional twelve credit concentration in Social Gerontology including SOC 020 and 120; either SOC 220 or 222; and at least one course from SOC 154, 254, or 255. Students interested in completing the Social Gerontology concentration are encouraged to consult their faculty advisor early in their program.

Spanish

A minimum of thirty-three credits of courses numbered above the 100-level* of which: twelve must be in literature and eighteen must be in courses numbered above 200*. Required courses among those thirty-three credits: SPAN 140; three credits in Latin-American literature (SPAN 142, 274, 279, 281, 286, 287 or Special Topics); three credits in Spanish Peninsular Literature (SPAN 141, 236, 237, 250, 252, or Special Topics); three credits in culture or the arts (SPAN 290, 291, 292, 293, 294 or 299). At least one of the literature courses must be a survey (SPAN 141 or 142). One of the literature or culture courses must be devoted to a pre-1800 topic (examples are SPAN 236, 237, 287, 291, 293 or Special Topics).

**Only three credits of Readings and Research (SPAN 197, 198) and Advanced Readings and Research (SPAN 297, 298) may be counted toward the major.*

Theatre

A total of forty-eight credits to include THE 010, 020, 030, 040, 050, 110; one of the following three: THE 120, 130 or 140; THE 150, 151, 250, 251; three credits in THE 190 (Theatre Practicum); nine credits in a selected area of concentration: Design/Tech, Performance, or History/Criticism.

Design/Tech Concentration: THE 041, 042, 120, 130, 131, 140, 141, 142, 143, 144, 160, 200, 230

Performance Concentration: THE 111, 112, 200, 210

History/Criticism Concentration: nine credits from THE 070, 075, 076, 200, 255 or other courses approved by the department

Note: Students entering the College of Arts and Sciences should be advised that THE 001 is not recommended for students intending to major or minor in theatre. Those students should enroll in required courses immediately. If THE 001 is taken, it will not be counted toward the required 48 credits for the major but will be counted toward the total 122 credits required for graduation.

Women's and Gender Studies

A total of thirty-six credits (twelve courses) are required for the major. (a) Core (twelve credits): WGST 073, 101, 273, and 191 or 192. (b) Electives (nine credits): One additional race/ethnicity course beyond the college's requirement, one additional non-European culture course beyond the college's requirement and any one course in fine arts or humanities cross-listed with Women's and Gender Studies. (c) Concentration (fifteen credits): An individually designed concentration consisting of five approved Women's and Gender Studies electives, at least four of which are at or above the 100-level.

Zoology

Bachelor of Arts

CHEM 031/032 or CHEM 035/036, to be taken the first year if possible; CHEM 141/142; MATH 019 (or higher), plus at least six additional credits in quantitative disciplines from among mathematics (MATH 020 or higher), physics (PHYS 011 or higher), or statistics (STAT 141 or higher). BCOR 011/012 (preferred, but BIOL 001/002 is accepted), BCOR 101, and either BCOR 102 or 103, and at least fifteen additional credits in zoology or related fields from BCOR 102 or 103 (whichever was not taken above) or other courses from the approved list available from the Department of Biology office or department advisors. Students preparing for entry into professional schools, such as veterinary or human medicine or dentistry, should consult with their department advisor to select the proper sequence of electives.

Bachelor of Science

CHEM 031/032 or CHEM 035/036, to be taken the first year if possible; CHEM 141/142; MATH 019 (or higher), and at least fifteen credits in quantitative disciplines from among mathematics (MATH 020 or higher), physics (PHYS 011 or higher), or statistics (at least one course is required from STAT 141 or higher). BCOR 011/012 (preferred, but BIOL 001/002 is accepted), BCOR 101, and either BCOR 102 or 103, and at least twenty-seven additional credits in zoology or related fields from the approved list available from the Department of Biology office or department advisors. Students preparing for entry into professional schools, such as veterinary or human medicine or dentistry, should consult with their department advisor to select the proper sequences of electives.

The School of Business Administration

The School of Business Administration at the University of Vermont prepares students for careers in management in a dynamic global economy and fosters recognition of the importance of ethical, social, and environmental responsibility. The school cultivates and supports a faculty that excels in management education, research, and practice. The school also commits itself to a special obligation to serve the citizens of Vermont. It strives to be the best business program of its size.

The faculty and staff are committed to developing leaders prepared for a dynamic, global workplace. Our curriculum is designed to support the following learning outcomes:

1) *Global and Civic Awareness*

Demonstrate:

- 1.1 an awareness of global business issues and cultural differences
- 1.2 an understanding of environmental issues facing business
- 1.3 an ability to engage in ethical reasoning
- 1.4 an awareness of social responsibility issues facing business
- 1.5 an awareness of the political and legal context of business

2) *Critical Thinking and Problem Solving*

Demonstrate ability to:

- 2.1 acquire appropriate data and information
- 2.2 use analytical tools
- 2.3 interpret and evaluate results of analysis
- 2.4 use results to resolve issues

3) *Business Skills*

Demonstrate:

- 3.1 Communication skills
 - Oral
 - Written
- 3.2 Leadership skills
- 3.3 Team skills
- 3.4 Information technology skills

4) *Business Fundamentals*

Demonstrate knowledge of:

- 4.1 Accounting
- 4.2 Finance
- 4.3 Management and organization
- 4.4 Management information systems
- 4.5 Marketing
- 4.6 Production and operations management

During their first two years, students build the conceptual and analytical base for studying the art and science of management. They partially complete general education requirements and learn required skills for upper level business courses. Students take Business Field courses and Business Discipline Concentration courses in their junior and senior years.

The School of Business Administration cooperates with the College of Engineering and Mathematical Sciences in offering a B.S. in Engineering Management. The school offers two minors: a minor in Accounting, and a minor in Business Administration.

The undergraduate and graduate programs offered by the school are accredited by AACSB International: the International Association to Advance Collegiate Schools of Business.

The offices of the School of Business Administration are located in Kalkin Hall.

DEGREE PROGRAM

Bachelor of Science in Business Administration with concentrations in:

- Accounting
- Entrepreneurship
- Finance
- Human Resource Management
- International Business
- Management and the Environment
- Management Information Systems
- Marketing
- Production and Operations Management

Internal Transfer to Business Administration

Students planning to transfer to the School of Business Administration from another college or school on campus must meet the prerequisite requirements. Internal Transfer applicants must complete MATH 019 and 020 (Calculus I and II) and EC 011 and 012 (Macro and Micro Economics) before being considered for transfer. Applications may be obtained in Student Services, 101 Kalkin Hall or online:

<http://www.uvm.edu/business/?Page=info/prospectives.html>.

Computer Competency

Students are presumed to have basic microcomputer literacy, including working knowledge of word processing and spreadsheet software. Students lacking this basic knowledge are responsible for attaining it through course work, self study, tutorials or workshops.

Mobile Computing Requirement

Students are asked to purchase a portable computer and the software suite that meets the requirements of the School of Business Administration.

Degree Requirements

Students must comply with the degree requirements as stated in a single catalogue edition in place during the time they are enrolled. The catalogue edition to be followed is the one in effect at the time the student matriculates at UVM, unless the student requests in writing to follow an edition that is published subsequently during his/her enrollment at UVM. Students may not mix requirements from different catalogues.

Students who have a separation from the university of three years or more must meet the requirements of the current catalogue at the date of readmission.

A minimum of 120 approved credits is required for the degree of Bachelor of Science in Business Administration. A cumulative grade-point average of 2.00 is required. At least 50 credits of course work must be taken in subjects other than business. Students must complete 30 of the last 45 credits in residence at UVM as a matriculated student.

A Basic Business Core grade-point average of 2.25 with no one grade lower than a C- is required by the completion of 60 credits in order to remain enrolled in the School of Business Administration.

The Business Field requirement courses, the Business Discipline Concentration courses, and three additional upper-level business courses must each be filled with at least 50 percent of business administration courses taken at UVM. The Business Field courses and Business Discipline Concentration courses must be completed with a 2.00 grade-point average or higher. Other UVM courses may be used towards these requirements if approved by the Undergraduate Studies committee.

Students choosing an International Business concentration may complete all Business Discipline Concentration credits at an approved institution abroad. However, they will be required to complete 75 percent of their Business Field credits in UVM business courses or in other UVM courses approved by the Undergraduate Studies committee.

Additional grade requirements exist for the Business Field and the Business Discipline Concentration courses.

ACADEMIC STANDARDS

Students will be placed on trial if their semester or cumulative grade-point average is less than 2.00. Students will remain on trial until both semester and cumulative grade-point averages reach at least 2.00 or until they are dismissed. Students on trial will be given a target semester grade-point average to achieve by the end of the following semester.

Students shall be dismissed from the university in the following situations: (1) failure to achieve the target grade-point average while on trial; (2) failure of at least half their course credits in any semester while maintaining a cumulative grade-point average of less than 2.00. First-year students who have just completed their first semester will be dismissed if they earn a grade-point average of 1.00 or less and fail at least half their semester course credits.

A student may appeal a dismissal in writing to the Undergraduate Studies committee within the time frame stipulated in the dismissal letter if there are circumstances supporting an extension of trial status. Detailed information on the criteria for dismissal may be obtained from the School of Business Administration Student Services office.

Regulations Governing Academic Standards

The following are criteria for academic trial. Allowances for the student in the first semester are designed to encourage academic work of quality at least equal to the minimum required for graduation.

Trial

- A) A student who earns a semester grade-point average higher than that which merits dismissal but below 2.00 is placed on trial. A student who is on trial may not enroll in a university-sanctioned study abroad program.

Dismissal

- B) A student who does not satisfy the conditions of trial, or who earns a semester grade-point average of 1.00 or lower, or who earns failing grades in one-half of the semester credits attempted will be dismissed for low scholarship. The period of dismissal is one year. Dismissed students must receive prior written approval from the School of Business Administration Student Services office before enrolling in any university course.

Readmission Following Dismissal

- C) A dismissed student who presents evidence of his/her ability to perform satisfactorily may be considered for readmission on trial. A student who has been dismissed for a second time will not be considered for readmission on trial until at least two years have elapsed. Further information regarding readmission may be obtained from the School of Business Administration Student Services office.

BUSINESS COURSE REQUIREMENTS

Basic Business Core

(twenty-two to twenty-four credits)

To be completed by the end of the sophomore year or the completion of 60 credits, with a grade-point average of at least 2.25 and no grade lower than C-. If a student does not successfully meet these criteria s/he will be required to transfer out of the School of Business Administration.

MATH 019 and 020; or MATH 021
EC 011 and 012
STAT 141
BSAD 040, 060, 061

Business Field Courses

(twenty-four credits)

To be completed in the junior and senior years, with a grade-point average of at least 2.00.

BSAD 120, 132, 141, 150, 173, 180, 191*

Students must have junior status and have completed the Basic Business Core before taking Business Field courses.

The Quantitative Methods course is selected from among: BSAD 170, 270; EC 200; STAT 151, 183, 201, 221, 223, 224, 225, 231, 233, 237, 253.

*BSAD 191 is taken in the senior year.

Business Discipline Concentration

(twelve credits within the concentration plus nine upper-level business credits outside the concentration)

To be completed with a grade-point average of at least 2.00.

The student must complete twenty-one credits in business administration courses numbered 100 or above beyond those required for the Business Field courses. Twelve of the twenty-one required credits must be within a specific Business Discipline Concentration: Accounting, Entrepreneurship, Finance, Human Resource Management, International Business, Management and the Environment, Management Information Systems, Marketing, or Production and Operations Management.

The remaining nine business credits must be taken outside of the primary discipline concentration area, as long as the courses are numbered 100 or above. These courses can also be used toward a second discipline concentration.

Basic General Education Core

(at least nineteen credits)

Six courses. Each requirement must be filled with a course worth at least three credits. The laboratory science requirement is four credits. One from each of the following:

- History course (any below 100-level)
- English course that emphasizes practice in writing from ENGS 001, 050, 053, 120 or the First Year Honors College Seminar
- Social Science from anthropology, economics, environmental studies, geography, political science, psychology, sociology, and Women's and Gender Studies

- D. Natural Science that includes a laboratory or field experience from ASTR 005, 023; BIOL 001, 002, 003 and 096; CHEM 020, 023, 031, 035; GEOL 001, 004, 055; NR 001; PHYS 011 and 021, PHYS 051; PSS 010 and 015; PBIO 004
- E. Global and Regional Studies from African Studies, Asian Studies, Canadian Studies, European Studies, Holocaust Studies, Latin American and Caribbean Studies, Middle East Studies, and Russian/East European Studies
- F. Language or Literature from Arabic, Chinese, American Sign Language (under Communication Sciences and Disorders), French, German, Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish or any English or World Literature course

Note: Cross-listed courses may count for only one Basic General Education Core requirement. Any course which meets a business requirement cannot also meet a Basic General Education Core requirement.

Required Minor

A student must complete a minor in a discipline outside of the School of Business Administration by fulfilling the requirements specified by the department or program supervising the minor. A student must earn a cumulative grade-point average of 2.00 in the courses used to complete the minor and half of these courses must be completed at the University of Vermont. One course from the Basic General Education Core requirements may be used toward the completion of the minor.

The student must contact the appropriate department to obtain more information and declare the minor online through the UVM registrar's website.

Minors in English, Psychology, or Film and Television Studies are restricted to students enrolled in the College of Arts and Sciences.

Diversity Requirement

(six credits)

The University of Vermont has a six credit diversity requirement. For students enrolled in the School of Business Administration, three credits must be completed from the offerings in the Race and Racism in the U.S. category, and three credits should be selected from either the Race and Racism in the U.S. or the Human and Societal Diversity category.

Electives

General Education Electives

Students will take additional courses in subjects so that at least 60 credits of their course work are outside of Business Administration.

Other Electives

Students take additional electives, either inside or outside of business, to achieve the total 120 credits required for their degree.

Restrictions on Electives

1. No credit will be granted for PEAC (Physical Education Activity courses).
2. No credit will be granted for a course that substantially duplicates material in courses offered in Business Administration or in other previously completed courses.
 - Students cannot receive credit for CS 002 or 003 after earning credit for BSAD 040.
 - Students cannot receive credit for both CS 014 and BSAD 142.
 - Students cannot receive credit for a course that is prerequisite knowledge for a course already completed, for example FREN 001 after FREN 002.

- Students cannot receive credit for a course offered in another department that substantially duplicates material in Business Administration.
- Students cannot earn credit for both CDAE 127 and BSAD 153.
- Students cannot earn credit for both CDAE 128 and BSAD 155.
- Credit cannot be received for CDAE 167 if taken after BSAD 180.
- Credit cannot be received for CDAE 168 if taken after BSAD 150.
- Credit cannot be received for CS 042; CDAE 266, 169 or 210.

3. See Student Services for a list of restrictions.

Course of Study

A possible curriculum for the B.S. in Business Administration:

FIRST YEAR	Fall	Spr
MATH 019 - Fundamentals of Calculus I	3	-
EC 011 - Principles of Macroeconomics	3	-
BSAD 040 - Information Tech and Mgmt	-	3
MATH 020 - Fundamentals of Calculus II	-	3
EC 012 - Principles of Microeconomics	-	3
General Education or Minor Courses	<u>9/10</u>	<u>6/7</u>
Total	15/16	15/16
SOPHOMORE YEAR		
BSAD 060 - Financial Accounting	3	-
STAT 141 - Basic Statistical Methods	3	-
Upper Level Quant Methods	-	3
BSAD 061 - Managerial Accounting	-	3
General Education or Minor Courses	<u>9/10</u>	<u>9/10</u>
Total	15/16	15/16
JUNIOR YEAR		
Business Field Courses	12	9
General Education, Minor, or Electives	3	3
Business Discipline Concentration Courses or Additional Upper Level Business Courses	-	<u>3</u>
Total	15	15
SENIOR YEAR		
Business Discipline Concentration Courses	6	6
Additional Upper Level Business Courses	6	3
Minor Courses	3	3
BSAD 191 - Strategy and Competition	-	<u>3</u>
Total	15	15

Accounting Program

A student who plans to become a Certified Public Accountant (CPA) may complete an Accounting undergraduate concentration plus the Master's of Accountancy (MAcc) in a fifth year. The MAcc fulfills the 150 credit requirement of the American Institute of Certified Public Accountants (see the Graduate Catalogue for additional information on the MAcc). The specific requirements to sit for the CPA examination vary among states. Students who plan to sit for the CPA exam are advised to contact the Board of Accountancy for the state in which they plan to work.

The Accounting concentration consists of twelve credits of accounting course work: BSAD 161 (Intermediate Accounting I), 162 (Intermediate Accounting II), and two other accounting courses to be selected in consultation with the student's accounting faculty advisor.

International Business

Students interested in International Business are expected to participate in a study abroad experience. The university participates in a number of exchange programs with institutions around the world. It is also possible for students to spend a semester at other approved international universities. It is recommended that students complete BSAD 120, 150, and 180 before going abroad.

Pre-Professional Work Programs

Students are encouraged to participate in pre-professional work opportunities, such as internships, part-time jobs or work study. Internships may involve part-time work during the academic year or full-time summer work. The time required for an internship and whether or not it is paid depends upon the employer.

Credit may be available for demonstrated learning in relation to an internship experience. Students may take up to six internship credits. Any internship credit taken outside of the School of Business Administration must be pre-approved by petition to the Undergraduate Studies committee. Students may earn up to three of the six credits permitted for internship outside the School of Business Administration.

Students with a minimum 3.00 grade-point average may enroll in an internship independent study with a faculty member by enrolling in BSAD 194. Students must speak with a faculty member in their field of study to obtain approval. BSAD 194 internship credits may be applied to the concentration with advisor approval.

MINORS

For the requirements, refer to the "Undergraduate Minors" section in this catalogue.

Minors are issued by the School of Business Administration in the following two areas:

- Accounting
- Business Administration

The College of Education and Social Services

The College of Education and Social Services (CESS) offers undergraduate programs in Human Development and Family Studies, Social Work, and Teacher Education (Art, Early Childhood Education, Early Childhood Special Education, Elementary, Middle Level, Music, Physical Education, and Secondary Education). First-year students may elect an Undecided major while exploring the above options within the college. Students who have completed one year of course work at UVM and who demonstrate interest in an area of study related to CESS offerings may pursue an Individually Designed Program (IDP). All programs require course work in the liberal arts and sciences along with professional preparation through courses and internships in school and community settings.

Enrolled UVM students wanting to transfer to the CESS should access the online form at the registrar's website by clicking on Student Forms. Students enrolled in appropriate programs in other colleges may apply to complete teacher licensure requirements for Secondary Education while they remain in their home college.

Students will only be considered eligible for transfer or dual degrees with licensure programs if they currently have an overall grade-point average of 2.50; students in teacher education programs must also be able to earn an overall grade-point average of 3.00 or above by the time they reach student teaching and program completion.

DEGREE PROGRAMS

Programs in the College of Education and Social Services lead to four bachelor's degrees.

Bachelor of Arts

The programs listed below lead to this degree.

Human Development and Family Studies. This program examines the way people grow and develop, form relationships and families, and learn to cope with the common and uncommon events of life.

Social Work. The principal educational objective of the program is to prepare students for beginning social work practice with individuals, families, small groups, organizations, and communities.

Teacher Education/Early Childhood Education (Birth-Gr3). Focus is on the education and development of children birth to age 8 leading to licensure and an endorsement for birth to grade 3.

Teacher Education/Early Childhood Special Education (Birth-Age 6). Focus is on the education and development of children ages birth to age 6 with special needs leading to licensure and an endorsement in early childhood special education. Students completing this program get endorsed in Early Childhood and Early Childhood Special Education.

Bachelor of Science in Art Education

Teacher Education/Art Education (PreK-12). The college works cooperatively with the Art and Art History department in the College of Arts and Sciences to offer a program in Art Education which leads to degree, licensure and an endorsement for grades PreK-12.

Bachelor of Science in Education

Individually Designed Major. Earn degree not licensure.

Teacher Education/Elementary Education (K-6). The Elementary Education program offers licensure and an endorsement through grade 6.

Teacher Education/Middle Level Education (5-9). The Middle Level Education program offers licensure and an endorsement for grades 5-9.

Teacher Education/Physical Education (PreK-12). The Physical Education program offers licensure and an endorsement for grades PreK-12.

Teacher Education/Secondary Education (7-12). The Secondary Education program offers licensure and an endorsement for grades 7-12.

Bachelor of Science in Music Education

Teacher Education/Music Education (PreK-12). The college works cooperatively with the Music and Dance department in the College of Arts and Sciences to offer a program in Music Education which leads to degree, licensure and an endorsement for grades PreK-12.

In addition to the undergraduate degree programs, the college offers a fifth-year certificate, the Post Baccalaureate Teacher Preparation program. This program is for individuals who have earned a B.S. or B.A. and now desire to be licensed to teach in Art, Early Childhood, Early Childhood Special Education, Elementary, or Physical Education.

The Master of Arts in Teaching is available to applicants interested in licensure to teach Middle Level and Secondary Education.

DEGREE REQUIREMENTS

Students must meet standards and requirements for each program approved by the College Academic Affairs committee, the college faculty, the dean, and the University Academic Affairs committee. All programs are nationally accredited and meet the standards of their professional group: Social Work by the Council on Social Work Education (CSWE); Teacher Education programs (Art, Early Childhood Education, Early Childhood Special Education, Elementary, Middle Level, Music, Physical Education and Secondary Education) by the Vermont State Department of Education and by the National Council for the Accreditation of Teacher Education (NCATE).

Copies of the degree requirements for each program are available in our CESS Student Services office (528 Waterman), on the web at <http://www.uvm.edu/~cess/stservices>, and are also provided to students during Orientation sessions.

Students receive an Orientation Advising Packet which explains how the requirements can be fulfilled during a four-year period. Discussions with advisors provide students with information needed to plan the time span for program completion that meets their needs. Students who enroll in the College of Education and Social Services are expected to become very familiar with the degree requirements for their programs.

All students are required to fulfill the University Approved Diversity requirements through their CESS programs.

Criminal Record Check (CRC) Requirement

Students who matriculate in the College of Education and Social Services should expect to complete a Criminal Record Check (CRC) as a prerequisite for working in schools and agencies. Evidence of a Criminal Record may prevent students from being eligible to fulfill the field placement/teaching internship requirement.

Human Development and Family Studies and **Social Work** majors may be required by individual agencies to complete the CRC to be eligible for an internship in a specific agency. It is also important to note that membership in professional associations upon graduation, at least in the case of most social work organizations, typically requires a criminal background check as does employment in an ever-increasing number of human service agencies.

Students enrolled in the **Teacher Education** programs are required to complete the CRC to be eligible for the public school teaching internship and may also be required to complete the CRC during the first-year, sophomore and junior years. Each individual school makes

the determination concerning the first-year, sophomore and junior experiences, but it is a state requirement that all students complete the CRC for eligibility to student teach. The cost for fingerprints and FBI processing is covered by each individual student and is subject to change.

Disciplinary Action Related to Academic Performance

A student is subject to academic disciplinary action, including dismissal from the university, if (a) his or her semester or cumulative grade-point average falls below 2.00; **or** (b) he or she has failed six or more credits of course work in a given semester. This includes first-year and new transfer students.

A student who has a cumulative grade-point average of 2.00 or higher, but too low to meet specific program requirements, will be warned of pending disenrollment. Also, students who do not follow course requirements or who have not earned an appropriate grade-point average for their program will be warned of pending disenrollment. If at the end of two subsequent semesters the student has failed to meet the requirements (courses and/or GPA) of his/her program, s/he will be disenrolled from the college.

Students who are placed on trial rather than being dismissed and who do not meet the conditions of trial will then be dismissed.

Students on "academic trial" will not be allowed to participate in their senior internship/field placement and their graduation status may be jeopardized.

HUMAN DEVELOPMENT AND FAMILY STUDIES PROGRAM

Bachelor of Science

The Human Development and Family Studies program examines the ways people grow and develop, form relationships and families, and learn to cope with the common and uncommon events of life, all while attending to an ecological perspective. Students learn basic and applied concepts of human development and acquire skills in working with individuals and families of different ages and backgrounds in a variety of settings. Field experience is required of all students.

Human Development and Family Studies is also available as a major concentration for students in the Early Childhood Education, Early Childhood Special Education, and Physical Education licensure programs, and as a minor available to students across the university.

Students in the Human Development and Family Studies program complete a total of 120 credits which include General Education requirements in diversity, behavioral and social sciences, communication skills, humanities, physical and biological sciences and research methods. They also enroll in a sequence of professional course requirements designed to provide a comprehensive understanding of individual and family development across the life span and in diverse socio-cultural contexts. These courses are arranged in three blocks: introductory, intermediate, and advanced.

The introductory block includes four core courses in Human Development and Family Studies (HDFS). The first, "Introduction to Human Development and Family Studies and Academic Service-Learning" (HDFS 001), provides majors with an introduction to the discipline and practice of HDFS, with special emphasis on preparing students for more advanced course work and professional practice. The other three courses in the introductory block introduce students to core topics in the field, including individual development across the life span: "Human Development" (HDFS 005), "Family Context of Development" (HDFS 060), and "Human Relationships and Sexuality" (HDFS 065). Students are also introduced to typical individual-level experiences, changes and challenges at different points in the life course and to various factors, such as gender, race and social class that influence individual development. Introductory courses consider how questions are pursued from a human development perspective,

how they relate to everyday life settings, how knowledge in the discipline is constructed, and the types of skills necessary to both acquire and use this knowledge.

The intermediate block builds upon the introductory block through the next set of four professional course requirements. In HDFS 161, students are offered a deeper introduction to and opportunity to critically analyze the major social institutions and cultural contexts that shape human development. HDFS 141 focuses in depth on white identity and the context of white privilege. The remaining two courses in this intermediate block introduce students to major development theories relied upon to help us understand individual development in context (HDFS 189) and to the HDFS profession through the study and practice of essential helping relationship skills (HDFS 101). Both courses also provide students the opportunity to apply developmental theories to practice.

The advanced block consists of a series of advanced seminars and a six-credit field experience. All majors take at least three advanced seminar courses selected in consultation with an advisor. The field experience is the final professional requirement and serves as a capstone senior level experience. Taken for a minimum of six credits and typically completed over the course of one semester, students engage in direct field work for a minimum of 12 hours per week at the same time completing the related academic work that focuses on critical reflection from human development and ecological perspectives. Students choose a placement from a variety of local agencies. Field placement sites have included legal aid, the court system, battered women's shelters, centers for abused and neglected children, city and state government agencies, public and private schools, group homes, rehabilitation centers, local business and industry, childcare settings, hospitals, senior-citizen centers, and other human service agencies and social justice organizations.

A possible curriculum for the Human Development and Family Studies Program:

FIRST YEAR	Fall	Spr
HDFS 001 - Intro to HDFS & Academic Services Learning	3	-
HDFS 005 - Human Development	3	-
General Education Courses	3	3
Diversity Courses	3	3
Electives	3	3
HDFS 060 - Family Context of Dev	-	3
HDFS 065 - Human Relationships & Sexuality	-	3
Total	15	15
SOPHOMORE YEAR	Fall	Spr
HDFS 141 - Interrogating White Identities	3	-
HDFS 161 - Social Context of Dev	3	-
General Education Courses	6	6
Electives	3	3
HDFS 101 - The Helping Relationship	-	3
HDFS 189 - Theories of Human Development	-	3
Total	15	15
JUNIOR YEAR	Fall	Spr
HDFS Adv Seminars	3	3
General Education Courses	9	9
Electives	3	3
Total	15	15
SENIOR YEAR	Fall	Spr
HDFS Adv Seminar	3	-
Electives	12	9
HDFS 296 - Field Experience	-	6
Total	15	15

SOCIAL WORK PROGRAM

Bachelor of Science

The principal educational objective of the Social Work program is to prepare students for beginning generalist social work practice with individuals, families, small groups, organizations, and communities.

The program provides education for social work practice based on a liberal arts education in the social sciences and humanities. The program is fully accredited by the Council on Social Work Education. Throughout the program of study, students develop the values, knowledge, and skills necessary to provide social services and to effect social change in institutions and communities.

The Bachelor of Science degree in Social Work requires a minimum of 122 approved credits, 24 credits of which are general education components from four approved academic areas (Arts, Humanities, Science, and Social Science), and three credits for one course that focuses substantially on issues concerned with Africa, Asia, Latin America, the Middle East, or non-European/non-Western countries.

The student, in consultation with his/her advisor, selects elective courses which will provide the opportunity to develop individual interests. Additional courses in anthropology, education, foreign language, history, philosophy, political science, psychology, sociology, statistics, special education, and women's studies are recommended. Students who intend to pursue a Master of Social Work (MSW) degree are strongly advised to take STAT 141.

A committee of Social Work faculty review students' progress each semester throughout the four years. Students may be asked to participate in that process if the faculty deems necessary.

Students must complete the required liberal arts courses with a minimum grade of C-, complete the initial Social Work courses (SWSS 002, 003, 005, 047, 048, 060) with a minimum grade of C, complete the upper level Social Work courses (SWSS 163, 164, 165, 166, 168, 169, 171, 172, 173, 174) with a minimum grade of B, and achieve an overall GPA in all courses of 2.00.

A possible curriculum for the Social Work Program:

FIRST YEAR	Fall	Spr
Humanities Course	3	-
SOC 001 - Intro to Sociology	3	-
SWSS 002 - Foundations of Social Work	3	-
Electives	6	6
POLS 021 - American Political System	-	3
PSYC 001 - General Psychology	-	3
SWSS 003 - Human Needs & Social Svcs	-	3
Total	15	15

SOPHOMORE YEAR	Fall	Spr
ENGS 050 - Expository Writing	3	-
PSYC 152 - Abnormal Psychology	3	-
SWSS 047 - Human Behavior in the Soc Env I	3	-
Electives	6	2
Non-European/Non-Western Culture Course	-	3
BIOL 003 - Human Biology or		
SWSS 005-Biosociopolitical Issues SW	-	3
EC 011 - Principles of Macroeconomics	-	3
SWSS 048 - Human Behavior in the Soc Env II	-	3
Diversity Category One:		
SWSS 060 - Racism & Contemporary Issues	-	3
(*Diversity Courses-6 credits required)		
Total	15	17

JUNIOR YEAR	Fall	Spr
SWSS 163 - Theory/Prac Integration Sem	3	-
SWSS 164 - Intro Social Work Research	3	-
SWSS 165 - Issues & Policy in Soc Welfare I	3	-
Electives	6	12
SWSS 166 - Issues & Policy in Soc Welfare II	-	3
Total	15	15
SENIOR YEAR	Fall	Spr

SWSS 168 - Social Work Practice I	3	-
SWSS 171 - Field Experience Seminar I	3	-
SWSS 173 - Field Experience I	6	-
Electives	3	3
SWSS 169 - Social Work Practice II	-	3
SWSS 172 - Field Experience Seminar II	-	3
SWSS 174 - Field Experience II	-	6
Total	15	15

*Fulfilled through required social work courses.

In the senior year, students spend approximately fifteen hours/week over two semesters (450 total hours) as interns in a public or private social service agency. In the fall semester, students must enroll concurrently in SWSS 168, 171, and 173. In the spring semester, students enroll in SWSS 169, 172, and 174.

Typically, students apply for SWSS 173 Field Experience in the spring of junior year. Application for the field experience requires consultation with the student's advisor to determine that all introductory and intermediate professional and required courses have been successfully completed. The process includes a written statement by the student describing his/her interests and qualifications. The advisor and Field Education coordinator also review professional readiness issues, including strengths, conduct, maturity, and areas to strengthen. When there are concerns about a student's field readiness, these concerns will be reviewed by the Undergraduate Field committee, and recommendations will be made.

TEACHER EDUCATION

The undergraduate Teacher Education programs include Art, Early Childhood Education, Early Childhood Special Education, Elementary, Middle Level, Music, Physical Education and Secondary Education. All students are required to meet specific academic criteria for admittance into the professional portion of their enrolled program, for a teaching internship placement, as well as for licensure recommendation.

Requirements for Teacher Preparation Programs

Candidacy The professional programs begin with the student enrolling in the College of Education and Social Services as a candidate for licensure. Candidacy status is the stage prior to acceptance into the Professional Education sequence and, for some programs, may also be available to students enrolled in other colleges at UVM.

Intercollege Transfer Students transferring to the College of Education and Social Services for the Teacher Education programs are required to have a minimum overall grade-point average of 2.50 or higher and it must be possible to earn an overall grade-point average of 3.00 before reaching student teaching and program completion.

Academic Major/Major Concentration All students who enroll in the Teacher Education programs are required to complete a thirty credit (minimum) major in the liberal arts and sciences. It is essential for students to complete many liberal arts and sciences requirements during the first two years of their program. A list of the options and the requirements are available through the CESS Student Services office, 528 Waterman and on the web at <http://www.uvm.edu/~cess/stservices>.

Students are encouraged to meet with their academic advisor prior to the selection of an academic major/major concentration. Students in Secondary Education complete a major (minimum thirty credits) and may also complete a minor (minimum eighteen credits). Students in Middle Level Education complete an Individually Designed Interdisciplinary Major Concentration (IDIMC) which consists of two Highly Qualified Teacher (HQT) content areas (English, mathematics, social studies, science). Students in Early Childhood, Early Childhood Special Education, Elementary, and Physical Education complete a thirty credit (minimum) major concentration as suggested or prescribed by those programs.

Portfolio Development and Professional Licensure In accordance with the Standards for Vermont Educators (Vermont State Board of Education, 1991), students seeking a license to teach must develop documentation that they can perform in ways that address state standards. Each candidate must assemble that documentation in a pre-professional portfolio according to program guidelines. While students have candidacy status, they should maintain a file which includes all materials from courses completed so that selected items can be included in the portfolio.

Application to Teacher Education In some programs, candidates must apply to the professional program sequence. Applications are available in each departmental office. Once the candidate's application is complete, the program faculty will review the materials which include: a record of academic performance at UVM, evidence of superior course work, and passing scores on PRAXIS I (or fulfillment of this requirement by one of the approved alternate options) as determined for Vermont. In some programs, students are required to complete this application and gain acceptance before being eligible to enroll in the professional education courses.

Please consult a program coordinator or advisor for further information. This includes: CESS students who are already enrolled as candidates in the teacher education programs; students who transferred to the CESS; and students in other colleges on campus who plan to maintain their primary affiliation with their home college while completing the SDE approved requirements in the CESS.

Students who meet the criteria and are eligible will be accepted. CESS students who do not meet the criteria for admission to Teacher Education will receive a warning of pending disenrollment letter. Students who are warned of pending disenrollment should meet with the program coordinator and determine if program completion is an option. Students who have not successfully fulfilled the PRAXIS I requirement may appeal for conditional acceptance into professional course work.

Student Teaching Internship Placement If a candidate's application to a Teacher Education program is approved, the candidate completes a sequence of professional education courses and applies during the junior year to intern as a student teacher during the senior year. The candidate submits his/her application to student teach to the program coordinator. The application lists the current set of criteria that permit a candidate to qualify for student teaching. Included among the criteria are a record of strong academic performance in program and university courses (overall GPA of 3.00 is required), recommendations from education faculty, and evidence of superior course work and passing scores on PRAXIS I as determined for Vermont.

Once admitted to student teaching, some programs require students to successfully complete the interview process and be accepted by an approved public school teacher/administrator before being placed for student teaching. After placement, the student will carry out an internship under the guidance of an approved mentor teacher and departmental supervisor. Although many students remain in the Burlington area, not all can be placed close to campus. Effort is made to accommodate student preference regarding placement site and the semester during which student teaching will occur, but all students should be prepared to student teach in either the fall or spring - semester of their senior year. Candidates must meet specific requirements to be recommended for licensure (minimum overall grade-point average of 3.00 is required). These requirements are available in the Student Services office, 528 Waterman.

Note: Students who are not admitted to student teaching may appeal through the College Student Affairs committee.

Application for Licensure Students who successfully complete a Teacher Education program are eligible to apply for licensure. Applications for VT licensure are **only** available from the Vermont Department of Education (802-828-2445, <http://www.education.vermont.gov>).

Teacher Assessment-PRAXIS Students are required to submit passing scores for PRAXIS I as part of their application to the professional portion of their Teacher Education program. Passing

scores must be received by the CESS Student Services office for all three content areas of PRAXIS I or the composite score of 526 before the student is considered eligible for a teaching internship placement. If the student does not meet these conditions, s/he may appeal for conditional placement.

Approved Alternatives to PRAXIS I The following assessments have been approved as alternatives to PRAXIS I. Students must meet both the total score as well as the minimum scores as equivalent to earning passing scores on PRAXIS I.

	Total Score	Verbal/ English	Math/ Quantitative
Graduate Record Exam (GRE)	1100	500	500
Scholastic Aptitude Test (SAT)*	1100	500	500
ACT		22	22

** For tests taken after April 1, 1995*

PBTP and Licensing Masters: Applicants will provide passing scores on PRAXIS I before being admitted to the program. Students who receive conditional acceptance must provide passing scores for PRAXIS I before being eligible for a teaching internship placement.

Teacher Education / Art Education (Grades PreK-12)

Bachelor of Science

The college works cooperatively with the Art and Art History department in the College of Arts and Sciences to offer a program in Art Education which leads to both degree and licensure for grades PreK-12. Students fulfill course requirements in general education, professional art education, professional education courses, studio art, art history, and related subjects. Graduates satisfy College of Education and Social Services requirements for teacher licensure and complete art course work in the Art and Art History department in the College of Arts and Sciences. The program allows sufficient additional advanced courses as recommended by the Art and Art History department for admission to graduate school.

Students must be enrolled in the College of Education and Social Services. Those admitted as first-year students or sophomores to the Art Education program are considered candidates in the program. Admission as majors is made at the beginning of the junior year following formal review procedures during the second semester of the sophomore year.

Students must meet with their advisors and get approval to set up student teaching and accompanying courses prior to enrolling in student teaching.

A minimum of 121 approved credits is required for the degree.

Students are responsible for obtaining information regarding teacher licensure and degree requirements from the CESS Student Services office, 528 Waterman, or the website:

<http://www.uvm.edu/~cess/stservices>.

A possible curriculum in Art Education:

FIRST YEAR	Fall	Spr
HDFS 005 - Human Development	3	-
Studio Art Foundation (ARTS 001, 003)	3	3
Art History (ARTH 005, 006)	3	3
General Education Courses	6	6
Diversity Category Two:		
EDSP 005 - Iss Affecting Persons w/ Dis	-	3
Total	15	15

SOPHOMORE YEAR	Fall	Spr
Studio Art Foundation (ARTS 002 or 004)	3	–
Art History Elective	3	–
Studio Art	3	6
General Education Courses	6	6
Art History Elective	–	3
Diversity Course	–	<u>3</u>
Total	15	18

Students apply to the Art Education major during second semester of their sophomore year. Students must be accepted in order to enroll in required methods courses.

JUNIOR YEAR	Fall	Spr
EDAR 177 - Curr & Pract in Elem Art	4	–
EDAR 178 - Curr & Pract in Middle/HS Art	4	–
Studio Art	6	6
Electives*	3	3
EDAR 283 - Current Issues in Art & Ed	–	3
EDAR 284 - Current Issues in Art & Ed	–	<u>3</u>
Total	17	15

SENIOR YEAR	Fall	Spr
EDFS 203 – Soc, Hist & Phil Found of Ed	3	–
Studio Art**	6	–
Electives*	6	–
EDSC 226 – Teaching Internship	–	<u>12</u>
Total	15	12

* The number of electives depends on the degree of course overlap in the general education, major, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

**100-level course in 3-D; 100-level course in digital media.

Teacher Education / Early Childhood Education (Birth-Gr3)

Bachelor of Science

The Early Childhood Education program is designed to provide students with the perspectives and skills necessary to work with young children from birth through grade three in inclusionary, developmentally appropriate settings. These include the abilities to:

- Facilitate children's development of literacy, quantification, and inquiry skills;
- Offer instruction in an integrated day format;
- Assess educational progress from a portfolio perspective;
- Use educational materials in an open-ended fashion;
- Recognize and respect the diversity of family structures within our society.

The program involves a large field-based component and makes significant use of the UVM Campus Children's Center and elementary schools as practicum sites. Graduates of the program who successfully complete all requirements are eligible for licensure from the State of Vermont.

The Birth-Gr3 Professional Preparation sequence involves three components. The first is a course in child development and a course in family relations. The child development course introduces students to the concepts that form the practical and theoretical foundation of the program's educational approach. The family relations course provides students a foundation in family dynamics and parent-child relationships and serves to emphasize the important links between children's home and school experiences. These two courses are taken prior to formal admission into the Birth-Gr3 program.

The second component is a three-part Professional Practices sequence. This sequence provides students a first exposure to the rationale, practices, and procedures used in the provision of developmentally appropriate educational experiences for young children. The sequence includes opportunities for observation and hands-on work with children, opportunities to assist teachers in the provision of developmentally appropriate educational experiences and to discuss with teachers and other professionals the issues

surrounding the provision of developmentally appropriate educational experiences.

The Professional Practices sequence is structured as three course blocks, taken sequentially. The first course block deals with techniques for observing and documenting children's development; the second with developmentally appropriate educational practices for children through age six (preschool/kindergarten); and the third for children between the ages of six and eight years (grades one through three). A significant portion of this Professional Practices sequence takes place in one or more preschools and elementary schools.

The third component is a two-semester Student Teaching sequence across the birth to eight-year age (preschool through grade three) range. This student teaching experience provides the opportunity to develop, implement, and assess (both in a cooperative and an independent fashion) developmentally appropriate educational practices. One experience would be in the UVM Campus Children's Center and the other would be in a child centered, inclusionary grade K-3 setting.

The course of study consists of 121 credits which are divided into the following categories.

Major Concentration in a Liberal Arts and Sciences Discipline
General Education Courses
Professional Preparation Sequence
Diversity Courses
Electives*

* The number of electives depends on the degree of course overlap in the general education, major concentration, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

A possible curriculum in Early Childhood Education:

FIRST YEAR	Fall	Spr
EDEC 063 - Child Development	3	–
Major Concentration	3	3
General Education Courses	9	3
Diversity Course	–	3
EDEC 001 - Intro to Early Education	–	4
HDFS 060 - Family Context of Dev	–	<u>3</u>
Total	15	16

SOPHOMORE YEAR	Fall	Spr
EDEC 101 - Early Education Internship	3	–
EDEC 102 - Inquiry & Pedagogy in Early Ed	3	–
EDEC 103 - Curric Development in Early Ed	3	–
General Education Courses	3	–
Major Concentration	3	3
EDEC 189 - Early Childhood Practices	–	<u>12</u>
Total	15	15

JUNIOR YEAR	Fall	Spr
Diversity Category Two:		
EDSP 005 - Iss Affecting Persons w/Dis or		
ECSP 202 - Intro to EI/ECSE	3	–
General Education Courses	6	–
Elective*	3	–
Major Concentration	6	3
EDEL 156 - Teaching Math for Meaning	–	3
EDEC 180 - Early Literacy in Young Children	–	5
EDEC 296 - Early Literacy Field Exp	–	<u>3</u>
Total	18	14

SENIOR YEAR	Fall	Spr
General Education Course	3	–
Elective*	1	–
Major Concentration	9	–
EDEC 187 - Field Practicum	–	<u>15</u>
Total	13	15

* The number of electives depends on the degree of course overlap in the general education, major, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

Teacher Education / Early Childhood Special Education (Birth-Age 6)

Bachelor of Science

The Early Childhood Special Education (ECSP) program is designed to provide students with the perspectives and skills necessary to work with all young children from birth through kindergarten and their families in a range of family-centered, culturally responsive, inclusionary and developmentally appropriate settings. These include the abilities to:

- Promote children's learning and development within natural environments and/or inclusive settings;
- Recognize and respect the diversity of family structures, preferences, and participation levels;
- Offer instructional practices that are guided by and sensitive to the family and child, supported by meaningful assessment information, and linked to developmentally and/or individually appropriate curricula;
- Foster collaborative relationships with family members, peers of the same discipline, and individuals across disciplines.

The ECSP program builds upon the early childhood competencies obtained through the Birth-Gr3 Early Childhood program and involves a large field-based component which makes significant use of the wide array of early intervention and early childhood services and supports within the campus community (UVM Campus Children's Center and Trinity Children's Center) as well as throughout the local community and region.

Specific Requirements

In addition to completing university and college requirements for all students, ECSP students complete both a sequence of professional courses related to early childhood and early childhood special education as well as an academic major concentration in an arts and science discipline.

The ECSP Professional Preparation sequence begins with a series of course work that build the foundation and skills for any educator working with young children and/or their families. This sequence begins with two foundation courses followed by a series of professional courses. The two foundation courses are HDFS 060 and EDEC 063. "Family Context of Development" (HDFS 060) examines the context of development and in so doing establishes the foundation for recognizing that development is an interdependent and intertwined process. "Child Development" (EDEC 063) serves to introduce students to the basic principles and research findings in the discipline of child development and how this knowledge can form the basis for educational practice.

The first professional course (EDEC 001) provides the theoretical rationale for the ECSP approach to early childhood special education as well as considerable opportunity to practice techniques for observing young children's development. Observational skills are an essential component of the ECSP program since an awareness of children's interests and investigations forms the basis for the development and provision of appropriate educational experiences for young children.

The second professional course (EDEC 100) involves both a pre-student teaching internship at either the UVM Campus Children's Center or a community placement and extensive seminar work in the documentation of children's learning. Documentation is an essential element of the ECSP since a careful analysis of children's activity is the basis for child assessment and the development of curriculum.

The third professional course (EDEC 189) is a full semester full-time student teaching experience in either one of the rooms of the UVM Campus Children's Center or in a community placement. Over the course of the semester, students, under the supervision and mentorship of the classroom teachers, gradually assume more responsibility for all aspects of the curriculum as well as contact with families.

Once students complete EDEC 189, their professional course work becomes increasingly focused on learning to design services and supports for young children with diverse abilities and their families. EDEC 005 helps students gain a fuller appreciation for the issues affecting persons with disabilities, including the legal issues affecting the provision of services to individuals. CSD 094 helps students gain a fuller understanding of the development of spoken language. Since issues related to early language development are a common element in working with young children with disabilities, an understanding of the process of language development is an essential component of all good teaching. ECSP 202 focuses on the characteristics of and interventions for infants, toddlers, preschoolers and kindergarten children who have disabilities and their families. The course reviews the nature of these disabilities and the strategies that are used for interventions. ECSP 211 covers the various assessment strategies that are used in early childhood special education to help determine eligibility, priorities, resources, and concerns of the family, strengths and areas of growth for the child; and the most effective ways to best support the child's developmental and educational growth. ECSP 210 focuses on curriculum planning to meet the needs of young children with disabilities and their families within home, center, and/or other settings (play groups).

The ECSP Professional Preparation sequence is completed with ECSP 187, a student teaching experience working with young children with diverse abilities (ages 0-6) and their families.

The course of study consists of 121 credits which are divided into the following categories:

- Major Concentration in a Liberal Arts and Sciences Discipline
- General Education Courses
- Professional Preparation Sequence
- Diversity Courses
- Electives*

* The number of electives depends on the degree of course overlap in the general education, major concentration, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

A possible curriculum in Early Childhood Special Education:

FIRST YEAR	Fall	Spr
EDEC 063 - Child Development	3	-
Diversity Course	3	-
Major Concentration	3	3
General Education Courses	6	6
EDEC 001 - Intro to Early Education	-	4
HDFS 060 - Family Context of Dev	-	3
Total	15	16

SOPHOMORE YEAR	Fall	Spr
EDEC 100 - Inquiry & Pedagogy in Early Education	10	-
General Education Course	3	-
Major Concentration	3	-
EDEC 189 - Early Childhood Practices	-	12
Diversity Category Two:		
EDEC 005 - Iss Affecting Persons w/ Dis	-	3
Total	16	15

JUNIOR YEAR	Fall	Spr
Diversity Category Two:		
EDEC 202 - Introduction to EI/ECSE	3	-
EDEC 211 - Assessment in EI/ECSE	4	-
Major Concentration	6	-
General Education Courses	3	6
CSD 094 - Dev of Spoken Language	-	3
ECSP 210 - Curriculum in EI/ECSE	-	4
Total	16	13

SENIOR YEAR	Fall	Spr
Elective*	3	–
Major Concentration	12	3
ECSP 187 - Field Practicum	–	<u>12</u>
Total	15	15

* The number of electives depends on the degree of course overlap in the general education, major, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

Teacher Education / Elementary Education (Grades K-6)

Bachelor of Science

The Elementary Education program prepares teachers for an endorsement in grades kindergarten through six. The Bachelor of Science in Education is awarded upon satisfactory completion of the approved program which includes a planned sequence of professional courses, field experiences, and a full-semester internship experience.

The Elementary Education program is a designed sequence of professional course work that achieves coherence from its theme “Teaching All Children Strategically in Diverse Communities”. Embedded in a state known for its progressive schooling traditions, Elementary Education students have ample opportunity to learn about and practice the art and science of teaching. Through a web of unique interactions with area schools, Elementary Education majors build relationships with a diverse variety of children beginning in the second year of their professional program.

Several features distinguish the program:

Blocked Professional Course Work Grounded in a theoretical orientation that seeks to integrate constructs with authentic experience, the faculty of the program have designed pedagogy classes in the content areas of the curriculum and combined them with a clinical experience. These courses consist of reading/writing, mathematics, inquiry based science, social education and literacy instruction. The final capstone professional internship (student teaching) is accompanied by a seminar emphasizing behavior management, reflective teaching and portfolio development.

Integrated Fieldwork Professed theory about teaching is constantly exposed to the reality of public school practice. Each semester a student will have a pedagogy course and clinical field experience. Students are thus placed in situations where theory and practice reside in reciprocal tension.

Authentic Assessment The State of Vermont requires a results-oriented demonstration of teaching competence to qualify for the teaching license. The Elementary Education faculty have built in portfolio driven authentic assessments at every step of the professional program. Interns thus learn the portfolio process from the inside out and are able to apply it to themselves while learning to apply it within their public school classes.

Full Inclusion The State of Vermont has the highest rate of inclusion of learners with special challenges in the regular classroom setting. Being educated at UVM means elementary education students learn about and practice the application of instructional adaptations for learners of exceptional need.

Elementary Education Curriculum The elementary education curriculum includes a general education component of sixty credits from the academic areas outlined earlier. Students are required to complete an approved major concentration, consisting of at least 30 hours of study in a liberal arts and sciences discipline. Specific information may be obtained from advisors or from the CESS Student Services office, 528 Waterman or the website:
<http://www.uvm.edu/~cess/stservices>.

In addition to the major concentration and professional education requirements, certain courses are recommended to meet specific state and national requirements in elementary education.

Full-time students enroll in twelve to eighteen credits. Elementary education students enroll in the required education courses each semester, along with several additional general requirements.

A possible curriculum in Elementary Education:

FIRST YEAR	Fall	Spr
Diversity Category One:		
EDFS 001 - Race and Racism in the U.S.	3	–
EDTE 001 - Making a Difference:		
Exploring Education	3	–
EDML 055 - Brain Research & Lrng Theory	3	–
General Education Courses	6	9
EDFS 002 - School and Society	–	3
Major Concentration	–	<u>3</u>
Total	15	15

SOPHOMORE YEAR	Fall	Spr
EDEL 056 - Teachers & the Teaching Process	3	–
EDEL 178 - Meeting Indiv Needs:		
Assessment & Instruction	3	–
Diversity Category Two:		
EDSP 005 - Iss Affecting Persons w/Dis	3	–
Major Concentration	3	9
Elective*	3	–
General Education Courses	–	6
EDEL 177 - Children's Lit & Literacy	–	<u>3</u>
Total	15	18

During the sophomore year, students must complete an Application to Teacher Education form which is available in 533 Waterman Building. Students will follow the requirements specified in this application. Students will not be permitted to enroll in advanced education courses until they have been accepted to Teacher Education. The advanced courses include:

JUNIOR YEAR	Fall	Spr
EDEL 155 - Lab Experience in Inquiry	3	–
EDEL 157 - Social Ed & Social Studies	3	–
EDEL 158 - Teaching Science for Meaning	3	–
¹ EDEL 187 - Planning, Adapting and		
Delivering Reading Instruction	3	–
Major Concentration	3	3
General Education Course	–	3
EDEL 156 - Teaching Math for Meaning	–	3
EDEL 175 - Lab Experience in Literacy	–	3
EDEL 176 - Lang Arts & Literacy Skills	–	<u>3</u>
Total	15	15

¹EDEL 187 must be taken after completion of the Literacy Block and prior to student teaching.

Students are required to complete an Application to Student Teaching in their junior year before being assigned a placement as seniors. Students will be notified by the Elementary Education program (656-3356) of a general meeting and are expected to attend to initiate this process. Students will follow the requirements specified in the Application to Student Teaching. The course work for this stage of the program follows.

SENIOR YEAR	Fall	Spr
Major Concentration	9	–
Elective*	3	–
² EDEL 185 - Student Teaching Internship	–	12
² EDEL 188 - Principles of Classroom Mgmt	–	<u>3</u>
Total	12	15

²Courses taken concurrently.

* The number of electives depends on the degree of course overlap in the general education, major concentration, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

A minimum of 120 approved credits is required for the degree.

Teacher Education / Middle Level Education (Grades 5-9)

Bachelor of Science

The organizing theme of the program is "Education for High Achievement and Personal Efficacy". The program provides a minimum of four supervised internships whereby university students participate in the most highly successful middle level school programs that are within reasonable commuting distance.

Students who satisfactorily complete the program earn a minimum of 124 credits of study across three areas: General Education, Professional Studies, and Fieldwork. This design ensures that each student achieves a balance of academic and professional preparation to meet the expectations and challenges associated with teaching at any level. During the students' first year, they enroll in a required advising course where faculty guide them in devising an eight-semester plan that is balanced across three areas of study. Those three areas are briefly described below.

General Education Students earn credits in liberal arts and sciences from an array of disciplines such as: English, mathematics, social science, history, political science, humanities, diversity, and art. Most of these courses are generally completed during the first three

to four semesters and, since students sometimes transfer from one program to another, these credits easily transfer to other degree programs in the College of Education and Social Services as well as other colleges within the university.

Professional Studies Courses that concentrate on the professional work of teaching span all four years. These studies are grounded in theory, research and policies associated with the very best practices in middle level education. Studies of young adolescent learning and development, teachers and teaching, literature for young adult readers and special education are taken in the first two years as pre-professional requirements. These courses include a minimum of one field placement with a middle level team of teachers. More heavily field-linked courses in curriculum, pedagogy, assessment, team organization, literacy, mathematics, and evaluation and assessment are taken the last two years.

Fieldwork The faculty is committed to providing students as much field experience as possible and practical. Four courses (EDML 055, 261, 171, 285) are primarily field-based, and while taking these courses students will enjoy working with teachers on four different teaching teams. Emphasis is placed on high levels of integration between campus-based learning and field experience to ensure that students are sufficiently oriented and prepared for the real work of exemplary middle level schools.

ACADEMIC MAJORS AND MAJOR CONCENTRATIONS

Requirement for majors are listed at <http://www.uvm.edu/~cess/stservices>.

Majors: Early Childhood, Early Childhood Special Education, Elementary, and Physical Education		Major: Secondary Education	
..... Concentrations	 Concentrations Suggested Minors
Animal Sciences* Anthropology Biological Science Chemistry Classical Civilization Communication Sciences Earth Science English Environmental Studies Exercise and Sport Science French Geography German Greek History Human Development and Family Studies	Individually Designed Interdisciplinary (IDIMC)** Latin Mathematics Music Nutrition and Food Sciences Physics Psychology Psychology and Comm. Sciences Religion Sociology Spanish Theatre	Animal Sciences* Biological Science Chemistry Earth Science Economics English French Geography German History Latin Mathematics Physics Political Science Spanish	Economics English Environmental Studies*** French Geography German History Latin Mathematics Political Science Psychology Russian Spanish Special Education**** A Lab Fee will be charged for the 60-hour practicum above and beyond the minor
*Animal Sciences is an alternate route for Biology endorsement. **All students enrolled in the Middle Level Program must complete the IDIMC. ***Students who are completing a minor in Environmental Studies will not be eligible for a second endorsement in this area. ****Does not lead to 2nd endorsement without internship.			

The Middle Level Education program promotes collaboration through the use of a cohort model. Cooperation and collaboration among teachers is a hallmark of middle level teaching teams. That same spirit is given emphasis through building a cohort of middle level teacher education students who take courses together, and who participate in professional activities such as school events and professional conferences. Additionally, the Middle Level Education program includes a Teacher Advisory committee composed of exemplary middle level teachers from area schools who consult with students and faculty about the program, field placements, job searches and other issues related to advancing one's professional development and beginning career.

Finally, like all teacher education students at UVM, participants in this program use authentic assessment to demonstrate their growth over time. In their first year, students are introduced to the process of documenting and preserving samples of their professional work and development. These samples are maintained in individual portfolios that grow cumulatively semester by semester. A final Professional Portfolio is assembled during the student teaching semester to more fully define the professional background and aspirations of the novice teacher. This final portfolio constitutes completion of the program, and it is valuable to seniors reflecting on their preparation and accomplishments as well as beginning a job search. This full portfolio is drawn upon to create a more succinct "presentation portfolio" for use in interviews. Seniors also receive faculty guidance in creating resumes and applying and interviewing for teaching positions. The demand for teachers well prepared for teaching middle level schools is such that the portfolio is an excellent and comprehensive way to present one's candidacy.

A possible curriculum in Middle Level Education:

FIRST YEAR	Fall	Spr
Diversity Category One:		
EDFS 001 - Race and Racism in the U.S.	3	-
EDML 055 - Brain Research & Learning Theory	3	-
General Education Courses	9	9
EDFS 002 - School and Society	-	3
EDML 024 - Learners, Development & Learning	-	3
Total	15	15
SOPHOMORE YEAR	Fall	Spr
Diversity Category Two:		
EDSP 005 - Iss Affecting Persons w/Dis	3	-
EDML 177 - Children's Lit. & Literacy	3	-
IDIMC	6	6
Elective Credits*	3	6
General Education Courses	-	6
Total	15	18
JUNIOR YEAR	Fall	Spr
EDML 260 - Teaching Young Adolescents	6	-
EDML 261 - Teaching Practicum I	3	-
Elective Credit*	1	-
IDIMC	6	6
EDML 270 - Middle School Organiz & Pedagogy	-	6
EDML 171 - Teaching Practicum II	-	3
Total	16	15
SENIOR YEAR	Fall	Spr
IDIMC	12	-
EDML 285 - Student Teaching Internship	-	12
EDML 286 - Internship Support Seminar	-	3
EDML 287 - Literacy & Mathematics	-	3
Total	12	18

* The number of electives depends on the degree of course overlap in the general education, IDIMC, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

Teacher Education / Music Education (Grades PreK-12)

Bachelor of Science

The college works cooperatively with the Music and Dance department in the College of Arts and Sciences to offer a program in Music Education which leads to both degree and licensure for grades PreK-12.

The curriculum in music education, leading to the degree of Bachelor of Science in Music Education, is recommended to students who have sufficient training and musical ability to justify a career in music. Prospective students must audition before entering the program. Those admitted as first-year students or sophomores to the Music Education program are considered candidates in the program. Admission as a major is made at the beginning of the junior year following formal review procedures during the second semester of the sophomore year. Graduates are qualified for positions as instructors of music in public schools.

A minimum of 128 approved semester credits is required for the degree. Students must pass the piano proficiency and PRAXIS I examinations prior to student teaching. Students are responsible for obtaining information regarding teaching licensure and degree requirements from the College of Education and Social Services Student Services office, 528 Waterman, or the website: <http://www.uvm.edu/~cess/stservices>.

Techniques courses are offered on a rotating schedule. Consult your advisor for available courses per semester.

A possible curriculum in Music Education:

FIRST YEAR	Fall	Spr
HDFS 005 - Human Dev	3	-
MU 109 - Harmony and Form I	3	-
MU 054 - Harmony and Form Lab I	1	-
MU 085 - Introduction to Music Education	3	-
Elective*	1	-
Techniques	2	4
MU 134 - Applied Lessons	2	2
Ensemble	1	1
MU 042 - Piano Proficiency I	-	1
MU 110 - Harmony and Form II	-	3
MU 056 - Harmony and Form Lab II	-	1
General Education Course	-	3
Diversity Course	-	3
Total	16	18
SOPHOMORE YEAR ¹	Fall	Spr
MU 043 - Piano Proficiency II	1	-
MU 060 - Introduction to Music Technology	3	-
MU 111 - Music History & Literature I	3	-
MU 209 - Harmony and Form III	3	-
MU 154 - Harmony and Form Lab III	1	-
Elective*	1	-
MU 134 - Applied Lessons	2	2
Ensemble	1	1
Techniques	2	2
MU 112 - Music History & Literature II	-	3
MU 210 - Harmony and Form IV	-	3
MU 156 - Harmony and Form Lab IV	-	1
MU 181 - Conducting	-	3
General Education Course	-	3
Total	17	18

¹ Students apply to the Music Education major during the second semester of their sophomore year.

JUNIOR YEAR	Fall	Spr
MU 281 - Advanced Conducting or (MU 272 - Choral Music Meth (2 cr) and MU 273 - Choral Music Pract (1 cr))	3	-
Diversity Category Two: EDSP 005 - Iss Affecting Persons w/ Dis	3	-
General Education Courses	6	-
MU 234 - Applied Lessons	2	2
Ensemble	1	1
MU 034 - Applied Lessons	2	2
MU 270 - General Music Methods	-	3
MU 271 - General Music Practicum	-	1
MU 159 - Theory & Prac Jazz Improv	-	3
Literacy Course**	-	3
Total	17	15

SENIOR YEAR ¹	Fall	Spr
MU 234 - Applied Lessons	1	-
MU 250 - Senior Recital	1	-
MU 274 - Instrumental Music Methods	2	-
MU 275 - Instrumental Music Practicum	1	-
MU 281 - Advanced Conducting or (MU 272 - Choral Music Meth (2 cr) and MU 273 - Choral Music Pract (1 cr))	3	-
EDFS 203 - Soc, Hist, & Phil Found of Ed	3	-
Ensemble	1	-
Elective*	3	-
MU 290 - Teaching Internship	-	12
Total	15	12

* The number of electives depends on the degree of course overlap in the general education, major, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

** EDSC 215, EDML 177, EDLT 236.

Teacher Education / Physical Education (Grades PreK-12)

Bachelor of Science

The Physical Education program qualifies candidates for licensure to teach in grades PreK-12. Course work around the program theme "Moving and Learning" includes a series of courses designed to provide a background to the field of physical education. Specialty courses assist the student in the development of Physical Education program content and teaching skills important in providing developmentally appropriate programs of physical education to children and youth in today's schools. Laboratory experiences in schools throughout the program aid students in recognizing the relationship between theory and practice. Students also receive a solid foundation in exercise science allowing a broader depth of knowledge in physical activity. The opportunity to pursue a concentration in exercise science is available. Additional opportunities for students to enhance their education experiences are available. Contact the program coordinator for more information.

Courses in general education and professional education as well as a liberal arts and sciences major concentration are required. A major concentration in Exercise and Sport Science is available to students in the Physical Education program. It is possible to have one course fulfill two requirements but the credits only count once.

A minimum of 130 approved semester credits is required for the degree.

A possible curriculum in Physical Education:

FIRST YEAR	Fall	Spr
EDTE 001 - Making a Difference	3	-
HDFS 005 - Human Development	3	-
General Education Courses	3	6
Elective*	3	-
Diversity Category One: EDFS 001 - Race & Racism in the U.S.	3	-
EDHE 046 - Personal Health	-	3
AT 157 - Care & Prevent Athletic Injury	-	3
EDPE 055 - Games Education	-	3
Total	15	15

SOPHOMORE YEAR	Fall	Spr
EDPE 023 - ARC Emergency Response*	3	-
ANPS 019 - Human Anat & Physiology	4	-
EDPE 055 - Fitness Education	2	-
Major Concentration	6	6
EDPE 166 - Kinesiology	-	3
ANPS 020 - Human Anat & Physiology	-	4
EDPE 104 - Phys Ed Teaching Experience	-	5
Total	15	18

JUNIOR YEAR	Fall	Spr
EDPE 105 - Phys Ed Teaching Exper	5	-
EDPE 167 - Exercise Physiology	4	-
EDPE 220 - Sport in Society	3	-
EDPE 260 - Adapted Physical Activity	3	-
General Education Courses	3	3
EDPE 155 - Phys Ed in Secondary Schools	-	3
EDPE 240 - Motor Skill Learning & Control	-	3
Diversity Course	-	3
Major Concentration	-	3
Total	18	15

SENIOR YEAR ²	Fall	Spr
Literacy Course**	3	-
EDFS 203 - Soc, Hist, & Phil Found or EDFS Elective***	3	-
EDPE 055 - Methods of Dance & Gymnastics	3	-
Major Concentration	6	-
EDPE 181 - Student Teaching	-	12
EDPE 182 - Student Teacher Seminar	-	2
Total	15	14

*Or evidence of American Red Cross Basic Emergency Response Certification.

** EDSC 215, EDML 177, EDLT 236.

***The number of electives depends on the degree of course overlap in the general education, major concentration and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

Teacher Education / Secondary Education (Grades 7-12)

Bachelor of Science

The Secondary Education program prepares teachers to work with students with diverse needs in public school classrooms in grades 7-12. The curriculum includes general education, a major (ranging from thirty credits to fifty-one depending on the discipline) and a minor (strongly encouraged but not required), a professional education component, and electives.

A minimum of 120 approved semester credits is required for the degree. Specific requirements, including PRAXIS information, as approved by the State Department of Education, may be obtained from the CESS Student Services office, 528 Waterman. Program

¹ Students are required to complete a student teaching internship application before being assigned a placement.

² Students are required to complete a student teaching application before being assigned a placement.

information is also available from the Secondary Education program, 405A Waterman or on the web:
<http://www.uvm.edu/~cess/stservices>.

During the first two years, students concentrate on completing general education and major/minor requirements, while also taking selected course work in education. The majority of professional education course work is completed in the junior and senior years.

General Education Component The general education courses must include the following courses.

- English Composition and English Literature
- Science
- Mathematics
- U.S. History
- American Government (Political Science)
- Psychology
- Humanities

Academic Major and Minor Components Students who successfully complete their Teacher Education programs are recommended for licensure with a first endorsement in their major.

Professional Education Component Students begin the professional education component of their Secondary Education program when they enter UVM. During the first two years students work on general education and major concentration course work, as well as Phase 1 Secondary Education courses. By the third year, students will have completed most of their general education credits, between twelve and fifteen credits in the Professional Preparation sequence and be well into their major concentration (fifteen to eighteen credits completed). Students must complete the remainder of their requirements in their third and fourth years. The phases of professional course work are described below.

Phase 1: Exploring learners' needs and the school context. EDTE 001, EDFS 001, EDFS 002, EDSP 005, EDSC 011 and EDSC 207.

If a student has a minimum of a 2.75 GPA overall, minimally a 2.75 in his/her major and was successful in EDTE 001, EDFS 002, EDSP 005, EDSC 011 and EDSC 207 (B or better in each course) the student is accepted into the next phase of the Secondary Education program.

Phase 2: Exploring school context and curriculum, instruction and assessment. EDSC 209, EDSC 216.

Students must submit an application upon successful completion of EDSC 209 and EDSC 216. Successful completion requires a B or better in each course, a "continue in the program" or "conditional continuation in the program", a PADA (Professional Attributes and Dispositions Rubric) rating from faculty teaching both classes, a 2.75 GPA or better overall and a 2.75 in his or her major and passing scores on PRAXIS I. Applications are reviewed and students are officially notified of acceptance into the third phase of the program.

Phase 3: Designing and adapting curriculum. EDSC 215 (Reading), EDSC 225 (Social Studies), EDSC 227 (Science Methods), EDSC 240 (English Methods), EDSC 257 (Math Methods) or EDSC 259 (Foreign Language Methods).

During this phase of the program students must have an overall GPA of 3.00 and a 3.00 in their major. Following a successful review of a student's records, he or she is nominated for a student teaching placement at an approved school/site. Students must successfully complete the interview process with school/site-based personnel to secure an internship placement.

Phase 4: Application and documentation of the teaching process. EDSC 226 and EDSC 230.

Students must complete a full-time, semester-long internship during this final phase of the program. In addition to the student teaching experience, students must complete and submit a portfolio that documents competence with program and state licensure requirements (ROPA). Recommendation

for licensure is based on successful completion of student teaching, a minimum overall GPA of 3.00, content major and professional courses at a 3.00 or higher as well as submission of a satisfactory Licensure Portfolio that meets state accreditation standards.

Student's Responsibility Information about application procedures for the Secondary Education program may be obtained from 405A Waterman. Students are responsible for obtaining information regarding the process and requirements, and for notifying the Secondary Education office as to changes in their status, address, or intentions for completion of the program.

Language Proficiency A Language Proficiency Test is required for the Secondary Education Foreign Language majors.

Speech Competence All students must demonstrate competence in communication by either taking a speech or theatre course or by submitting evidence of competence (contact the Secondary Education office at 405A Waterman for more information).

A possible curriculum in Secondary Education:

FIRST YEAR	Fall	Spr
Diversity Category One:		
EDFS 001 - Race & Racism in the U.S.	3	-
EDTE 001 - Making a Difference: Exploring Education	3	-
General Education Courses	9	6
EDFS 002 - School and Society	-	3
Major		6
Total	15	15

SOPHOMORE YEAR	Fall	Spr
Diversity Category Two:		
EDSP 005 - Iss Affecting Persons w/Dis	3	-
General Education Courses	6	3
Major	3	3
Major or Minor	3	3
EDSC 011 - Ed Tech in Sec Ed Classroom	-	3
EDSC 207 - Adolescent Development: Educational & Psych Perspectives	-	4
Total	15	16

JUNIOR YEAR	Fall	Spr
EDSC 209 - Practicum in Teaching	4	-
EDSC 216 - Curriculum, Instruction & Assessment for Sec Schl Teachers	3	-
Major	6	6
Major or Minor	3	3
EDSC 215 - Rdg in Secondary Schls	-	4
Special Methods	-	3
Total	16	16

SENIOR YEAR	Fall	Spr
EDSC 226 - Teaching Internship	12	-
EDSC 230 - Teaching for Results	3	-
Major	-	6
Major or Minor	-	6
Total	15	12

POST BACCALAUREATE TEACHER PREPARATION PROGRAM

The Post Baccalaureate 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:

- Birth-Grade 3: Early Childhood Education
- Grades PreK-12: Art, Music, Physical Education
- Grades K-6: Elementary
- Grades 5-9: Middle Level - English, Math, Science, Social Studies
- Grades 7-12: Secondary - English, Foreign Language (French, German, Latin, Spanish), Mathematics, Science (Animal Sciences*, Biological Science, Chemistry, Earth Science, and Physics), Social Studies (Economics, Geography, History, and Political Science)

**Animal Sciences is an alternate route for the Biology Endorsement.*

Applicants to the Post Baccalaureate (Postbac) Teacher Preparation program must meet the following entrance criteria:

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. Meet minimum GPA as specified on program specific applications (i.e., 3.00) in undergraduate course work.
5. For Art candidates: Previous course work must include thirty-six credits of appropriate studio art and twelve credits of art history.
6. For Elementary candidates: Previous course work must include thirty semester credits in a single liberal arts discipline.
7. For Middle Level candidates: Previous course work must include two approved areas of concentration, with eighteen credits in each.
8. For Secondary candidates: Previous course work must include a minimum of thirty semester credits with a minimum GPA of 3.00 in one of the academic areas listed above to meet Vermont state licensure requirements for the major academic concentration.

Middle Level and Secondary Education also have a Master of Arts in Teaching degree option offered jointly by the College of Education and Social Services and the Graduate College.

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.

Request 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 Post Baccalaureate 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.

Requests for further information about the Art PBTP program and application forms may be obtained by contacting the Art and Art History Department, 304 Williams Hall, (802) 656-2014.

MASTER OF ARTS IN TEACHING (M.A.T.)

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, or mathematics, among other areas. 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 credits of graduate level course work, six of which may be counted toward both the minimum requirements for the Master of Arts degree, as well as toward the undergraduate degree. Qualified candidates will need a major in an approved licensing area.

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.

MINORS

Refer to the "Undergraduate Minors" Topic in this Catalogue for Each Minor's Requirements.

Human Development and Family Studies The minor in Human Development and Family Studies affords students a foundation in the processes of development across the life span, focusing on individual development, family relationships, and major influences on both.

Special Education Students apply to the minor through contacting the Special Education program in the Department of Education (special.education@uvm.edu) and completing an application. Fall applications are due November 1 and spring applications are due April 1. Prerequisites include completion or enrollment in EDSP 005, and a GPA of 3.00 or higher. The number of students accepted to the minor is contingent on available space, with priority given to students in the College of Education and Social Services. Accepted students are assigned a minor advisor who, with the student, designs an individual program plan. A total of eighteen credits (6 courses) of course work is required, at least nine credits of which must be at the 100-level or above. Course offerings cover the areas of foundations of special education, assessment practices, and methods for supporting students with disabilities in general education classrooms.

The College of Engineering and Mathematical Sciences

The college offers stimulating, professionally-oriented programs for students interested in careers in engineering, computer science, mathematics and statistics. An engineering education combines the study of mathematics and the physical, life, and engineering sciences with application to the analysis and design of devices, equipment, processes, and complete systems to serve the needs of humanity. The breadth and flexibility of the engineering programs at UVM provide a sound background for engineering practice in public or private domains, for graduate study in engineering and science, and for further professional study in such fields as business, law, or medicine. Engineering Management, offered in cooperation with the School of Business Administration, combines a basic education in an engineering discipline with the study of management concepts and techniques. Computer science develops creative problem-solving ability, along with essential skills in current programming and computing environments. It offers the flexibility to gear studies toward business, science, engineering, mathematics, and the arts. The study of mathematics and statistics is designed to train students in critical thinking, problem solving, and sound reasoning, while developing a strong level of technical competence and a substantial breadth of exposure to other fields. Degrees in each of these disciplines provide distinctive recognition based on challenging course work, valuable field experience, and intensive student-faculty interaction.

DEGREE PROGRAMS

The following degrees are offered by the college. Various options in each degree are described under the individual degree program.

- Bachelor of Science in Civil Engineering
- Bachelor of Science in Computer Science
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Engineering
- Bachelor of Science in Engineering Management
- Bachelor of Science in Environmental Engineering
- Bachelor of Science in Mathematics
- Bachelor of Science in Mechanical Engineering
- Bachelor of Arts in Engineering

The Bachelor of Science degree program may be completed with an approved major in one of the following fields:

- Computer Science and Information Systems
- Statistics

Students must comply with the degree requirements as stated in a single catalogue edition in place during the time they are enrolled. The catalogue edition to be followed is the one in effect at the time the student matriculates at UVM, unless the student requests in writing to follow an edition that is published subsequently during his/her enrollment at UVM. Students may not mix requirements from different catalogues.

HONORS THESIS PROGRAM

The undergraduate Honors Thesis program, designed for the superior student with unusual initiative and intellectual curiosity, provides an opportunity to pursue a special program without the restrictions of classroom routine. The Honors Thesis program consists of reading, research, design, or creation in a curricular area of the student's choice, leading to a written thesis. At the time of graduation, the student's transcript and the graduation program will be appropriately denoted with "Honors Thesis" and the title of the thesis, provided that Honor's level performance has been demonstrated.

The student must be matriculated in the college at the time of application for the program and have a cumulative grade-point average of at least 3.00 for sophomore and junior work. The

curriculum committee of the area offering the thesis course establishes the mechanics for thesis review and awarding of the grade. The thesis proposal must be approved by the College of Engineering and Mathematical Sciences Honors and Awards committee prior to the Add/Drop deadline of the student's first semester or summer session of matriculation into the Honor's Thesis program. This should allow two semesters or a full summer and one semester of planned effort for the thesis research.

A thesis committee consists of at least three UVM faculty members, at least two of whom are from the offering area. The chair of the committee, a permanent UVM faculty member, is also from the offering area. This committee serves to advise the student, approves of the thesis proposal before its submission to the Honors and Awards committee, and approves of the oral defense of the thesis. The course grade is assigned by the committee chair based on consultation with the thesis committee. Six credits of effort are expected for the thesis, usually apportioned evenly over two semesters. Some programs within the college require senior projects as part of their prescribed curricula. Such projects can provide alternative opportunities to students interested in a design or research challenge.

THE SCHOOL OF ENGINEERING

Academic Standards for Engineering

To continue as a major in the School of Engineering, a student must achieve a 2.30 cumulative grade-point average at the end of the semester in which thirty cumulative credits have been attempted. Note that this academic standard is more stringent than that of the rest of the college or university as a whole. No more than three repeated course enrollments are allowed during this thirty-credit period. In the case of transfer students, applicable transfer credits will be included in determining the thirty credits, but grades in these courses will not be included in the grade-point average.

Students who receive a cumulative or semester grade-point average of less than 2.30 will be placed on trial. Students who have failed half their course credits for any semester, or who have had two successive semester grade-point averages below 2.30, or three successive semesters in which their cumulative grade-point average falls below 2.30, are eligible for dismissal.

To receive a degree, students must have a minimum cumulative average of 2.30. Students must complete thirty of the last forty-five credits in residence at UVM as matriculated students in the College of Engineering and Mathematical Sciences. Additional degree requirements are specified for each major.

No more than one grade of D, D+, or D- will be acceptable in any engineering courses. Requirements in each program are specified by the respective program curriculum committees.

A course may not be taken for credit if it is a prerequisite to one for which credit has already been granted, except by permission of the student's advisor.

Pre-Engineering Technical (PET) Requirement

The Pre-Engineering Technical (PET) requirement consists of nineteen credits to be completed nominally by the end of the student's first year with no grade lower than C-.

MATH 021, 022	(8 credits)
CHEM 031	(4 credits)
CS 020	(3 credits)
PHYS 031	(4 credits)

Successful completion of the PET requirement is prerequisite to taking any of the following engineering courses. Students will be

disenrolled from these courses if the PET requirement has not been successfully completed.

EE 003, 004, 081, 082, 100

CE 001, 010, 132

ME 012, 014, 040, 042, 082

Transfer Students: Transfer students entering the sophomore year engineering curriculum must complete the PET requirement during their first semester at UVM. Transfer students are encouraged to make up missing courses during the summer preceding their arrival at UVM.

Accelerated Master's Programs in Engineering

Qualified undergraduate students who plan to earn a master's degree in Civil and Environmental, Electrical, or Mechanical Engineering may enroll in the Accelerated Master's Program, which enables students to begin working on a master's degree while still an undergraduate. Students apply for the Accelerated Master's Program in the second semester of their junior year. Upon entering the Accelerated Master's Program, students may take up to nine credits of courses for graduate credit while still an undergraduate. Of these, up to six credits 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 Master's Program typically begin work toward their master's thesis starting in the summer following their junior year. To apply for the Accelerated Master's Program, students must have a cumulative grade-point average of at least 3.20 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, and they must complete the Graduate College application.

The Accelerated Master's Program is only available for Electrical Engineering and Mechanical Engineering students who are planning a thesis-based degree. Those pursuing a M.S. degree in Civil and Environmental Engineering may choose either a thesis-based or non-thesis based program.

Engineering Curricula

The College of Engineering and Mathematical Sciences offers B.S. degrees in Civil, Electrical, Environmental, and Mechanical Engineering. In addition, there are two interdisciplinary B.S. degrees: the B.S. in Engineering, and the B.S. in Engineering Management, which is offered in conjunction with the School of Business Administration. The Bachelor of Science degrees in Civil, Electrical, Environmental, and Mechanical Engineering are ABET (Accreditation Board for Engineering and Technology) accredited.

In addition to the Bachelor of Science degrees, the College of Engineering and Mathematical Sciences also offers a Bachelor of Arts degree in Engineering in collaboration with the College of Arts and Sciences.

Laptop Requirements: Engineering is a professional field that leverages mathematics and the sciences to design and implement solutions to problems faced by society. The practicing Engineer utilizes not only the fundamentals related to mathematics and the sciences but also computational tools to accomplish his or her tasks. With this latter reality in mind, the School of Engineering (SoE) requires all incoming engineering students to have a laptop computer. The laptop requirement enables instructors to incorporate computational analysis and numerical examples in the classroom for an immediate and powerful praxis of engineering theory. The laptop requirement is platform agnostic (Windows, Mac or Linux) and is satisfied with current mid-range offerings (i.e., 2.0 GHz, 2 GB RAM, 160 GB Hard Drive, 802.11 a/g/n). Note that current netbooks will not have sufficient computational resources to meet the requirements. As part of the laptop requirement, students must also purchase a student version of MATLAB® (a high-level programming language and interactive computational environment). MATLAB® is available through the MathWorks™ website:

http://www.mathworks.com/academia/student_version. The school also recommends that students have word processing, presentation and spreadsheet software on their laptop.

HSS Requirements: To complement the technical content of the Engineering curriculum, all B.S. programs require a Humanities and Social Science (HSS) component that encourages the exploration of a Humanities and Social Science field and the appreciation of diversity in society. HSS electives may not be taken on a pass/no pass basis. A minimum of fifteen credits are required and at least six credits must be from the same department. All School of Engineering students are required to complete one of the first year design courses (CE 003, EE 001 or ME 001).

**Special topics, seminars, Honors, reading and research, or internships are not normally considered appropriate HSS electives.*

Students must include two three-credit University Approved Diversity courses as two of their required Humanities and Social Sciences courses. One three-credit course must be from Category One (Race and Racism in the U.S.) and the second three-credit course can be from either Category One or Category Two (Human and Societal Diversity). See the Diversity course listing in this catalogue. Diversity courses have a D1 or D2 prefix.

Student Organizations

Engineering students can become affiliated with their respective national professional engineering societies: the American Society of Civil Engineers, the Institute of Electrical and Electronics Engineers, the American Society for Engineering Management, and the American Society of Mechanical Engineers. Each of these organizations has an authorized student chapter at UVM. Engineering students demonstrating high scholarship attainment, combined with exemplary character, are recognized by membership in the Vermont Alpha Chapter of Tau Beta Pi, the national engineering honor society. In addition, all engineering students may become affiliated with the student chapter of the Society of Women Engineers. These student organizations provide extracurricular opportunities for students to learn more about their chosen discipline and to apply their knowledge.

ACCREDITED ENGINEERING PROGRAMS

B.S. Civil Engineering

The curriculum in civil engineering provides a strong foundation in mathematics, and physical, natural and engineering sciences. Instruction in civil engineering disciplines includes structural engineering, soil mechanics, hydraulics, environmental engineering, and transportation engineering.

The B.S. in Civil Engineering requires a minimum of 121 credits.

A civil engineering degree from the University of Vermont is excellent preparation for immediate employment in engineering. Additionally, many of our graduates continue their education in graduate engineering programs, or graduate programs in business, law, and medicine.

A systems approach to engineering problem solving is central to our curriculum and involves integrating the short and long-term social, environmental and economic aspects and impacts into engineering solutions. As part of this approach, service-learning projects with local communities and nonprofit groups are incorporated into various courses. Real-world engineering design culminates in a required major design experience in the senior year, which draws upon prior course work and focuses on technical and non-technical issues and expectations of professional practice. Other activities that enhance the undergraduate education of students include opportunities for laboratory and research experience, an increased Information Technology (IT) content in the courses offered, and a sense of community between students and the faculty.

Civil Engineering Program Educational Objectives

Graduates of the program are expected to:

1. Practice civil engineering, use their program knowledge in other avenues, or enter graduate school;
2. Apply engineering principles to analysis, design, construction, management, and preservation of engineered and natural systems;
3. Participate in comprehensive design activities carried out in interdisciplinary settings that involve applying current and emerging practices in civil engineering;
4. Actively participate in professional and/or community-based service (local, national or global) that benefits the profession and the public;
5. Be capable of effective leadership and communication;
6. Be capable of professional licensure, and eager and able to engage in further study and professional development;
7. Consider the social, economic, and environmental aspects as part of the engineering solution and problem definition.

The curriculum for the B.S. in Civil Engineering:

FIRST YEAR	Fall	Spr
CE 003 - Intro to Civil & Env Engr	2	–
CHEM 031 - Introductory Chemistry	4	–
ENGS 001 - Written Expression	3	–
MATH 021 - Calculus I	4	–
HSS Elective ¹	3	3
CS 020 - Programming for Engineers	–	3
ENGR 002 - Graphical Communication	–	2
MATH 022 - Calculus II	–	4
PHYS 031 - Physics for Engineers I	–	4
PHYS 030 - Problem Solving Session I (opt)	–	(1)
Total	16	16/17
SOPHOMORE YEAR	Fall	Spr
CE 001 - Statics ²	3	–
CE 010 - Geomatics ²	4	–
MATH 121 - Calculus III	4	–
PHYS 125 - Physics for Engineers II	3	–
PHYS 123 - Problem Solving Session II (opt)	(1)	–
STAT 143 - Statistics for Engineering	3	–
MATH 271 - Adv Engineering Mathematics	–	3
ME 012 - Dynamics	–	3
CE 132 - Env/Trans Systems ²	–	3
Science Elective ³ (Geol/Biol)	–	4
HSS Elective ¹	–	3
Total	17/18	16
JUNIOR YEAR	Fall	Spr
CE 100 - Mechanics of Materials	3	–
CE 101 - Materials Testing	1	–
CE 133 - Dec Analysis in Env/Trans	3	–
CE 160 - Hydraulics	4	–
CE 134 - Modeling Env/Trans Systems	3	–
EE 100 - Electrical Engr Concepts	–	4
CE 151 - Water/Wastewater	–	3
CE 170 - Structural Analysis I	–	4
CE 180 - Geotechnical Principles	–	4
ME 040 - Thermodynamics	–	3
Total	14	18

SENIOR YEAR	Fall	Spr
Design Elective ⁴	3	–
CE 172 - Steel Design ⁴ or CE 173 - Reinforced Concrete Science/Tech Elective ⁵	3	–
HSS Elective ¹	3	3
CE 175 - Senior Design Project ⁶	–	3
Design/Professional Elective ⁷	–	3
Professional Elective ⁷	–	3
Total	12	12

¹Required Social Science and Humanities: Students must select five (15 credits) from the approved Humanities courses listed in the catalogue, two (6 credits) of which must also be from the approved Cultural Diversity courses (Category One and Two) listed in this catalogue, and two (6 credits) must be from the same department.

²Pre-Engineering Technical (PET) requirements: MATH 021 and 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

³Science Elective (sophomore year) must be a 4-credit course with lab, excluding Physics and Chemistry, i.e., GEOL 001, BIOL (001 or 002), PSS 161.

⁴Design Electives are CE 142, 161, 241, 251, 253, 255, 256, 261, 265, 280, 281, 283. CE 173 is a design elective if CE 172 has also been taken.

⁵Science or Tech elective (senior year): ME 042, any 100-level or above course in Science (BIOL, CHEM, GEOL, PSS, PHYS) or Engineering.

⁶CE 175, Senior Design Project, is required of all seniors (no substitutions).

⁷Professional Electives are all Design Electives plus CE 191, 192, any 200-level CE course.

B.S. Electrical Engineering

The curriculum in electrical engineering leading to the degree of Bachelor of Science in Electrical Engineering offers instruction in electrical and electronic circuits, electromagnetics, semiconductor devices, signal and system analysis, communications, digital systems, as well as in physical and life sciences, humanities, and social sciences.

The degree requires a minimum of 126 credits which includes 24 credits (8 courses) of technical electives. All students must select two courses from the list of University Approved Diversity courses as two of their required humanities and social sciences courses.

Students may pursue a minor provided that they fulfill all electrical engineering degree requirements.

Engineering design is developed and integrated into each student's program and culminates in a required major design experience which draws upon prior course work and which focuses on the issues and expectations of professional practice.

Electrical Engineering Program Educational Objectives

The Electrical Engineering program is based on a solid foundation of the mathematical and physical sciences, engineering science and design, principles of professional engineering practice, and liberal education which together prepare graduates to:

1. Succeed in careers as practicing electrical and/or computer engineers in a wide range of industrial, governmental, and educational work environments;
2. Participate as active and effective members of engineering teams (possibly multi-disciplinary), which may be composed of people of diverse educational and cultural backgrounds;
3. Lead engineering teams in an effective, fair, and responsible manner;
4. Communicate effectively, in both written and oral forms, about their engineering activities and the results of those activities;
5. Educate themselves throughout their careers about advancements within their discipline and the role of their discipline in society in general;
6. Practice their profession in an ethically, socially, and environmentally responsible manner.

The curriculum for the B.S. in Electrical Engineering:

FIRST YEAR	Fall	Spr
CHEM 031 - Introductory Chemistry	4	-
HSS Elective ¹	3	-
ENGS 001 - Written Expression	3	-
ENGR 002 - Graphical Communication	2	-
MATH 021 - Calculus I ²	4	-
HSS Elective ¹	-	3
CS 020 - Programming for Engineers ²	-	3
EE 001 - First-Year Design Experience	-	2
MATH 022 - Calculus II ²	-	4
PHYS 031 - Physics for Engineers I ²	-	4
PHYS 030 - Problem Solving Session I (opt)	-	(1)
Total	16	16/17

SOPHOMORE YEAR	Fall	Spr
EE 003 - Linear Circuit Analysis I	3	-
EE 081 - Linear Circuits Lab I	2	-
EE 131 - Fund of Digital Design	3	-
MATH 121 - Calculus III	4	-
PHYS 125 - Physics for Engineers II	3	-
PHYS 123 - Problem Solving Session II (opt)	(1)	-
CS 031 - C Programming	1	-
EE 004 - Linear Circuit Analysis II	-	3
EE 082 - Linear Circuits Lab II	-	2
MATH 271 - Adv Engineering Mathematics	-	3
EE 134 - Fund of Microcomp Based Sys	-	4
STAT 151 - Applied Probability	-	3
Total	16/17	15

JUNIOR YEAR	Fall	Spr
EE 120 - Electronics I	3	-
EE 163 - Solid State Physical Electronics I	4	-
EE 171 - Signals and Systems	4	-
EE 183 - Electronics Laboratory I	2	-
EE 141 - Electromagnetic Field Theory	4	-
EE 121 - Electronics II	-	3
Technical Elective ⁴	-	3
EE 174 - Intro to Communication Systems	-	4
EE 184 - Electronics Laboratory II	-	2
Technical Elective ⁴	-	3
Total	17	15

SENIOR YEAR	Fall	Spr
Tech Elective ⁴	3	-
EE Technical Elective ³	3	-
EE Technical Elective ³	3	-
EE 187 - Professional Design Issues	2	-
HSS Elective ¹	3	-
HSS Elective ¹	3	-
Tech Elective ⁴	-	3
EE Technical Elective ³	-	3
EE Technical Elective ³	-	3
HSS Elective ¹	-	3
EE 188 - Major Design Experience	-	2
Total	17	14

¹Required Social Science and Humanities: Students must select five (15 credits) from the approved Humanities courses listed in the catalogue, two (6 credits) of which must also be from the approved Cultural Diversity courses (Category One and Two) listed in this catalogue, and two (6 credits) must be from the same department.

²Pre-Engineering Technical (PET) requirements: MATH 021 and 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

³EE Technical Elective: EE 113, 164, 195, and all 200-level, 3-4 credit EE courses. At least 9 credits must be at the 200-level or above.

⁴Technical Elective: Includes all EE Technical Electives³ and CS 064, 100, 110, 121, 123, 124; PHYS 128; ME 014, 040, 114, 150; MATH 124; ANPS 019 and 020; BSAD 180; CHEM 032, 042, 141, 142; all 200-level Engineering, CS, MATH, STAT, CHEM, and PHYS courses except for practicum, seminar and special topics.

B.S. Environmental Engineering

The curriculum leading to a B.S. degree in Environmental Engineering provides a strong foundation in mathematics, physical, natural and engineering sciences. Instruction in environmental engineering includes air pollution, surface and groundwater hydrology, water and wastewater engineering and waste management.

An Environmental Engineering degree is excellent preparation for immediate employment in all environmental arenas including consulting firms, governmental agencies, businesses including non-profits, and industry. Additionally, many of our graduates continue their education in graduate environmental engineering programs or other graduate programs.

A systems approach to engineering problem solving is central to our curriculum and involves integrating the social, economic, environmental, regulatory and other aspects into engineering problem solving. As part of this approach, community-based service-learning projects are incorporated into various courses. This provides a service to the community partner as well as real-world learning for our students. It also enhances students' teamwork and communication skills. In addition, the Environmental Engineering program provides multiple laboratory and field experiences, undergraduate research opportunities, and interdisciplinary design course work.

The B.S. in Environmental Engineering requires a minimum of 122 credits. Students are encouraged to pursue minors or focus areas in other disciplines that complement their engineering experience. International education and work experiences are also encouraged. Students should consult their advisors early in their program in order to plan accordingly.

Environmental Engineering Program Educational Objectives

Graduates of the program are expected to:

1. Practice environmental engineering, use their program knowledge in other areas, or enter graduate school;
2. Apply engineering principles and an understanding of environmental issues to analysis, design, construction, management, and preservation of engineered and natural systems;
3. Participate in comprehensive design activities carried out in interdisciplinary settings that involve applying current and emerging practices in environmental engineering;
4. Actively participate in professional and/or community-based service (local, national or global) that benefits the profession and the public;
5. Be capable of effective leadership and communication;
6. Be capable of professional licensure, and eager and able to engage in further study and professional development;
7. Consider the social, economic, and environmental aspects as part of the engineering solution and problem definition.

The curriculum for the B.S. in Environmental Engineering:

FIRST YEAR	Fall	Spr
CE 003 - Intro to Civil & Env Engr	2	-
CHEM 031 - Introductory Chemistry	4	-
MATH 021 - Calculus I	4	-
ENGS 001 - Written Expression	3	-
HSS Elective ¹	3	-
CS 020 - Programming for Engineers	-	3
CHEM 032 - Introductory Chemistry II	-	4
MATH 022 - Calculus II	-	4
PHYS 031 - Physics for Engineers I	-	4
PHYS 030 - Problem Solving Session I (opt)	-	(1)
ENGR 002 - Graphical Communication	-	2
Total	16	17/18

SOPHOMORE YEAR	Fall	Spr
CE 010 - Geomatics ²	4	–
MATH 121 - Calculus III	4	–
PHYS 125 - Physics for Engineers II	3	–
PHYS 123 - Problem Solving Session II (opt)	(1)	–
STAT 143 - Statistics for Engineering	3	–
HSS Elective ¹	3	–
CE 001 - Statics ²	–	3
CE 132 - Env/Trans Systems ²	–	3
MATH 271 - Adv Engineering Mathematics	–	3
BIOL 001 or 002 - Principles of Biology	–	4
Earth Science ³	–	4
Total	17/18	17

JUNIOR YEAR	Fall	Spr
CE 100 - Mech of Materials	3	–
CE 133 - Dec Analysis in Env/Trans	3	–
CE 160 - Hydraulics	4	–
CE 134 - Modeling Env/Trans Systems	3	–
EE 100 - Electrical Engr Concepts	–	4
ME 040 - Thermodynamics	–	3
CE 151 - Water/Wastewater	–	3
CE 180 - Geotechnical Principles	–	4
HSS Elective ¹	–	3
Total	13	17

SENIOR YEAR	Fall	Spr
CE 254 - Environmental Qual Anyl Science/Tech Elec ⁴	4	–
Env Design Elective ⁵	3	–
HSS Elective	3	3
Env Prof Elective ⁶	–	3
CE 175 - Senior Design Project ⁷	–	3
Env Design/Prof Elective	–	3
Total	13	12

¹Required Social Science and Humanities: Students must select five (15 credits) from the approved Humanities courses listed in the catalogue, two (6 credits) of which must also be from the approved Cultural Diversity courses (Category One and Two) listed in this catalogue, and two (6 credits) must be from the same department.

²Pre-Engineering Technical (PET) requirements: MATH 021 and 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

³Earth science elective must be from approved list: GEOL 001, PSS 161.

⁴Science or Tech elective (senior year): ME 042, BSAD 180, any 100-level or above course in science (BIOL, CHEM, GEOL, PSS, PHYS) or engineering.

⁵Env. Design: CE 161, 247, 251, 253, 255, 256, 262, 265, 280, 281, 283.

⁶Professional Electives are all Design Electives plus CE 191, 192, any 200-level CE course.

⁷CE 175, Senior Design Project, is required of all seniors (no substitutions).

B.S. Mechanical Engineering

The curriculum in mechanical engineering leading to a degree of Bachelor of Science in Mechanical Engineering offers instruction in design, solid and thermo-fluid mechanics, materials, manufacturing processes and systems, as well as in engineering, life and physical sciences, humanities, and social sciences.

There are two track options leading to the degree of Bachelor of Science in Mechanical Engineering: (1) General Mechanical Engineering (123 credits); and (2) Biomedical Engineering (125 credits). Engineering design is developed and integrated into each student's program and culminates in a required major design experience which draws upon prior course work and which focuses on the issues and expectations of professional practice.

In the curricular listings that follow, students should make note that MATH 271 is an implicit prerequisite for all 100+ level courses in mechanical engineering.

Mechanical Engineering Program Educational Objectives

The Mechanical Engineering program provides a modern mechanical engineering education with focus in engineering decision-making; foundations of mathematics, physical science, engineering science and design; and an appreciation of societal impact of engineering practice, which prepares graduates to:

1. Excel as practicing mechanical engineers in a wide range of careers in industry, government service, and consulting;
2. Participate in continuous learning throughout their careers, both in more advanced engineering and in other areas of study;
3. Communicate and work effectively with teams of people with diverse educational and cultural backgrounds;
4. Take on leadership roles in their profession;
5. Practice their profession in an ethically, socially, economically, and environmentally responsible manner.

The curriculum for the B.S. in Mechanical Engineering / the General option:

FIRST YEAR	Fall	Spr
CHEM 031 - Introductory Chemistry	4	–
ENGS 001 - Written Expression	3	–
ENGR 002 - Graphical Communication	2	–
MATH 021 - Calculus I	4	–
HSS Electives ¹	3	3
MATH 022 - Calculus II	–	4
ME 001 - First-Year Design Experience	–	2
PHYS 031 - Physics for Engineers I	–	4
PHYS 030 - Problem Solving Session I (opt)	–	(1)
CS 020 - Programming for Engineers	–	3
Total	16	16/17

SOPHOMORE YEAR	Fall	Spr
ME 040 - Thermodynamics ²	3	–
CE 001 - Statics ²	3	–
MATH 121 - Calculus III	4	–
PHYS 125 - Physics for Engineers II	3	–
PHYS 123 - Problem Solving Session (opt)	(1)	–
ME 012 - Dynamics ²	–	3
ME 014 - Mechanics of Solids ²	–	3
ME 042 - Applied Thermodynamics ²	–	3
ME 082 - Mech Engr Lab I ²	–	2
MATH 271 - Adv Engineering Mathematics	–	3
HSS Elective ¹	–	3
Total	13/14	17

JUNIOR YEAR	Fall	Spr
ME 111 - System Dynamics	3	–
ME 143 - Fluid Mechanics	3	–
ME 171 - Design of Elements	3	–
MATH 124 - Linear Algebra	3	–
EE 100 & 101 - Concepts I & II	4	4
ME 123 & 124 - Lab II & III	2	2
ME 101 - Materials	–	3
ME 144 - Heat Transfer	–	3
STAT 143 - Statistics for Engineers	–	3
Total	18	15

SENIOR YEAR	Fall	Spr
ME 161 - Modern Manufacturing Processes	3	–
ME 185 - Capstone Design I	2	–
ME Elective ³	3	6
Technical Elective ⁴	3	3
HSS Elective ¹	3	3
ME 186 - Capstone Design II	–	2
Total	14	14

¹Required Social Science and Humanities: Students must select five (15 credits) from the approved Humanities courses listed in the catalogue, two (6 credits) of which must also be from the approved Cultural Diversity courses (Category One and Two) listed in this catalogue, and two (6 credits) must be from the same department.

²Pre-Engineering Technical (PET) requirements: MATH 021 and 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

³ME Course 200-level or higher.

⁴Any 100-level or higher courses in ME and BSAD (except STAT 111, and ME 114); or CS 014, 016, 021, or 026; or Natural Sciences with approval of advisor.

The curriculum for the B.S. in Mechanical Engineering / the Biomedical option:

FIRST YEAR	Fall	Spr
CHEM 031 - Introductory Chemistry	4	–
ENGS 001 - Written Expression	3	–
ENGR 002 - Graphical Communication	2	–
HSS Electives ¹	3	3
MATH 021 & 022 - Calculus I & II	4	4
ME 001 - First-Year Design Experience	–	2
PHYS 031 - Physics for Engineers I	–	4
PHYS 030 - Problem Solving Session I (opt)	–	(1)
CS 020 - Programming for Engineers	–	3
Total	16	16/17

SOPHOMORE YEAR	Fall	Spr
ME 040 - Thermodynamics ²	3	–
CE 001 - Statics ²	3	–
MATH 121 - Calculus III	4	–
PHYS 125 - Physics for Engineers II	3	–
PHYS 123 - Problem Solving Session II (opt)	(1)	–
HSS Elective ¹	3	–
ME 012 - Dynamics ²	–	3
ME 014 - Mechanics of Solids ²	–	3
ME 042 - Applied Thermodynamics ²	–	3
ME 082 - Mech Engr Lab I ²	–	2
MATH 124 - Linear Algebra	–	3
MATH 271 - Adv Engineering Mathematics	–	3
Total	16/17	17

JUNIOR YEAR	Fall	Spr
ME 143 - Fluid Mechanics	3	–
ME 171 - Design of Elements	3	–
ME 123 & 124 - Lab II & III	2	2
ANPS 019 & 020 - Human Anat & Physiol	4	4
EE 100 & 101 - Concepts I & II	4	4
ME 101 - Materials Engineering	–	3
ME 144 - Heat Transfer	–	3
Total	16	16

SENIOR YEAR	Fall	Spr
ME 111 - Systems Dynamics	3	–
ME 161 - Modern Manufacturing Processes	3	–
ME 185 - Capstone Design I	2	–
STAT 143 - Statistics for Engineers	3	–
ME 200-level - Biomechanics Electives ³	3	3
ME 186 - Capstone Design II	–	2
ME Elective ⁴	–	3
HSS Elective ¹	–	6
Total	14	14

¹Required Social Science and Humanities: Students must select five (15 credits) from the approved Humanities courses listed in the catalogue, two (6 credits) of which must also be from the approved Cultural Diversity courses (Category One and Two) listed in this catalogue, and two (6 credits) must be from the same department.

²Pre-Engineering Technical (PET) requirements: MATH 021 and 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

³ME 207, 208, 209 or approved ME 295 Special Topics.

⁴CEMS Course 200-level or higher.

INTERDISCIPLINARY ENGINEERING DEGREES

B.S. Engineering

The College of Engineering and Mathematical Sciences offers instruction leading to the Bachelor of Science in Engineering degree. This degree is designed for those students desiring a program with a strong engineering science base in preparation for an interdisciplinary engineering specialty. Each student will be expected to declare a concentration before completing the first four semesters of study. At that time, the student and advisor will plan an integrated series of courses directed towards the concentration. Among the possible engineering concentrations are: aeronautical engineering, bioengineering, chemical engineering, computer engineering, power engineering, traffic engineering, geological engineering, etc. Other concentrations may be approved upon application to the College of Engineering and Mathematical Sciences Studies committee.

Candidates for this degree must fulfill the following requirements, which include the core program, and present a total of at least 122 credits. Any substitutions in the engineering core program require the approval of the college's Studies committee.

The curriculum for the B.S. in Engineering:

FIRST-YEAR	Fall	Spr
CHEM 031 - Introductory Chemistry	4	–
MATH 021 - Calculus I	4	–
ENGS 001 - Written Expression	3	–
ENGR 001 - Intro to Engineering or		
ENGR 002 - Graphical Communication	2	–
HSS Electives ¹	3	3
PHYS 031 - Physics for Engineers I	–	4
PHYS 030 - Problem Solving Session I (opt)	–	(1)
MATH 022 - Calculus II	–	4
ENGR 001 - Intro to Engineering or		
ENGR 002 - Graphical Communication	–	2
CS 020 - Programming for Engineers	–	3
Total	16	16/17

SOPHOMORE YEAR	Fall	Spr
MATH 121 - Calculus III	4	–
PHYS 125 - Physics for Engineers II	3	–
PHYS 123 - Problem Solving Session II (opt)	(1)	–
HSS Elective ¹	3	–
Free Elective	3	–
EE 003/100 - Electrical Engr Concepts ²	3/4	–
MATH 271 - Adv Engineering Mathematics	–	3
CE 001 - Statics ²	–	3
ME 040 - Thermodynamics ²	–	3
STAT 143, 151 or 153	–	3
Free Elective	–	3
Total	16/18	15

JUNIOR YEAR	Fall	Spr
Engineering Science ³	3	–
Engineering Science ³	3	–
Engineering Science ³	3	–
Technical Elective ⁴	3	–
HSS Electives ¹	3	3
Engineering Science ³	–	3
Engineering Science ³	–	3
Engineering Science ³	–	3
Free Elective	–	3
Total	15	15

SENIOR YEAR	Fall	Spr
Engineering Science ³	3	–
Engineering Science ³	3	–
Technical Elective ⁴	3	–
Technical Elective ⁴	3	–
Senior Design ⁵	0/2	–
Engineering Science ³	–	3
Engineering Science ³	–	3
Technical Elective ⁴	–	3
Free Elective	–	3
Senior Design ⁵	–	2/3
Total	12/14	14/15

¹Required Social Science and Humanities: Students must select five (15 credits) from the approved Humanities courses listed in the catalogue, two (6 credits) of which must also be from the approved Cultural Diversity courses (Category One and Two) listed in this catalogue, and two (6 credits) must be from the same department.

²Pre-Engineering Technical (PET) requirements: MATH 021 and 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

³Engineering Science: All CE, EE and ME courses. Must have a minimum of 9 credits at the 200-level.

⁴Technical Electives: Any 100-level or higher course in CEMS, BSAD or Natural or Physical Sciences with approval of advisor.

⁵Senior Design credits vary depending upon program.

B.S. Engineering Management

A curriculum in Engineering Management leading to the degree of Bachelor of Science in Engineering Management is offered in cooperation with the School of Business Administration. Engineering management is a broad discipline concerned with the art and science of planning, organizing, directing, and controlling activities that have a technical component. Designing, producing, selling, and servicing products in the marketplace require managers who possess both an ability to apply engineering principles and a skill in managing technical projects and people in technical jobs. The curriculum is designed to provide a basic education in an engineering discipline with the study of management concepts and techniques. The curriculum incorporates the equivalent of one-half year of study in the area of the humanities and social sciences. Candidates for this degree must earn a minimum of 123-127 credits, depending upon the engineering option selected.

Required Social Science and Humanities: Students must select three (nine credits) from the approved Humanities courses listed in the catalogue, two (six credits) of which must also be from the University Approved Diversity courses (Category One and Two) listed in this catalogue.

The curriculum for the B.S. in Engineering Management / the Civil and Environmental Engineering option:

(125-127 credits)

FIRST-YEAR	Fall	Spr
CHEM 031 - Introductory Chemistry	4	–
ENGS 001 - Written Expression	3	–
CE 003 - Intro Civil & Env Engr	2	–
EC 011 - Macroeconomics	3	–
MATH 021 - Calculus I	4	–
MATH 022 - Calculus II	–	4
ENGR 002 - Graphical Communication	–	2
EC 012 - Microeconomics	–	3
PHYS 031 - Physics for Engineers I	–	4
PHYS 030 - Problem Solving Session I (opt)	–	(1)
CS 020 - Programming for Engineers	–	3
Total	16	16/17

SOPHOMORE YEAR	Fall	Spr
BSAD 060 - Financial Accounting	3	–
CE 001 - Statics ¹	3	–
CE 010 - Geomatics ¹	4	–
PHYS 125 - Physics for Engineers II	3	–
PHYS 123 - Problem Solving Session II (opt)	(1)	–
MATH 121 - Calculus III	4	–
BSAD 061 - Managerial Accounting	–	3
MATH 271 - Adv Engineering Mathematics	–	3
CE 132 - Env/Trans Systems ¹	–	3
STAT 143 or 211 - Statistics for Engineers/Statistical Methods	–	3
HSS Elective	–	3
Total	17/18	15

JUNIOR YEAR	Fall	Spr
CE 160 - Hydraulics	4	–
CE 133 - Dec Analysis in Env/Trans	3	–
CE 100 - Mechanics of Materials	3	–
STAT 143 or 211 - Statistics for Engineers/Statistical Methods	3	–
HSS Elective	3	–
BSAD 120 - Mgmt & Org Behavior	–	3
BSAD 173 - Prod & Operational Analysis	–	3
BSAD 141 - Mgmt Info Systems	–	3
CE 170 - Structural Analysis I	–	4
CE 151 - Water and Wastewater Eng	–	3
Total	16	16

SENIOR YEAR	Fall	Spr
BSAD 178 - Quality Control or STAT 224 - Statistics for Qual & Prod	3	–
EE 100 - EE Concepts I	4	–
EMGT 185 - Senior Project	3	–
CE Elective ²	3	–
HSS Elective	3	–
BSAD 270 - Quantitative Analysis	–	3
CE 134 - Modeling Env/Trans Systems	–	3
EMGT Elective ³	–	3
EMGT Elective ³	–	3
Total	16	12

¹Pre-Engineering Technical (PET) requirements: MATH 021 and 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

²CE Concentration electives: CE 161, 172, 175, 180, any 200-level CE course.

³Engineering Management electives: BSAD 143, 144, 145, 170, 192, 268; and STAT 221, 224, 225, 229, 231, 233, 237, 253; EMGT 175.

The curriculum for the B.S. in Engineering Management / the Electrical Engineering option:

(123-126 credits)

FIRST-YEAR	Fall	Spr
CHEM 031 - Introductory Chemistry	4	-
EC 011 - Macroeconomics	3	-
ENGR 002 - Graphical Communication	2	-
ENGS 001 - Written Expression	3	-
MATH 021 - Calculus I	4	-
EE 001 - Design Experience	-	2
MATH 022 - Calculus II	-	4
PHYS 031 - Physics for Engineers I	-	4
PHYS 030 - Problem Solving Session I (opt)	-	(1)
CS 020 - Programming for Engineers	-	3
HSS Elective	-	3
Total	16	16/17

SOPHOMORE YEAR	Fall	Spr
EC 012 - Microeconomics	3	-
BSAD 060 - Financial Accounting	3	-
EE 003 - Linear Circuit Analysis I ¹	3	-
EE 081 - Linear Circuits Lab I ¹	2	-
MATH 121 - Calculus III	4	-
BSAD 061 - Managerial Accounting	-	3
EE 004 - Linear Circuit Analysis II ¹	-	3
EE 082 - Linear Circuits Lab II ¹	-	2
MATH 271 - Adv Engineering Mathematics	-	3
PHYS 125 - Physics for Engineers II	-	3
PHYS 123 - Problem Solving Session II (opt)	-	(1)
Total	15	14/15

JUNIOR YEAR	Fall	Spr
BSAD 141 - Mgmt Info Systems	3	-
EE 120 - Electronics I	3	-
EE 131 - Digital Design	3	-
STAT 143 - Statistics for Engineers or STAT 211 - Statistical Methods I	3	-
HSS Elective	3	-
BSAD 173 - Prod & Oper Analysis	-	3
EE 121 - Electronics II	-	3
EE 134 - Microcomputer-Based Systems	-	4
BSAD 180 - Managerial Finance	-	3
HSS Elective	-	3
Total	15	16

SENIOR YEAR	Fall	Spr
BSAD 120 - Mgmt & Org Behavior	3	-
BSAD 178 - Quality Control or STAT 224 - Stats for Qual & Prod	3	-
EE 163 - Solid State Physics or EE 171 - Signals and Systems	4	-
EMGT 185 - Senior Project	3	-
HSS Elective	3	-
BSAD 270 - Quantitative Analysis	-	3
EE 231 - Digital Computer Design	-	3
EE Elective ²	-	3/4
EMGT Elective ³	-	3
EMGT Elective ³	-	3
Total	16	15/16

¹Pre-Engineering Technical (PET) requirements: MATH 021 and 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

²EE Conc. Electives: EE 113, 141, 163 (if not used to fulfill another requirement), 164 (163 is prerequisite), 171 (if not used to fulfill another requirement), 174 (171 is prerequisite), 183-184 (both courses are needed to meet this requirement), 210, 228, 250, 251, and 295.

³Engineering Management electives: BSAD 143, 144, 145, 170, 192, 268; and STAT 221, 224, 225, 229, 231, 233, 237, 253; EMGT 175.

The curriculum for the B.S. in Engineering Management / the Mechanical Engineering option:

(124-126 credits)

FIRST YEAR	Fall	Spr
CHEM 031 - Introductory Chemistry	4	-
ENGR 002 - Graphical Communication	2	-
ENGS 001 - Written Expression	3	-
MATH 021 - Calculus I	4	-
EC 011 - Macroeconomics	3	-
MATH 022 - Calculus II	-	4
ME 001 - Design Experience	-	2
PHYS 031 - Physics for Engineers I	-	4
PHYS 030 - Problem Solving I (opt)	-	(1)
EC 012 - Microeconomics	-	3
CS 020 - Programming for Engineers	-	3
Total	16	16/17

SOPHOMORE YEAR	Fall	Spr
BSAD 060 - Financial Accounting	3	-
MATH 121 - Calculus III	4	-
CE 001 - Statics ¹	3	-
HSS Elective	3	-
PHYS 125 - Physics for Engineers II	3	-
PHYS 123 - Problem Solving Session II (opt)	(1)	-
ME 040 - Thermodynamics ¹	-	3
MATH 271 - Adv Engineering Mathematics	-	3
BSAD 061 - Managerial Accounting	-	3
ME 012 - Dynamics ¹	-	3
ME 082 - Mechanical Engineering Lab I ¹	-	3
Total	16/17	15

JUNIOR YEAR	Fall	Spr
EE 100 - EE Concepts I ¹	4	-
MATH 124 - Linear Algebra	3	-
ME 161 - Manufacturing Engr I	3	-
STAT 143 - Statistics for Engineers or STAT 211 - Statistical Methods I	3	-
ME 101 - Engr Materials or ME 111 - System Dynamics	3	-
HSS Elective	-	3
BSAD 141 - Mgmt Info Systems	-	3
ME 014 - Mechanics of Solids	-	3
BSAD 173 - Prod & Oper Analysis	-	3
BSAD 180 - Managerial Finance	-	3
Total	16	15

SENIOR YEAR	Fall	Spr
BSAD 120 - Mgmt & Org Behavior	3	-
BSAD 178 - Quality Control or STAT 224 - Stats for Qual & Prod	3	-
EMGT 185 - Senior Project	3	-
ME 101 - Engr Materials or ME 111 - System Dynamics	3	-
HSS Elective	3	-
BSAD 270 - Quantitative Analysis	-	3
ME 171 - Design of Elements	-	3
ME Elective ²	-	3
EMGT Elective ³	-	3
EMGT Elective ³	-	3
Total	15	15

¹Pre-Engineering Technical (PET) requirements: MATH 021 and 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

²ME electives: ME 200-level or higher.

³Engineering Management electives: BSAD 143, 144, 145, 170, 192, 268; and STAT 221, 224, 225, 229, 231, 233, 237, 253; EMGT 175.

B.A. Engineering

The Bachelor of Arts in Engineering degree is intended to provide an engineering background for students who desire more educational breadth in the liberal arts than is possible with the various engineering B.S. degrees. Students graduating with this degree might pursue more advanced studies in engineering, or they might go on to advanced studies in fields such as business, law, environmental science, medicine, etc. The degree is not ABET-accredited and is not intended to produce students prepared to work as practicing engineers immediately upon graduation. The degree requires 120-124 credits.

Engineering B.A. students declare a primary concentration of study in engineering and a minor in liberal arts. The primary concentration can be within one of the following four areas of engineering: civil, electrical, environmental, or mechanical systems. Alternatively, students may request to develop their own tailored primary concentration in engineering. The required course work for each primary concentration area will be determined by a committee of SoE faculty with research and teaching interests in areas relevant to the concentration topic. The minor must be selected from the liberal arts minors offered by the College of Arts and Sciences (natural science and mathematical science minors may not be selected). Engineering B.A. students complete a specified set of course work in the mathematics and basic sciences and in engineering, as well as complete the B.A. distribution requirements of the College of Arts and Sciences.

The curriculum for the B.A. in Engineering:

FIRST YEAR	Fall	Spr
CHEM 031 - Introductory Chemistry	4	-
MATH 021 - Calculus I	4	-
ENGR 001 or ENGR 002 - First Year Design or Graphical Communications	2	-
ENGS 001 - Written Expression	3	-
HSS Electives ¹ (Social Science)	3	3
PHYS 031 - Physics for Engineers I	-	4
PHYS 030 - Problem Solving Session I (opt)	-	(1)
MATH 022 - Calculus II	-	4
HSS Elective ¹ (Literature)	-	3
CS 020 - Programming for Engineers	-	3
Total	16	17/18

SOPHOMORE YEAR	Fall	Spr
PHYS 125 - Physics for Engineers II	3	-
PHYS 123 - Problem Solving Session II (opt)	(1)	-
MATH 121 - Calculus III	4	-
EE 003/100 - Electrical Engr Concepts ²	3/4	-
HSS Elective ¹ (Humanities)	3	-
HSS Elective ¹ (Humanities)	3	-
MATH 271 - Adv Engineering Mathematics	-	3
CE 001 - Statics ²	-	3
ME 040 - Thermodynamics ²	-	3
Engineering Science ³	-	3
HSS Elective ¹ (Fine Arts)	-	3
Total	16/18	15

JUNIOR YEAR	Fall	Spr
Engineering Science ³	3	-
Engineering Science ³	3	-
Free Elective	3	-
HSS Elective ¹ (Foreign Lang)	3	-
Minor ⁴	3	-
Engineering Science ³	-	3
Engineering Science ³	-	3
Free Elective	-	3
HSS Elective ¹ (Foreign Lang)	-	3
Minor ⁴	-	3
Total	15	15

SENIOR YEAR	Fall	Spr
Free Elective	3	-
Engineering Science ³	3	-
Senior Design/Thesis ⁴	0/2	-
Minor ⁴	3	-
Minor ⁴	3	-
Engineering Science ³	-	3
Engineering Science ³	-	3
Senior Design/Thesis ⁵	-	3/2
Minor ⁴	-	3
Minor ⁴	-	3
Total	12/14	14/15

¹Required Social Science and Humanities: Students must select five (15 credits) from the approved Humanities courses listed in the catalogue, two (6 credits) of which must also be from the approved Cultural Diversity courses (Category One and Two) listed in this catalogue, and two (6 credits) must be from the same department.

²Pre-Engineering Technical (PET) requirements: MATH 021 and 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

³Engineering Science: All CE, EE and ME courses. Must have a minimum of 9 credits at the 200-level.

⁴Minor is required.

⁵Senior Design/Thesis credits vary depending upon program.

DEPARTMENT OF COMPUTER SCIENCE

Curricula

Students may select any of three degree programs in Computer Science. The **Bachelor of Science in Computer Science degree** and the **Bachelor of Science degree, with a major in Computer Science and Information Systems**, are offered through the College of Engineering and Mathematical Sciences and are described below.

Additionally, a **Bachelor of Arts degree, with a major in Computer Science**, is offered through the College of Arts and Sciences. Requirements for this degree are described under the College of Arts and Sciences section of this catalogue.

A non-degree **Certificate in Computer Software** is offered jointly with the Division of Continuing Education. Requirements for the Certificate are fifteen credits in approved computer software courses, to include CS 021, with a grade of C or better in each. Information about this program can be found on the Continuing Education website.

An **Accelerated Master's Program** is also available and is described below.

Bachelor of Science in Computer Science: A minimum of 120 credits are required and must include the following:

- Computer Science (forty-four credits): one introductory programming course chosen from CS 016, 021, or equivalent; with the core: 064, 110, 121, 123, 124, 201, 224 or 243, and 292; plus eighteen additional credits including fifteen credits at the 200-level. No more than sixty credits of computer science can be applied to this degree.
- Mathematics (fourteen credits): MATH 021, 022, two of 121, 124, 173, 271.
- Statistics (three credits): STAT 153.
- Natural Science (thirteen credits): chosen from courses in astronomy, biology (or BioCore), chemistry, environmental science, geology, microbiology and molecular genetics, plant biology, or physics, including one of the following laboratory science sequences:
 - ✓ BIOL 001 (or BCOR 011) and BIOL 002 (or BCOR 012);
 - ✓ CHEM 031 (or 035) and CHEM 032 (or 036);
 - ✓ PHYS 031 (or 051); and PHYS 125 (or 152).
- Writing (three credits): ENGS 001, 050, or 053.

- Fine Arts, Humanities and Social Sciences (eighteen credits): eighteen additional credits chosen from courses in ALANA U.S. Ethnic Studies, anthropology, art history, art studio, classics, communication sciences, dance, economics, English, Film and Television Studies, foreign language, geography, global and regional studies, history, Holocaust Studies, linguistics, music, philosophy, political science, psychology, religion, sociology, theatre, Women's and Gender Studies, and World Literature.
- Credits used to fulfill the university's required Category One and Two diversity courses may also be applied to the above distribution requirements as appropriate.
- Students must complete a university approved minor (excluding computer science); courses used to fulfill the minor can also satisfy other distribution requirements.

A sample course sequence can be found through:
<http://www.cs.uvm.edu/>.

No more than three grades of D+, D, or D- in computer science courses numbered CS 123 and higher.

Bachelor of Science, Computer Science and Information Systems: A minimum of 120 credits are required and must include the following:

- Computer Science (thirty-eight credits): CS 014; one introductory programming course chosen from 016, 021, or equivalent; with the core: 064, 110, 121, 124, 148, and 292; plus fifteen additional credits including three credits at the 100-level or above (CS 123 is recommended for students who wish to pursue graduate study in computer science), and nine credits at the 200-level.
- Business Administration (twenty-seven credits): BSAD 060, 061, 120, 132, 141, 143, 150, 173, 180.
- Economics (six credits): EC 011, 012.
- Mathematics (nine to eleven credits): MATH 019 and 020, or 021 and 022 (recommended).
- Statistics (three credits): STAT 141.
- Natural Science (eight to ten credits): one laboratory science sequence, selected from the following:
 - ✓ BIOL 001 (or BCOR 011) and BIOL 002 (or BCOR 012);
 - ✓ CHEM 031 (or 035) and CHEM 032 (or 036);
 - ✓ PHYS 031 (or 051); and PHYS 125 (or 152).
- Writing (three credits): ENGS 001, 050, or 053.
- Fine Arts, Humanities and Social Sciences (eighteen credits): eighteen additional credits chosen from courses in ALANA U.S. Ethnic Studies, anthropology, art history, art studio, classics, communication sciences, dance, economics, English, Film and Television Studies, foreign language, geography, Global and Regional Studies, history, Holocaust Studies, linguistics, music, philosophy, political science, psychology, religion, sociology, theatre, Women's and Gender Studies, and World Literature.
- Credits used to fulfill the university's required Category One and Two diversity courses may also be applied to the above distribution requirements as appropriate.

A sample course sequence can be found through:
<http://www.cs.uvm.edu/>.

No more than three grades of D+, D, or D- in computer science courses numbered CS 123 and higher, and Business Administration courses numbered BSAD 100 and higher.

Accelerated Master's Program: The Accelerated Master's Program (AMP) in Computer Science allows students with strong ability and motivation to complete a bachelor's 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.

The first four years of the AMP consist of a complete undergraduate program in Computer Science, satisfying the curricular requirements for either (i) the Bachelor of Science in Computer Science, (ii) the Bachelor of Science, major in Computer Science and Information Systems, or (iii) the Bachelor of Arts, major in computer science.

During the fourth year, a student in the AMP has dual status, being an undergraduate student in computer science, and simultaneously a first-year graduate student in computer science. Up to six credits of courses taken during an AMP student's senior year can be applied simultaneously toward the bachelor's and master's degree requirements. These courses must be approved in advance by the director of Graduate Studies in computer science.

Undergraduates interested in the AMP should discuss this option with the director of Graduate Studies in computer science during their junior year.

DEPARTMENT OF MATHEMATICS AND STATISTICS

Curricula

The College of Engineering and Mathematical Sciences offers programs in several areas of the mathematical sciences and their applications. The curriculum leads to the Bachelor of Science degree in Mathematics. The Statistics program offers a major in statistics within this degree.

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. Details are given in the following sections for mathematics and statistics.

A Handbook for Mathematics and Statistics majors, available from the Mathematics and Statistics department office or the Undergraduate Mathematics Student Organization, provides additional information on the mathematics and statistics degree programs, Honors in mathematics and statistics, mathematics and statistics courses, advising and other support for students, extracurricular activities, career options, and other material of interest to potential majors. For further information see:

http://www.uvm.edu/~cems/mathstat/?Page=undergrad/default.php&SM=undergrad/_undergradmenu.html.

The following outlines the curriculum for the B.S. in Mathematics, and the B.S. in Mathematics with a major in statistics. Candidates for these degrees must meet the Core Curriculum and requirements A, B, C, D and E. The requirements for the two degrees are listed separately where they differ.

Core Curriculum

Mathematics: MATH 021, 022, 052, 121, 124, 241, 251, and CS 021.

Statistics: MATH 021, 022, 121, 124; CS 021; and one of STAT 141, 143 or 211, 151 or 251, 201, 221 or 227, 241 or 261, and 281 or 293.

A student with a MATH 021 waiver can use it to fulfill the requirement of MATH 021 in the Core Curriculum. However, at least three extra credits of mathematics numbered above 023 have to be added to the Major Courses requirement.

A. Major Courses

Mathematics: A minimum of twenty-one additional credits in mathematics, statistics, or computer science courses numbered 100 or above. At least twelve credits must be in courses numbered 200 or above and no more than twelve credits may be chosen from computer science.

Statistics: An additional six credits of statistics, so that the total credits earned in statistics is at least twenty-four. A minimum of two additional credits in mathematics, statistics, or computer science courses numbered 100 or above, so that a total of at least forty-five credits in the core and major courses is earned. A total of eighteen credits in the combined basic curriculum and major courses must be taken at the 200-level and no more than twelve credits can be taken in computer science.

B. Allied Field Courses

Twenty-four credits selected from the following Allied Fields:

- | | |
|---------------------------|------------------------|
| (1) Physical Sciences | (7) Business Admin |
| (2) Biological Sciences | (8) Psychology |
| (3) Medical Sciences | (9) Economics |
| (4) Engineering | (10) Environmental |
| (5) Computer Science | Sciences/Studies |
| (026 or higher) | (11) Natural Resources |
| (6) Agricultural Sciences | |

Students in consultation with their advisor must plan a sequence of Allied Field courses consistent with their professional and personal goals. Students interested in pursuing intensive studies in an area not specifically listed are encouraged to plan a program with their advisor and submit it to the appropriate departmental committee for review and approval. The requirements are as follows:

Twenty-four credits selected from the above list of Allied Fields, including at least one laboratory experience in science or engineering. Of these twenty-four credits, at least six must be in courses numbered 100 or above, and at least six must be taken in fields (1) to (5). Courses used to satisfy requirement A above may not be used to satisfy this requirement.

C. Humanities and Social Science Courses

(Courses used to satisfy requirement B above may not be used to satisfy this requirement.)

ENGS 001 and twenty-one credits of courses selected from categories I, II, and III listed below. These twenty-one credits must be distributed over at least two categories, and at least six credits must be taken in each of the two categories chosen. Statistics majors must take SPCH 011.

I. Language and Literature

Chinese	Italian
Classics	Japanese
English	Latin
French	Linguistics
German	Russian
Greek	Spanish
Hebrew	World Literature

II. Fine Arts, Philosophy, and Religion

Art	Film & Television Studies
Music	Religion
Philosophy	Speech
Dance	Theatre

III. Social Sciences

ALANA U.S. Ethnic Studies	Holocaust Studies
Anthropology	Human Development & Family
Communication Sciences & Disorders	Studies
Economics	Political Science
Geography	Psychology
Global and Regional Studies	Sociology
History	Vermont Studies
	Women's and Gender Studies

D. Total Credits

A minimum of 120 credits is required. Students must include two courses that satisfy the University Approved Diversity requirements.

E. Grades

No more than three grades of D, D+, or D- at the 200/300 level mathematics and statistics courses used to satisfy the "Core Curriculum" and "Major Courses" requirements will be acceptable.

Mathematics

The mathematics curriculum is quite flexible. It is designed to provide a sound basic training in mathematics that allows a student to experience the broad sweep of mathematical ideas and techniques, to

utilize the computer in mathematics, and to develop an area of special interest in the mathematical sciences.

A Bachelor of Arts with a major in mathematics is offered and supervised by the College of Arts and Sciences. Students opting for this degree require an advisor from the Department of Mathematics and Statistics. Refer to the CAS section of this catalogue for more information.

Concentrations that provide suggested preparation for a student's career plans are listed in the next section, along with the courses recommended for each concentration.

Recommendations for Major Courses

In consultation with their advisor, students should choose an area of interest within the mathematics major and plan a coherent program that addresses their interests in mathematics and its applications. This area might be one of those listed below, or it might be another area suggested by the student. *As a guide, students interested in one of the areas would typically take at least three courses in that area, including all of the courses marked with an asterisk (*).* In addition, students should take courses from at least two other areas. Because of its centrality in mathematics, students should make sure that they take at least one course listed under Classical Mathematics. In following these recommendations, a course listed in more than one area is meant to be counted only once.

1. Classical Mathematics. Classical mathematics encompasses those areas having their roots in the great traditions of mathematical thought, such as geometry and topology, mathematical analysis, algebra and number theory, and discrete mathematics. Courses in this area include the following: MATH 141, 151, 173, 236, 240, 241*, 242, 251*, 252, 255, 257, 260, 264, 273, 331, 353.
2. Applied Mathematics. Applied mathematics involves the use of mathematical methods to investigate problems originating in the physical, biological, and social sciences, and engineering. Mathematical modeling, coupled with the development of mathematical and computational solution techniques, illuminates mechanisms which govern a problem and allows predictions to be made about an actual physical situation. Current research interests of the faculty include biomedical mathematics, fluid mechanics and hydrodynamic stability, asymptotics, and singular perturbation theory. Courses in this area include the following: MATH 230*, 236, 237*, 238, 240, 272, 273, 274.
3. Computational Mathematics. Computational mathematics involves both the development of new computational techniques and the innovative modification and application of existing computational strategies to new contexts where they have not been previously employed. Intensive computation is central to the solution of many problems in areas such as applied mathematics, number theory, engineering, and the physical, biological and natural sciences. Computational mathematics is often interdisciplinary in nature, with algorithm development and implementation forming a bridge between underlying mathematical results and the solution to the physical problem of interest. Courses in this area include the following: MATH 173, 230, 237*, 238, 274, STAT 201.
4. Theory of Computing. The mathematical theory of computing deals with the mathematical underpinnings allowing effective use of the computer as a tool in problem solving. Aspects of the theory of computing include: designing parallel computing strategies (graph theory), analyzing strengths and effectiveness of competing algorithms (analysis of algorithms), examining conditions which ensure that a problem can be solved by computational means (automata theory and computability), and rigorous analysis of run times (complexity theory). Courses in this area include the following: MATH 173, 223, 224*, 243, 273, 325, CS 346, 353.
5. Mathematics of Management. Mathematics of Management involves the quantitative description and study of problems particularly concerned with the making of decisions in an organization. Problems are usually encountered in business, government, service industries, etc., and typically involve the allocation

of resources, inventory control, product transportation, traffic control, assignment of personnel, and investment diversification. Courses in this area include the following: MATH 173, 221*, 222, 230, 236, 273, STAT 141 or 211, STAT 151 or MATH 207, STAT 224, 241, 253.

6. **Actuarial Mathematics.** Actuaries use quantitative skills to address a variety of risk related problems within financial environments. A unique feature of the actuarial profession is that a considerable amount of the formal training is typically completed after graduation "on-the-job."

The Society of Actuaries is an international organization that regulates education and advancement within the profession. Candidates may earn designation as an Associate of the Society of Actuaries (ASA) by satisfying three general requirements. These are: (1) Preliminary Education Requirements, PE; (2) the Fundamentals of Actuarial Practice Course, FAP; and (3) the Associate-ship Professionalism Course, APC. The multiple component FAP is based on an e-learning format, and can be pursued independently. After completing the PE and at least one of the FAP components, candidates are eligible to register for the one-half day APC.

The Preliminary Education Requirements consist of (1) prerequisites (2) subjects to be validated by educational experience (VEE), and (3) four examinations. While at the university, students can satisfy the prerequisites, the VEE courses, and the first two preliminary examinations. The following courses are recommended as preparation for the specific requirements.

Prerequisites. Calculus (MATH 021, 022, and 121), Linear Algebra (MATH 124), Introductory Accounting (BSAD 060, 061), Business Law (BSAD 017, 018), and Mathematical Statistics (STAT 261, 262). These are topics that will assist candidates in their exam progress and work life but will not be directly tested or validated.

Subjects Validated by Educational Experience. Economics (EC 011, 012), Corporate Finance ((BSAD 180, 181), and Applied Statistical Methods (STAT 221, 253). Candidates will demonstrate proficiency in these subjects by submitting transcripts.

Preliminary Examinations. Exam P - Probability (STAT 151, 251); Exam FM - Mathematics of Finance (BSAD 180, 181).

Other applicable departmental courses include: Statistics for Business (STAT 195), Statistical Analysis via Computers (STAT 201), Applied Regression Analysis (STAT 225), Survival Analysis (STAT 229), Categorical Data Analysis (STAT 235), Non-Parametric Methods (STAT 237), Combinatorics (MATH 173), and Operations Research (MATH 221, 222).

7. **Probability and Statistical Theory.** Probabilistic reasoning is often a critical component of practical mathematical analysis or risk analysis and can usefully extend classical deterministic analysis to provide stochastic models. It also provides a basis for statistical theory, which is concerned with how inferences can be drawn from real data in any of the social or physical sciences. Courses in this area include the following: MATH 222, 241, 242, STAT 151 or MATH 207*, STAT 241*, 252a, 252b, 261, 262, 270.

Recommendations for Allied Field Courses

Students should discuss Allied Field courses with their advisor and choose ones which complement their mathematical interests. Students with certain mathematical interests are advised to emphasize an appropriate Allied Field as indicated below and take at least six credits in courses numbered 100 or above in that field.

Applied Mathematics: Allied Field (1), (2), (3), (4), (6), or (9).

Computational Mathematics: Allied Field (4) or (5).

Mathematics of Management: Allied Field (7). Students interested in Mathematics of Management are advised to include economics (EC 011 and 012) in their choice of Humanities and Social Sciences courses, and to include business administration (BSAD 060 and 061) in their choice of Allied Field courses. Those wishing to minor in business administration should contact the School of Business

Administration and also take BSAD 173 and two other courses chosen from business administration Allied Field courses.

Statistics

Students receiving the B.S. in Mathematics may elect statistics as their major. In addition, students receiving a B.A. degree in Arts and Sciences may concentrate in statistics as a part of their mathematics major. Statistics is a mathematical science extensively used in a wide variety of fields. Indeed, every discipline which gathers and interprets data uses statistical concepts and procedures to understand the information implicit in their data base. Statisticians become involved in efforts to solve real world problems by designing surveys and experimental plans, constructing and interpreting descriptive statistics, developing and applying statistical inference procedures, and developing and investigating stochastic models or computer simulations. To investigate new statistical procedures requires a knowledge of mathematics and computing as well as statistical theory. To apply concepts and procedures effectively also calls for an understanding of the field of application.

The curriculum is designed for students who plan to enter business, industry, or government as statisticians; to become professional actuaries; or to continue on to graduate school in statistics/biostatistics or another field where a quantitative ability can prove valuable (business, operations research, medicine, public health, demography, psychology, etc.). Students are encouraged to undertake special projects to gain experience in data analysis, design, and statistical computing. Also, experience can be gained with local industry and other organizations for those interested in quality control, industrial statistics, survey and market research or forecasting, for example.

A statistics minor consists of fifteen credits of statistics (STAT) courses, acquiring calculus knowledge equivalent to MATH 019 or 021, and gaining computer experience equivalent to STAT 201 or a computer programming course (CS 020 or higher or MATH 052). EC 170: Economic Methods can also be counted in place of STAT 111 or 141 as an introductory statistics course. Not more than two courses of introductory statistics (STAT 051/111/140/141/143/211 or EC 170) may be counted. The course plan for the statistics minor must be approved by a faculty advisor from the Department of Mathematics and Statistics. Note that mathematics majors can minor in statistics as well. In the College of Arts and Sciences, in order to graduate with a minor in statistics, twelve of the fifteen credits in statistics must be earned beyond any statistics courses counted for the major. In the College of Engineering and Mathematical Sciences, in order to fulfill a minor in statistics, fifteen credits in statistics must be earned beyond any statistics courses counted for the major.

Statistics majors may also minor in mathematics by completing MATH 021, 022, 052 or 121, and nine more credits in mathematics at the 100-level. Since statistics majors normally take MATH 021, 022, 121 and 124, they just need two more mathematics courses at the 100-level or above.

Students may earn a double major in mathematics and statistics by meeting the requirements of the statistics major and earning an additional fifteen credits in mathematics, to include MATH 052, and two of MATH 230, 237, 241, 251.

Further details on the statistics major and minor curricula may be obtained from the director of the Statistics program. The Handbook for Mathematics and Statistics majors, available from the Department of Mathematics and Statistics office, also provides a wealth of useful information.

Pre-Medical Concentration in Statistics. Each student electing the Pre-Medical concentration in statistics will fulfill the general requirements for the statistics major. STAT 200 is recommended as an important elective for students interested in medicine or allied health. In addition, the pre-medical concentration should include, at a minimum, two years of chemistry with laboratory (CHEM 031, 032, or 035, 036, 037, 038, and 141, 142), at least one year of physics with laboratory (PHYS 021, 031, 022 or 021, 031, 125), and at least one year of biology with laboratory (BIOL 001, 002). Exposure to medical

research problems may be provided through supervised experiences in the College of Medicine's Medical Biostatistics and Bioinformatics facility.

Concentration in Quality. Students interested in methods of quality control and quality improvement are encouraged to develop a concentration in Quality. Regularly offered courses include STAT 224 and related courses in business administration such as BSAD 178 and others in the Production and Operations Management and Quantitative Method areas. Project experience in industrial quality control or in health care quality can be gained in STAT 191 and 281, or 293-294.

Accelerated Master's Programs. A master's degree in Mathematics, Statistics or Biostatistics can be earned in a shortened period of 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 toward the M.S. degree requirements.

Students must declare their wish to enter the Accelerated Master's Program in Mathematics in writing to the chair of the Department of Mathematics and Statistics 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 located on this website:

<http://www.uvm.edu/~cems/mathstat/grad/gradhandbook.pdf> for detailed information.

Students should discuss the possibility of an Accelerated Master's Program in Statistics or in Biostatistics with the director of the Statistics program as soon as they think they may be interested in this program.

MINORS

For the requirements, refer to the "Undergraduate Minors" section in this catalogue.

Computer Science Minor curricula must be approved by a Computer Science advisor. Pre-approved tracks are available on the Department of Computer Science website. Some computer science courses require additional prerequisites.

Electrical Engineering Each student in the minor program will be assigned an Electrical Engineering faculty advisor who will assist the student in developing an individualized plan of study.

Mathematics

Statistics The course plan for the statistics minor must be approved by a statistics faculty advisor. Contact the Statistics program director for complete guidelines.

The College of Nursing and Health Sciences

The College of Nursing and Health Sciences (CNHS) offers undergraduate and graduate programs in a variety of health disciplines. The entry-level degree programs prepare the student for initial entry into clinical or health-related practice and the pursuit of further education. The curricula include rigorous academic preparation and most programs include extensive field experience at selected facilities. The graduate programs prepare students for advanced practice in the health care disciplines and to assume leadership roles in practice, education, and research. The faculty of the CNHS is committed to excellence in teaching, the conduct of research that extends knowledge and contributes to the science of each discipline, and public service to improve the health of citizens of state, national and global communities.

The following entry-level degree programs are offered: Bachelor of Science degree programs in Athletic Training; Communication Sciences and Disorders; Exercise and Movement Science; Medical Laboratory Science; Nuclear Medicine Technology; Nursing; and Radiation Therapy. In Physical Therapy, an entry-level doctoral degree program is offered. Communication Sciences and Disorders offers a master's degree program. Nursing offers an entry-level master's degree program (MEPN) for non-nurse college graduates. Graduates of the entry-level professional programs are eligible to sit for the appropriate licensure examination and enter practice or other health-related fields. All of the professional programs needing accreditation and/or state approval for licensure eligibility have achieved and maintained such status.

A non entry-level graduate program leading to a Master of Science degree is offered in Nursing (with several courses of study to choose from: Adult Nurse Practitioner, Family Nurse Practitioner and an accelerated RN-BS-MS track). The Nursing graduate program is designed to enhance the clinical and academic background of licensed registered nurses and prepare them for advanced practice and research.

In Medical Laboratory Science, a post-baccalaureate certificate program that prepares students to sit for the National Certification Exam, is offered through Continuing Education.

More information about the college, its mission and philosophy, faculty and programs can be found under the appropriate academic program headings on the CNHS website:
<http://www.uvm.edu/~cnhs> and in the Graduate Catalogue.

ORGANIZATION

The college consists of four departments: Communication Sciences and Disorders; Medical Laboratory and Radiation Sciences; Nursing; and Rehabilitation and Movement Science.

UNDERGRADUATE DEGREE PROGRAMS

Bachelor of Science Degree Programs:

- Athletic Training Education
- Communication Sciences and Disorders
- Exercise and Movement Science
- Medical Laboratory Science
- Nuclear Medicine Technology
- Nursing
- Nursing (for Registered Nurses)
- Radiation Therapy

Degree Requirements

Requirements for admission, retention and graduation are detailed below for each of the undergraduate degree programs. The College of Nursing and Health Sciences reserves the right to require the withdrawal of any student whose academic record, performance, or behavior in the professional programs is judged unsatisfactory. All

candidates for admission and continuation must be able to perform the essential clinical, as well as academic, requirements of the CNHS programs. These requirements include: the capacity to observe and communicate; sufficient motor ability to perform physical diagnostic examinations and basic laboratory and clinical procedures; emotional stability to exercise good judgment and to work effectively in stressful situations; and intellectual ability to synthesize data and solve problems. CNHS students must be able to meet these technical standards either with, or without, reasonable accommodations. Some professional licensing examiners, clinical affiliates and potential employers may require students and graduates to disclose personal health history, substance abuse history, and/or criminal convictions, which may, under certain conditions, impact eligibility for professional examinations, licensing, clinical affiliation, and employment. Some programs have additional clinical requirements such as CPR certification and up-to-date immunizations.

RESPONSIBILITIES AND REQUIREMENTS

There are some special elements associated with clinical education. Students are responsible for their own transportation to and from clinical sites and, where relevant, the costs of housing for clinical experiences. Students may need to complete a criminal background check prior to clinical placement. Evidence of a criminal record may prevent students from being eligible for clinical placement and/or professional licensure. All students must carry professional liability insurance during clinical rotations, and will be billed approximately \$40 per year for this insurance.

Students engaging in clinical education experiences must comply with required health clearances including testing, immunizations, and titers for certain infectious diseases (costs vary depending on students' insurance). Applicants to the college's clinical programs must realize there is always an element of risk through exposure to infectious disease. The university is not responsible for medical costs resulting from injury during clinical rotation, or during any other curricular activity, unless this injury is due to negligence by the university.

AREAS OF STUDY

Communication Sciences and Disorders

Communication Sciences and Disorders aims to achieve two primary goals: (1) to provide students with basic knowledge about the development and structure of typical and disordered human communication across the lifespan, and (2) to give students the opportunity to enhance their own abilities to learn and communicate effectively.

Through course work and research opportunities as well as observation of therapy, students gain expertise in the uniquely human endeavor we call "communication". The primary topics presented at the undergraduate level focus on the form and structure of speech and language, and how these skills are learned, produced, perceived, and understood. In recent years, exciting research from such sources as brain imaging and computer technology has enhanced our understanding of speech, language, and communication and our ability to remediate disorders in these areas. Students learn about current developments and how they impact the field of communication sciences and disorders.

As they begin to study Communication Sciences and Disorders, students are introduced to the discipline through a series of courses dealing with linguistics, cognitive science, and the typical processes of speech, language, and hearing. These courses deal with the physical, neurophysiological, cognitive, and linguistic bases of normal speaking, hearing, and language use; the acoustics of sound and of speech; the development of language in children; and how communication develops from infancy to adulthood.

During their junior or senior year, students focus on the principles of assessment as they apply to the study of human communication and its disorders. In this course, they participate in directed measurement projects as they learn to critically evaluate communication and the assessment tools used by practitioners in the field.

Outside of the classroom, those students who show interest are encouraged to pursue research through collaboration in ongoing faculty research. Ongoing areas of faculty research encompass normal and disordered communication throughout the lifespan and include the following topics:

- Interaction patterns in families contributing to the development of stuttering and its effective prevention and treatment
- The nature and treatment of autism
- The use of eye-tracking technology to examine the visual attention allocation strategies of individuals with autism spectrum disorders
- The development of psychometrically sound measures of social cognition
- The role of temperament in stuttering
- Speech disorders in children with neurodevelopmental syndromes
- Typical and atypical changes in communication and cognition associated with aging and central nervous system disorders
- The assessment and treatment of communication challenges following traumatic brain injury

Students are exposed to clinical resources in the professions of speech-language pathology and audiology - two closely related areas. Special opportunities include guided observations in the Eleanor M. Luse Center for Communications and access to selected graduate disorders courses prior to graduation.

Bachelor of Science. A minimum of 120 credits and a GPA of 2.50 are required for the Communication Sciences and Disorders major. This degree provides a good foundation for graduate work in other fields such as psychology, linguistics, cognitive science or medicine, given some extra undergraduate preparation. In addition, individuals with a bachelor's degree can consider a future career as a speech-language pathologist or audiologist. (*Note: a B.A. in Communication Sciences is not an option for students who enter UVM after the 2010-2011 academic year.*)

Working as a speech-language pathologist (SLP) requires a master's degree, clinical certification from the American Speech-Language-Hearing Association, and state licensure. Positions in audiology are now requiring a professional doctorate, the Au.D. or scholarly Ph.D.

Employment opportunities for fully qualified speech-language pathologists and audiologists exist in daycare centers, public schools, medical centers, nursing homes, and private practice. The profession is a growing one with excellent opportunities for future employment.

Employment as a pre-professional is possible in many settings without the master's degree. Many students, even those firmly committed to the idea of eventually doing graduate work, take interim jobs upon graduation as speech-language assistants in schools or medical centers, or as audiology assistants.

A model curriculum in Communication Sciences and Disorders:

(120 credits)

FIRST YEAR	Fall	Spr
LING 080 - Intro to Linguistics	3	-
NH 050 - Applications to Health	1	-
PSYCH 001 - General Psychology	3	-
ENGS 001-099	3	-
Electives/Diversity/Minor/Distribution	6	-
CSD 094 - Development of Spoken Language	-	3
Physical Science Course	-	3/4
Electives/Diversity/Minor/Distribution	-	9
Total	16	15/16

SOPHOMORE YEAR	Fall	Spr
CSD 101- Speech and Hearing Science	4	-
NH 120 - Health Care Ethics	3	-
STAT 111 or 141 - Elements of Statistics	3	-
Electives/Diversity/Minor/Distribution	6	-
BIOL 004 - Human Body (lab recommended)	-	3/4
LING 165 -Phonetic Theory and Practice	-	3
PSYC 161 - Developmental Psychology	-	3
Electives/Diversity/Minor/Distribution	-	6
Total	16	15/16

JUNIOR YEAR	Fall	Spr
LING 164 - Structure of English Language	3	-
CSD 262 - Measurement of Comm Processes	4	-
CSD 271 - Intro to Audiology	3	-
Electives/Diversity/Minor/Distribution	6	-
CSD 208 - Cognition and Language	-	3
CSD 272 - Hearing Rehabilitation	-	3
Electives/Diversity/Minor/Distribution	-	9
Total	16	15

SENIOR YEAR	Fall	Spr
CSD 281 - Cognitive Neuroscience	3	-
CSD 284, 285, or 299	3	-
Electives/Diversity/Minor/Distribution	9	-
CSD 284, 285, or 299	-	3
Electives/Diversity/Minor/Distribution	-	9
Total	15	12

Distribution courses include the following: Fine Arts (three credits); Foreign Language (six to eight credits); Literature (three credits); Humanities (six credits).

Medical Laboratory and Radiation Sciences

Programs in the Department of Medical Laboratory and Radiation Sciences lead to Bachelor of Science degrees in Medical Laboratory Science, Nuclear Medicine Technology, and Radiation Therapy. A core curriculum of approximately forty credits serves students in all three programs.

The B.S. in Medical Laboratory Science offers two concentrations: Clinical Laboratory Science or Public Health Laboratory Science.

Graduates of all three programs are prepared for immediate employment, as well as the pursuit of post-baccalaureate education in the health sciences or professional education in fields such as medicine. Courses in the humanities and basic sciences are taken in the department and throughout the university, including the College of Medicine.

Requirements for admission are the same as the general university requirements, with the addition that applicants must have taken high school biology, mathematics through trigonometry or precalculus, and chemistry; physics is highly recommended.

Bachelor of Science. A minimum of 126 credits including six credits of University Approved Diversity courses, an overall grade-point average of 2.30, and grades of C or better in professional courses are required for graduation in all three areas of study.

Medical Laboratory Science

Clinical Laboratory Science Concentration

The medical laboratory scientist is involved in the development, performance, and evaluation of laboratory tests that lead to assessment of health status, diagnosis of disease, and monitoring of therapeutic treatment. The clinical laboratory experience is obtained at one of the college's hospital affiliates located within the northeast.

This four-year curriculum leading to the baccalaureate degree is accredited by the National Accrediting Agency for Clinical Laboratory Sciences.

A model curriculum in Medical Laboratory Science / the Clinical Laboratory Science concentration:

(126 credits)

FIRST YEAR	Fall	Spr
CHEM 031-032 – Introductory Chemistry	4	4
ENGS 001 (or higher)	3	–
MATH 019 (or higher)	3	–
NH 003 – Medical Terminology	2	–
NH 050 – Applications to Health	1	–
MLRS 034 – Human Blood Cell Biology	–	3
Electives/Diversity Courses	<u>3</u>	<u>9</u>
Total	16	16

SOPHOMORE YEAR	Fall	Spr
ANPS 019-020 – Human Anatomy and Physiology	4	4
MMG 101 – Microbiology and Infectious Disease	4	–
NH 120 – Health Care Ethics	3	–
STAT 111 or 141 – Elements of Statistics	3	–
Electives	3	3
CHEM 042 – Organic Chemistry	–	4
MLS 255 or MMG 222 – Clinical Microbiology	<u>–</u>	<u>4</u>
Total	17	15

JUNIOR YEAR	Fall	Spr
MLRS 281 – Applied Molecular Biology	3	–
MLRS 282 – Applied Molecular Biology Lab	1	–
MLRS 296 – Leadership and Mgmt in Health Care	3	–
PATH 101 – Intro to Human Disease	3	–
PBIO 185 – Survey of Biochemistry	3	–
Electives	3	3
MLRS 110 – Phlebotomy	–	1
MLRS 242 or MMG 223 – Immunology Lecture	–	3
MLRS 244 – Immunology Lab	–	1
MLS 221 – Clinical Chemistry I	–	4
MLS 255 or MMG 222 – Clinical Microbiology	<u>–</u>	<u>4</u>
Total	16	16

SENIOR YEAR	Fall	Spr
MLS 222 – Clinical Chemistry II	4	–
MLS 231 – Hematology	4	–
MLS 262 – Immunohematology	4	–
Electives	3	–
MLS 220, 230, 250, 260 – Clinical Practicum	–	12
MLS 292 – Topics in MLS	<u>–</u>	<u>3</u>
Total	15	15

Clinical Affiliations

Brigham and Women's Hospital, Boston, MA
 Elliot Hospital, Manchester, NH
 Fletcher Allen Health Care, Burlington, VT
 Glens Falls Hospital, Glens Falls, NY
 St. Peter's Hospital, Albany, NY
 Yale New Haven Hospital, Albany, NY

Public Health Laboratory Science Concentration

Public health laboratory scientists work in public health laboratories at the state, federal and international level. The curriculum focuses on the use of microbiology and molecular biology in the field of public health, in support of epidemiology and to monitor health status and disease prevention strategies.

A model curriculum in Medical Laboratory Science / the Public Health Laboratory Science concentration:

(126 credits)

FIRST YEAR	Fall	Spr
CHEM 031-032 – Introductory Chemistry	4	4
ENGS 001 (or higher)	3	–
MATH 019 (or higher)	3	–
NH 003 – Medical Terminology	2	–
NH 050 – Applications to Health	1	–
MLRS 034 – Human Blood Cell Biology	–	3
Electives/Diversity courses	<u>3</u>	<u>9</u>
Total	16	16

SOPHOMORE YEAR	Fall	Spr
ANPS 019-020 – Human Anatomy and Physiology	4	4
MMG 101 – Microbiology and Infectious Disease	4	–
NH 120 – Health Care Ethics	3	–
STAT 141 – Basic Statistical Methods	3	–
Electives	3	3
CHEM 042 – Organic Chemistry	–	4
MLS 255 or MMG 222 – Clinical Microbiology	<u>–</u>	<u>4</u>
Total	17	15

JUNIOR YEAR	Fall	Spr
BCOR102 – Ecology and Evolution	4	–
MLRS 296 – Leadership and Mgmt in Health Care	3	–
PBIO 185 – Survey of Biochemistry	3	–
PATH 101 – Intro to Human Disease	3	–
Electives	3	3
BCOR 101 – Genetics	–	3
MLRS 242 or MMG 223 – Immunology Lecture	–	3
MLRS 244 – Immunology Lab	–	1
MLS 255 or MMG 222 – Clinical Microbiology	<u>–</u>	<u>4</u>
Total	16	14

SENIOR YEAR	Fall	Spr
BIOL 254 – Population Genetics	4	–
NFS 203 – Food Micro	4	–
STAT 200 – Medical Biostat and Epidemiology	3	–
Electives	6	–
MLS 250 – Clinical Practicum or MLRS 299 – Special Topics	–	3
MLS 282 – Public Health Practicum	<u>–</u>	<u>12</u>
Total	17	15

Clinical Affiliations

Sites for Public Health are established throughout the Northeast United States and are based on the future goals of students and their geographical preference.

Nuclear Medicine Technology

This four-year curriculum leading to the baccalaureate degree is accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology. Nuclear medicine technology is the medical specialty concerned with the use of small amounts of radioactive materials for diagnosis, therapy, and research. Nuclear medicine provides valuable information about both the structure and function of major organ systems.

Students who already have an Associate in Science degree in Nuclear Medicine Technology are encouraged to apply for transfer into the program on a space available basis.

A model curriculum in Nuclear Medicine Technology:

(126 credits)

FIRST YEAR	Fall	Spr
CHEM 023 – Outline of General Chemistry	4	–
ENGS 001 (or higher)	3	–
MATH 019 (or higher)	3	–
NH 003 – Medical Terminology	2	–
NH 050 – Applications to Health	1	–
Electives/Diversity courses	3	6
CHEM 026 or 042	–	4
MLRS 034 – Human Blood Cell Biology	–	3
PSYC 001 – General Psychology	–	3
Total	16	16

SOPHOMORE YEAR	Fall	Spr
ANPS 019–020 – Human Anatomy and Physiology	4	4
MLRS 140 – Intro Radiation Science	3	–
NH 120 – Health Care Ethics	3	–
STAT 111 or 141 – Elements of Statistics	3	–
Electives	3	3
MLRS141 – Advanced Radiation Science	–	3
NMT 162 – Introduction to Clinical NMT	–	1
PHYS 013 – Conceptual Physics	–	3
Total	16	14

JUNIOR YEAR	Fall	Spr
MLRS 175 – Medical Imaging	3	–
NMT 152 – Radiopharmaceuticals	4	–
NMT 153 – Nuclear Med Clin Procedures I	3	–
NMT 163 – Nuclear Med Clinical Practicum I	1	–
PATH 101 – Intro to Human Disease	3	–
Electives	3	3
MLRS 215 – CT Procedures	–	3
NMT 155 – Instrumentation I	–	3
NMT 160 – Patient Care Seminar	–	1
NMT 164 – Nuclear Med Clinical Practicum II	–	3
NMT 174 – Nuclear Cardiology	–	3
Total	17	16

SENIOR YEAR	Fall	Spr
MLRS 296 – Leadership and Mgmt in Health Care	3	–
NMT 154 – Nuclear Med Clin Procedures II	3	–
NMT 156 – Instrumentation II	3	–
NMT 252 – Senior Seminar	2	–
NMT 263 – Nuclear Med Clinical Practicum III	3	–
Electives	3	–
NMT 264 – Nuclear Medicine Internship	–	14
Total	17	14

Clinical education takes place at one of the college's clinical affiliates. The initial experience is obtained at Fletcher Allen Health Care (FAHC). At least one experience will be at an affiliate outside of Burlington, which will require additional room, meals, and transportation expenses.

Clinical Affiliations

Catholic Medical Center, Manchester, NH *
Dartmouth-Hitchcock Medical Center, Hanover, NH *
Fletcher Allen Health Care, Burlington, VT*
Hartford Hospital, Hartford, CT *
Maine Medical Center, Portland, ME*
Massachusetts General Hospital, Boston, MA*
Pharmalogic, LTD, Williston, VT

Note: The previous list of clinical affiliations is subject to change.

**Indicates affiliate is used for clinical internships.*

Radiation Therapy

This four-year curriculum leading to the baccalaureate degree is accredited by the Joint Review Committee on Education in Radiologic Technology. Radiation Therapy is the medical specialty that uses high energy radiation (x-rays, gamma rays, electron beams, etc.) in the treatment of cancer. Radiation therapists are responsible for daily treatments, providing support for patients as they cope with their disease, and contributing as vital members of the medical team responsible for the patient's treatment plan.

Students who already have an Associate in Science degree in Radiation Therapy may apply for transfer into the baccalaureate program on a space available basis. Requirements for graduation include 126 credits, which may include approved transfer credits from an associate degree. Additional required courses for the baccalaureate degree are CHEM 023 (or 031 and 032), PHYS 013, PATH 101, NH 120, and twelve credits in the concentration areas of dosimetry, topographical anatomy, patient care, treatment planning, and quality assurance. These independent studies will be coordinated with the student's advisor.

A model curriculum in Radiation Therapy:

(126 credits)

FIRST YEAR	Fall	Spr
CHEM 023 – Outline of General Chemistry	4	–
ENGS 001 (or higher)	3	–
MATH 019 (or higher)	3	–
NH 003 – Medical Terminology	2	–
NH 050 – Applications to Health	1	–
Electives/Diversity courses	3	2
MLRS 034 – Human Blood Cell Biology	–	3
NFS 043 – Fundamentals of Nutrition	–	3
PSYC 001 – Psychology	–	3
SOC 001 – Intro to Sociology	–	3
Total	16	14

SOPHOMORE YEAR	Fall	Spr
ANPS 019–020 – Human Anatomy and Physiology	4	4
MLRS 140 – Radiation Science	3	–
NH 120 – Health Care Ethics	3	–
STAT 111 or 141 – Elements of Statistics	3	–
Electives	3	3
MLRS 141 – Advanced Radiation Science	–	3
PHYS 013 – Conceptual Physics	–	3
RADT 152 – Principles of Radiation Therapy	–	3
Total	16	16

JUNIOR YEAR	Fall	Spr
MLRS 175 – Medical Imaging	3	–
MLRS 296 – Leadership and Mgmt in Health Care	3	–
PATH 101 – Intro to Human Disease	3	–
RADT 173 – Clinical Practicum I	3	–
Electives	3	3
MLRS 215 – CT Procedures	–	3
RADT 174 – Clinical Practicum II	–	2
RADT 176 – Clinical Rad Oncology	–	3
RADT 244 – Seminar, Patient Issues	–	3
RADT 270 – Dosimetry Concepts	–	3
Total	15	17

SENIOR YEAR	Fall	Spr
RADT 223 – Clin Pract III: Radiation Therapy	3	–
RADT 275 – Dosimetry	3	–
RADT 277 – Techniques Radiation Therapy	4	–
Electives	5	–
RADT 274 – Clinical Internship	–	14
RADT 280 – Qual Assurance and Treatment Plan	–	3
Total	15	17

Clinical education takes place at one of the college's clinical affiliates. The initial experience is obtained at Fletcher Allen Health Care (FAHC). At least one experience will be at an affiliate outside of Burlington which will require additional room, meals, and transportation expenses.

Clinical Affiliations

Central VT Hospital (National Life Cancer Treatment Center, Berlin, VT)

Dartmouth-Hitchcock Medical Center, Hanover, NH

Elliot Hospital, Manchester, NH

Fletcher Allen Health Care, Burlington, VT

Massachusetts General Hospital, Boston, MA

Note: The above list of clinical affiliations is subject to change.

Nursing

The Department of Nursing offers an undergraduate educational program to prepare qualified individuals for the practice of professional nursing and a graduate program for advanced nursing practice. The undergraduate program leads to the Bachelor of Science degree and is approved by the Vermont State Board of Nursing and the Commission on Collegiate Nursing Education. Graduates of the program are eligible to apply for registered nurse licensure.

Progression Policy

- Students are expected to maintain a cumulative GPA of at least 2.50 with a grade no lower than C in all required courses (except free electives). If a student's GPA is below 2.50, the student will be placed "on trial" for one semester. The inability to raise the cumulative GPA to 2.50 during the "on trial" semester is grounds for dismissal.
- After the first semester in the program, receiving a C-, D, F, or W in the same course twice or in two different courses, is grounds for dismissal.

Articulation Agreements

UVM's Department of Nursing has articulation agreements with associate degree nursing programs at Castleton State College, Vermont Technical College, and Greenfield Community College. The agreements guarantee students who meet specific admission criteria to a prescribed program of study in the RN-BS program at UVM. Upon successful completion of the RN-BS program and degree requirements, students receive a Bachelor of Science degree with a major in nursing from UVM.

Bachelor of Science Applicants must meet the general admission requirements for the university. Financial aid is available in the form of scholarships, loans, awards, and employment (see the section on Financial Aid in this catalogue). A minimum of 128 approved credits is required for the Bachelor of Science degree. Students are encouraged to purchase a personal computer. Specifications for hardware and software requirements may be found at UVM's Division of Computing and Information Technology's website:

<http://www.uvm.edu/ets/depot>

The curriculum, conducted in four academic years, provides balance between general and professional education. Courses in the sciences (biological, physical, social) and humanities - serve as a foundation for the nursing courses.

A model curriculum in Nursing:

(128 credits)

FIRST YEAR	Fall	Spr
ENGS 001-099	3	-
PSYC 001 - General Psychology	3	-
HDFS 005 - Human Development	3	-
NH 050 - Applications to Health	1	-
SOC 001 - Introduction to Sociology ¹	-	3
CHEM 023, 026 - Chemistry	4	4
NFS 043 Fundamentals of Nutrition	-	3
PSYC 152 Abnormal Psychology	-	3
Philosophy or Religion or Ethics Elective	-	3
Total	14	16

SOPHOMORE YEAR	Fall	Spr
MMG 065 - Microbiology and Pathogenesis	4	-
STAT 111 - Elements of Statistics	3	-
PRNU 110 - Art/Science of Nursing	3	-
Elective/Environmental Studies ²	3	3
ANPS 019-020 - Human Anatomy and Physiology	4	4
PRNU 111 - Research in Nursing	-	3
PRNU 113 - Assess of Hlth: Indiv and Fam/Comm	-	3
PRNU 114 - Intro to Clinical Practice	-	3
Total	17	16

JUNIOR YEAR	Fall	Spr
NURS 120 - Pathophysiology	3	-
PRNU 127 - Hlth Promotion Across Lifespan	3	-
PRNU 128 - Nurs Implications Drug Therapy	3	-
PRNU 129 - Fam Care/Chldbrg Women and Newborn	4	-
Elective	3	3
PRNU 131 - Exp of Alterations in Health I	-	3
PRNU 132 - Caring for Child W/Alter Hlth or 235 - Care Indv w/Alt in Mental Hlth	-	5
PRNU 134 - Care Adult/Elders W/Alt Hlth	-	6
Total	16	17

SENIOR YEAR	Fall	Spr
PRNU 231 - Exp Chronic Ill and End of Life	3	-
PRNU 234 - Care Adlts/Elders w/Alt Hlth II	6	-
PRNU 235 - Care Indv w/Alt in Mental Hlth or PRNU 132 - Caring for Child W/Alter Hlth	5	-
Electives	3	3
PRNU 240 - Contemp Iss and Ldrsh Prof Nursing	-	6
PRNU 241 - Cmty/Public Health Nursing	-	6
PRNU 196 - Transition to Professional Prac	-	1
Total	17	16

¹ Any sociology course under 100.

²A 3-4 credit environmental studies or environmental science course required before graduation.

The Bachelor of Science degree with a major in nursing is awarded upon completion of a minimum of 128 credits in full or part-time study. The major components of the curriculum are: required non-nursing courses, elective courses, and major nursing courses. Students must successfully achieve:

- 65 credits of major nursing courses;
- 45 credits of required non-nursing courses;
- 12 credits of elective courses;
- 6 credits of courses meeting University Approved Diversity requirements must be met through select required non-nursing and elective courses.

B.S. Program for Registered Nurses The program for registered nurses has been designed in light of changes in the health care delivery system and to better serve the registered nurse returning to school. In this program, the Bachelor of Science degree with a major in nursing is awarded upon completion of a minimum of 121 credits in part-time study. The major components of the curriculum are: required non-nursing courses, elective courses, and major nursing courses. The curriculum plan may vary for each student depending on the type and number of credits transferred to UVM. The focus of the baccalaureate program component is on health and health promotion for individuals, families, groups, and communities; and the factors that influence delivery of health care services. The program is an RN-BS-MS accelerated program, with an option for students to "step out" after completion of the baccalaureate requirements with a B.S. degree. Separate application is required for the graduate program.

The baccalaureate nursing courses include:

	Credits
PRNU 060 Trans to Cntmp Prof Nursing	3
PRNU 111 Research in Nursing	3
PRNU 113 Assess of Hlth: Indiv and Fam/Comm	3
PRNU 241 Cmty/Public Health Nursing	6
PRNU 263 Professional Nursing Practice	3
<i>Two out of the three following GRNU courses:</i>	
GRNU 301 Adv Prac Nursing: Prof Dev and Soc	3
GRNU 310 Theoretical Foundation: Nursing	3
GRNU 315 Pol, Org and Fin Health Care	3
PRNU/NURS/HLTH Electives	6-7

The baccalaureate non-nursing courses include:

	Credits
Quantitative Sciences	18
Environmental Studies or Science Elective	3-4
STAT 111 Elements of Statistics	
or STAT 141 Basic Statistical Methods	3
HDFS 005 Human Development	3
Philosophy, Religion, or Ethics	3
English Elective	3
Psychology Elective	3
Sociology Elective	3
General Education Electives	18-19
Diversity courses	6

Graduate Studies Students interested in master's preparation in nursing may obtain information on admission and curricula in the Graduate Catalogue, available in the offices of the Graduate College or online.

Rehabilitation and Movement Science

Exercise is a key to the maintenance of health and the prevention of heart disease, osteoporosis, diabetes, obesity and associated degenerative diseases and chronic conditions.

The Department of Rehabilitation and Movement Science comprises undergraduate majors in Athletic Training, and Exercise and Movement Science, and a doctoral degree in Physical Therapy. Graduates of these programs influence individuals across the life span by fostering wellness, preventing injuries and disease, facilitating high levels of skill, maintaining or restoring fitness, and rehabilitating individuals with injuries, diseases, chronic conditions, and disabilities.

Requirements for admission are the same as the general university requirements, with the addition that applicants must have taken high school biology, mathematics through trigonometry or precalculus, and chemistry; physics is highly recommended.

Athletic Training Education Program

The purpose of the Athletic Training Education Program (ATEP) is to provide students with the knowledge and practical skills needed to enter the profession of athletic training. Athletic Training is an academic major at UVM and provides students with an all-encompassing education fitting of a health care profession. The undergraduate program at the University of Vermont is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). The ATEP is designed to provide the undergraduate student with professional preparation and eligibility to sit for the Board of Certification (BOC) examination. Certified athletic trainers are highly trained health care professionals qualified to work in a number of settings to enhance the quality of health care for athletes and those engaged in physical activity. Working closely with physicians and other health professionals, their expertise includes the prevention, recognition, management, and rehabilitation of injuries incurred due to physical activity.

First year students are required to participate in an introductory period of directed observation experience of 50 hours. During this time, the student becomes acquainted with the various daily duties and routines of the staff and athletic training students, the operations of the athletic training room and basic athletic training skills. At the end of the first year students must apply to enter the clinical portion of the ATEP. Admission requirements for the clinical portion of the ATEP are located on the ATEP website at:
<http://www.uvm.edu/~cnhs/rms/?Page=at.html>

A select group of students are admitted to the clinical portion of the ATEP, and are assigned to Approved Clinical Instructors. These assignments include team practice and game coverage, team travel, and sports therapy clinic coverage. Students also have the option of a number of other practical experiences during their final year including observing in surgery or an emergency room, orthopedic research, emergency rescue squad runs, etc. The required clinical experience hours are completed within a minimum of five semesters. Each student is evaluated at regular intervals and must demonstrate mastery of educational competencies to continue with the next assignment.

A model curriculum in the Athletic Training Education Program:

FIRST YEAR	Fall	Spr
NH 003 - Medical Terminology	2	-
ENG5 001-099 - English Elective	3	-
MATH 009 - College Algebra	3	-
CHEM 023 - Outline of General Chemistry	4	-
NH 050 - Applications to Health	1	-
EDPE 023 - Amer Red Cross Emer Resp	3	-
AT 158 - Fundamentals of Athletic Training	-	4
PHYS 013 - Conceptual Physics	-	3
NFS 043 - Fundamentals of Nutrition	-	3
PSYC 001 - General Psychology	-	3
Humanities or Diversity Elective	-	3
Total	16	16

SOPHOMORE YEAR	Fall	Spr
ANPS 019 - Human Anatomy and Physiology I	4	-
AT 159 - Practicum in Athletic Training I	2	-
AT 184 - Evaluation and Recognition of Athletic Injuries I	4	-
NFS 163 - Sports Nutrition	3	-
Humanities or Diversity Elective	3	3
RMS 244 - Therapeutic Modalities	-	3
ANPS 020 - Human Anatomy and Physiology II	-	4
AT 160 - Practicum in Athletic Training II	-	2
AT 185 - Evaluation and Recognition of Athletic Injuries II	-	4
Total	16	16

JUNIOR YEAR	Fall	Spr
AT 161 - Practicum in Athletic Training III	2	-
RMS 213 - Movement Science I	3	-
AT 189 - Recog and Treatment of Medical Cond in AT	3	-
STAT 111 - Elements of Statistics	3	-
AT 187 - Rehabilitation Techniques in AT	3	-
EXMS 242 - Exercise and Sport Psychology	3	-
AT 162 - Practicum in Athletic Training IV	-	2
RMS 220 - Research I	-	3
RMS 188 - Org and Ldrshp in AT and Ex Sci	-	3
Humanities or Diversity Elective	-	3
EXMS 250 - Exercise Physiology w/lab	-	4
Total	17	15
SENIOR YEAR	Fall	Spr
AT 190 - Senior Clinical Experience	6/12	-
AT 192 - Senior Clinical Experience II	-	6/12
NH 120 - Health Care Ethics	3	-
RMS 280 - Senior Research Experience	-	1/2
Elective	3	3
Total	12/18	10/17

Exercise and Movement Science

The Exercise and Movement Science (EXMS) major comprises in-depth study of the theory and applications of Exercise and Movement Science in health, fitness and illness prevention in diverse populations. Students can tailor their educational experience to individual goals, including mentored internship and research experiences. Graduates of the EXMS major may pursue careers in related areas of fitness and health, such as health promotion, adapted physical activity, recreation management, and health and fitness business ventures. They may also pursue one of several professional certifications, such as ACSM Exercise Specialist, or NSCA certified Strength and Conditioning Training Specialist. Finally, students graduating from this program may be qualified for graduate work in Exercise and Movement Sciences, Physical Therapy, and other health care professions.

Applicants must meet the general admission requirements for the University of Vermont. In addition, students must have one year of high school biology and one year of chemistry.

Students in Exercise and Movement Science must achieve a cumulative GPA of 2.50 or better by the end of their first year and maintain a 2.50 cumulative GPA thereafter to remain in good standing in the program.

A model curriculum in Exercise and Movement Science:

FIRST YEAR	Fall	Spr
NFS 043 - Fundamentals of Nutrition	3	-
CHEM 023 or 031 - General Chemistry	4	-
RMS 157 - Care and Prevention	3	-
NH 050 - Applications to Health	1	-
Electives	3	6
BIO (any biology 3 credits or greater)	-	3/4
PSYC 001 - General Psychology	-	3
ENG (below 099 level)	-	3
EXMS 150 - Intro to Exercise Science	-	1
Total	14	16/17
SOPHOMORE YEAR	Fall	Spr
ANPS 019 - Anatomy and Physiology	4	-
NFS 063 - Obesity/Weight/Fitness	3	-
EXMS 242 - Exercise and Sport Psych	3	-
STATS 111/141 - Statistics	3	-
Diversity course	3	-
ANPS 020 - Human Anatomy and Physiology	-	4
NFS 163 - Sports Nutrition	-	3
PHYS 013 - Conceptual Physics	-	3
Human/Behav Sci	-	3
Elective	-	3
Total	16	16

JUNIOR YEAR	Fall	Spr
EXMS 260 - Adapted Physical Activity	3	-
RMS 213 - Biomechanics of Human Movement	3	-
EXMS 240 - Motor Skill Learning and Control	3	-
Diversity course	3	-
Elective	3	-
EXMS 250 - Exercise Physiology with Lab	-	4
RMS 220 - Research	-	3
RMS 188 - Org and Ldrshp in AT and Ex Sci	-	3
Human/Behav Sci	-	3
EXMS 254 - Neural Control of Movement	-	3
Total	15	16
SENIOR YEAR	Fall	Spr
EXMS 263 Fitness for Special Populations	3	-
EXMS 272 Senior Internship ¹ (taken in either semester)	(6)	(6)
Electives ² (taken in the semester when not taking EXMS 272)	(6)	(6)
EXMS 245 Evaluation and Prescription	3	-
NH 120 Health Care Ethics	3	-
EDPE 267 Strength, Training & Conditioning or EXMS Special Topics	-	3
NH 303 Health Promotion	-	3
EXMS 262 Human Perform & Ergogenic Aids	-	3
Total	15	15

Physical Therapy

Physical therapists work with patients and clients in promoting health, preventing illness and disability, and improving function and quality of life after illness or injury. Students with an interest in the Doctor of Physical Therapy program can apply to the Physical Therapy Graduate program in their final year of undergraduate study or after completion of a baccalaureate degree. Applicants must have a baccalaureate degree with an overall GPA of 3.00 or greater and successfully complete the prerequisite courses prior to entry. The prerequisite courses are: two chemistry w/labs, two anatomy/physiology, one biology, one exercise physiology, one psychology, and one statistics. A sub cumulative GPA of 3.00 or greater is required in the eight science prerequisite courses. Application information and a curriculum outline are available on the program's website: <http://www.uvm.edu/~cnhs/rms/?Page=pt.html#admission>

¹ If EXMS 272 is taken in the Fall, then 6 credits of electives need to be taken in the Spring. If EXMS 272 is taken in the Spring, then 6 credits of electives need to be taken in the Fall.

² RMS 280 - Senior Research Experience (1-4 credits) available as an Elective with instructor permission.

The Rubenstein School of Environment and Natural Resources

In the Rubenstein School of Environment and Natural Resources (RSENR), excitement for discovery and a commitment to life-long learning are central. Our emphasis on the integration of natural science, social science, and cultural and political perspectives reflects the interdisciplinary context in which ecosystem management, resource planning, and environmental concerns must be addressed. We believe that there is a strong interplay between teaching and scholarship and that each is vital to the other.

The Rubenstein School of Environment and Natural Resources seeks to cultivate an appreciation and enhanced understanding of ecological and social processes and values aimed at maintaining the integrity of natural systems and achieving a sustainable human community. We pursue this goal by generating and broadly disseminating knowledge and by challenging students, colleagues, and citizens to acquire knowledge, skills, and values to become innovative, environmentally responsible, and accountable leaders.

We are actively committed to diversity-biodiversity in natural communities and social-cultural diversity in human communities. Individual and professional responsibility, as well as scholastic excellence, are emphasized within the school's supportive atmosphere. Faculty members are conscientious advisors, and students communicate frequently with them for guidance in clarifying educational, career, and personal goals. While these programs prepare students for a variety of positions in natural resources and the environment, graduates are also well prepared to pursue careers or advanced study in other professions.

The office of the dean of the school is located in the George D. Aiken Center for Natural Resources.

DEGREE PROGRAMS AND OPTIONS

The Bachelor of Science degree is awarded for the following programs and concentrations:

Environmental Sciences

Concentrations

Agriculture and the Environment
Conservation Biology and Biodiversity
Ecological Design
Environmental Analysis and Assessment
Environmental Biology
Environmental Chemistry
Environmental Geology
Environmental Resources
Water Resources

Environmental Studies

Forestry

Natural Resources

Concentrations

Resource Planning
Resource Ecology
Integrated Natural Resources

Parks, Recreation and Tourism

Concentrations

Private Outdoor Recreation and Tourism
Public Outdoor Recreation

Wildlife and Fisheries Biology

Concentrations

Fisheries Biology
Wildlife Biology

Undecided: Students interested in studying the environment and natural resources, but who wish to postpone their decision on a specific major, enroll in Undecided-Environment and Natural Resources.

AIKEN SCHOLARS

High achieving, highly motivated first-year students admitted to RSENR may be invited to apply to be an Aiken Scholar. The Aiken Scholars program prepares students to become strong environmental leaders at the University of Vermont and in their future careers. Aiken Scholars live in the GreenHouse Residential Learning Community and participate in enrichment activities, such as the Aiken Scholars Seminar.

OFFICE OF EXPERIENTIAL LEARNING

The Office of Experiential Learning (OEL) helps RSENR students build skills and experience by providing a diversity of learning opportunities. Reflective career development, course work, and co-curricular activities are integrated to foster competencies that will make RSENR graduates highly competitive professionals and engaged, effective citizens.

The OEL takes a holistic approach to career preparation by supporting participation in community-based projects, internships, applied research, and career counseling. Course-based student development is facilitated through support of faculty and community partners as they create and implement community-based courses and research projects. At the heart of our work is a demonstrated commitment to student and faculty development and collaborative problem-solving between the school, the university, and the local, national, and international community.

The OEL works directly with the Community-University Partnerships & Service Learning Office and the UVM Career Services Office.

The curriculum in RSENR relies heavily on Vermont's natural landscapes – its mountains, lakes, fields, and forests – to provide students hands-on experience studying ecology and ecosystem processes. In addition, RSENR offers a variety of intensive field courses during vacation breaks and summer session that provide students special opportunities to study outside of Vermont. Past field explorations have included: study of the wildlife of Florida or south Texas, exposure to the arid ecosystems and water resource issues in Israel, participation in environmental research in the Chesapeake Bay region, introduction to ecotourism and environmental interpretation in Costa Rica, experience with regional examples of sustainable forest management and practices, and the study of aquatic ecology in Lake Champlain from the deck of the Melosira, UVM's research vessel.

DEGREE REQUIREMENTS

Students must be matriculated in the Rubenstein School of Environment and Natural Resources and in residence at the University of Vermont during the period in which they earn 30 of the last 45 credits applied toward the degree. Students must earn a cumulative grade-point average of 2.00 or above. Students must complete a program of study which includes:

1. RSENR core curriculum.
2. RSENR general education courses, including the University Approved Diversity requirement.
3. RSENR major requirements.

RSENR Core Curriculum

The school's core curriculum provides a common experience for all students. The innovative eight-course sequence creates an integrated foundation upon which the individual majors in the school are constructed. Core courses focus on the underlying fundamentals from which natural resources disciplines have evolved and the application of these fundamentals to problems or issues in the natural world and society. The core courses also promote development of thinking, communication, problem solving, and analytical skills. Faculty from all undergraduate programs teach in the core. The RSENR core curriculum represents a body of knowledge, skills, and values that the faculty believe are central to the study of natural resources and the environment.

Eight courses are required (23 credits):

- NR 001, Natural History and Field Ecology
- NR 002, Nature and Culture
- NR 006, Race and Culture in Natural Resources
- NR 103, Ecology, Ecosystems and Environment
- NR 104, Social Processes and the Environment
- NR 205, Ecosystem Management: Integrating Science, Society, and Policy
- NR 206, Environmental Problem Solving and Impact Assessment
- NR 207, Power, Privilege, and Environment

NR 001 and 002 provide an introduction to the study of natural resources and the environment from natural and social science standpoints, respectively. At the completion of these courses, students should (1) have a basic understanding of the school's integrated approach to natural resources and the environment, (2) be better prepared to make informed decisions about their academic majors, and (3) be prepared to advance to an intermediate level of study in natural resources. The intermediate courses in the sequence, NR 103 and 104, emphasize ecosystems and social systems, respectively. NR 205 and 206 focus directly on integrated and holistic management. In NR 205, students integrate natural and social science to understand environmental management principles and policies. In NR 206, the capstone course taken during their senior year, students are challenged to synthesize and apply the interdisciplinary knowledge, skills, and values they have learned to contemporary natural resources and environmental issues. NR 006 and 207 explore how social justice and environmental issues are intertwined, and help students become culturally competent in an increasingly diverse world.

General Education Courses

RSENR general education requirements are designed to enhance a student's ability to assimilate and analyze information, think and communicate clearly, and respect multiple perspectives. These requirements are flexible in order to encourage creativity in meeting educational goals. All students must complete each of the following general education requirements*:

1. **Writing** - one course from ENGS 001, 050, or 053.
2. **Speaking** - one course from SPCH 011, CALS 183, or NR 021.
3. **Race and Culture** - NR 006, 207 and one additional course from the approved list of University Approved Diversity courses (totaling at least six credits).
4. **Mathematics** - MATH 009 or higher (but *not* MATH 017). Individual majors may specify a higher math requirement.
5. **Statistics** - one course from NR 140, STAT 111, 141, or 211. Individual majors may be more restrictive.
6. **Self-Designed General Education Sequence** - Each student defines a personal learning objective and selects at least nine credits from departments outside RSENR to meet that objective. This sequence of courses must be approved in advance**.

**With the exception of the third Race and Culture course chosen from the approved list of University Approved Diversity courses, no single course may be used to satisfy more than one of the above requirements.*

***Before completion of four semesters or 60 credits; time-frame may be extended for transfer students.*

MAJOR REQUIREMENTS

Environmental Sciences

The Environmental Sciences major provides students with the fundamental knowledge and hands-on experience to identify, analyze, and solve "real world" environmental problems arising from human activities.

A total of 120 credits is required for the degree.

Required courses: BCOR 011, 012; CHEM 031, 032; CHEM 042*; GEOL 055 or PSS 161; MATH 019, 020**, NR 140** or STAT 141; ENSC 001, 130, 160, 185, 201, 202; fourteen to seventeen credits in one of the following Focus Tracks: Agriculture and the Environment, Conservation Biology and Biodiversity, Ecological Design, Environmental Analysis and Assessment, Environmental Biology, Environmental Chemistry, Environmental Geology, Environmental Resources, Water Resources. Up-to-date course requirements for each Focus Track are available online or from the student's advisor or the dean's office; students may elect to petition to develop a self-design track.

**Students interested in areas such as environmental analysis and assessment should consider taking more advanced courses, such as CHEM 141/142.*

***Also fulfills RSENR general education requirement.*

Environmental Studies

Environmental Studies is an interdisciplinary major which combines required core courses with a self-designed program of study chosen to meet individual learning goals. The Environmental Studies core courses include perspectives of the sciences, social sciences, and humanities in local, national, and global contexts.

A total of 120 credits is required for the degree.

Required courses: ENVS 001, 002, 151; nine credits of a senior capstone; and thirty credits of approved environmentally-related courses* at the 100- or 200-level, including three credits at the 200-level, with at least one environmentally-related course in each of the following areas: natural sciences, humanities, social sciences, and international studies (may be fulfilled with study abroad experience).

**These courses are in addition to the RSENR core and general education requirements.*

Forestry

The Forestry major provides students with an education in ecologically responsible forestry, emphasizing the complex landscapes of the northeastern United States. Students develop their abilities to coordinate and manage all aspects of sustainable forestry through an education that combines a strong foundation in natural and social sciences with hands-on field-based classes, internships, research experiences, and forest management projects. The curriculum is integrative, technologically current, and science-based.

Students supplement a core of required Forestry and related courses with a student-proposed, faculty-approved area of concentration* such as forest ecosystem health, forest ecology, consulting forestry, public forest administration, or international development.

**Must be endorsed by the student's advisor and approved by the Forestry faculty prior to the last four semesters of study.*

The concentration represents at least twelve credits and can be fulfilled by a self-designed sequence of course work*, an appropriate university minor, or a natural resource oriented study abroad experience.

A total of 124 credits is required for the degree.

**At least nine credits are to be at the 100-level or higher.*

Required courses: PBIO 004; CHEM 023; MATH 018*; NR 025, 140*; WFB 224; PSS 161; a course in economics or ecological economics; FOR 021, 073, 081**, 121, 122***, 182, 223, 235, 272; twelve additional credits in the area of concentration.

**Also fulfills the RSENr general education requirement.*

***Transfer students with 45 or more credits are exempt from FOR 081.*

****Field intensive course offered only during the summer session.*

Natural Resources

Resource Planning

The Resource Planning curriculum explores interactions among individuals, communities, and society with nature, resources, and the environment. It allows students to select courses around specific individual interests such as natural resource planning and community, policy and economic dimensions of resource planning, and international dimensions of resource planning.

A total of 120 credits is required for the degree.

Required courses: ANTH 021 or GEOG 050; CDAE 002 or ENVS 002; EC 011 or 012 or CDAE 061; PHIL 010 (Ethics) or ENVS 178 or CDAE 208; POLS 021 or 041 or 051; PSYC 001 or 104 or 130 or 161; SOC 001 or 011. Twenty-seven additional credits in Optional Electives to be chosen from an approved list in consultation with the student's academic advisor. Any course substitution request should be approved **prior to the end of the add/drop period** for the semester in which the student plans to enroll in the substitute course.

Resource Ecology

The Resource Ecology curriculum explores the biology and ecology of plants and animals in both aquatic and terrestrial systems and allows students to select courses around specific individual interests.

A total of 120 credits is required for the degree.

Required courses: BIOL 001, 002; GEOL 001 or PSS 161; MATH 019*; NR 140*; CHEM 023 or both 031 and 032; CHEM 026 or 042 or both 141 and 142; NR 025; NR 143 or NR/FOR 146; twenty-seven additional credits in Optional Electives to be chosen from an approved list in consultation with the student's academic advisor. Any course substitution request should be approved **prior to the end of the add/drop period** for the semester in which the student plans to enroll in the substitute course.

**Also fulfills RSENr general education requirement.*

Integrated

Integrated Natural Resources (INR) is a self-designed major. INR is the right choice for students who have strong interests in natural resources and the environment, clear academic direction, and the motivation to develop a well-focused, personally meaningful course of study. Working closely with a faculty advisor, the student builds on a solid foundation of natural resources courses to create an individualized program that combines course work from disciplines within and outside the school.

A total of 120 credits is required for the degree.

Required courses: (minimum nine credits): Students select from a list of approved courses, at least one course in each of three areas: *biology/ecology; NR courses in social sciences and communications; and quantitative and analytical methods.* These courses are in

addition to those taken to fulfill RSENr's general education requirements.

Individualized Program of Study (minimum thirty-nine credits): The student develops an Individualized Program of Study composed primarily of intermediate level RSENr courses (ENVS, ENSC, FOR, NR, PRT or WFB prefix). This must include at least twenty-four credits inside the school and no more than six credits below the 100-level. With careful selection of courses, students develop concentrations such as *Environmental Education, Sustainable Resource Management, Environmental Health, and Spatial Analysis of Natural Resources.* All programs of study must be endorsed by the advisor, then approved by the faculty. If not approved, the student may not continue in the INR option and must seek another major. The program of study is to be completed by the end of the sophomore year (sixty credits). Transfer students with more than sixty credits must have a program of study approved as part of the transfer application. It is expected that transfer students will be active in the program for at least two years (four semesters) after transferring into the INR option. Any course substitution request should be approved **prior to the end of the add/drop period** for the semester in which the student plans to enroll in the substitute course.

Parks, Recreation and Tourism

The Parks, Recreation and Tourism major integrates the study of environmentally based tourism and hands-on management of outdoor recreation resources. Students may major in **Public Outdoor Recreation** or **Private Outdoor Recreation and Tourism**. Public recreation resources include parks, forests, wilderness areas, and other outdoor recreation environments at the local, regional, state, and federal government levels. Private resources include ski areas, campgrounds, resorts, and other natural resource-based recreation facilities. The program permits specialization in several types of private recreation fields, including ski resort management, entrepreneurship, and ecotourism.

A total of 124 credits is required for the degree.

Courses required for all Parks, Recreation and Tourism majors:

- One three-credit course in humanities (history, philosophy, religion, classics)
- One three-credit course in communications (art, music, theater, art history, foreign language, English literature, world literature)
- One three-credit course in social sciences (anthropology, economics, geography, political science, psychology, sociology)
- One four-credit laboratory course in natural sciences (biology, physics, chemistry, plant biology, zoology, geology)

Private Outdoor Recreation and Tourism

Required courses: PRT 001, 050, 157, 158, 191 (three to six credits), 230, 258; three courses selected from PRT 138, 153, 235, 240, 255; and nine additional credits of professional electives to be chosen in consultation with an advisor.

Public Outdoor Recreation

Required courses: PRT 001, 138, 153, 191 (three to six credits), 235, 240, 255; three courses selected from PRT 050, 157, 158, 230, 258; and nine additional credits of professional electives to be chosen in consultation with an advisor.

Wildlife and Fisheries Biology

The areas of Wildlife Biology and Fisheries Biology deal with the management and conservation of animal populations that range from species that are common enough to be hunted/fished to species that are endangered. Management strategies may include manipulation of populations directly or indirectly through alteration of habitat. Courses emphasize applied ecology and provide hands-on experience in labs and field trips. All Wildlife and Fisheries Biology majors complete the same core of courses during the first year. As sopho-

mores, students elect either the Wildlife Biology or the Fisheries Biology concentration. Required courses in the major satisfy the educational requirements of the U.S. Office of Personnel Management for entry-level positions in these fields.

A total of 120 credits is required for the degree.

Courses required for both concentrations: MATH 019 or 021*; NR 140*; BIOL 001, 002; CHEM 023; CHEM 026 or 042; NR 025 or NR 143; FOR 121; WFB 161, 174, 224.

Wildlife Biology

Required courses: FOR 021; WFB 130; WFB 131**, WFB 150**, PBIO 109; BIOL 217; two courses (one must have a lab) selected from WFB 185: Herpetology/Field Herpetology***, WFB 285: Wetlands Wildlife and Ecology***, WFB 273/WFB 274***, WFB 275, or WFB 279.

Fisheries Biology

Required courses: WFB 285: Fisheries Management; WFB 232; NR 250 or 280; NR 260 or WFB 285: Wetlands Wildlife and Ecology; WFB 279; two additional courses selected from NR 250, 270 or 280, BIOL 264, WFB 285: Wetlands Wildlife and Ecology or NR 260, WFB 285: Advanced Special Topics, CE 260 or NR 285: Environmental Hydrology.

* Also fulfills the RSENr general education requirement.

** Field intensive courses offered only during the summer session.

*** Laboratory courses.

MINORS

For the requirements, refer to the “Undergraduate Minors” section in this catalogue.

The Bachelor of Science degree in Natural Resources does not require completion of a minor. However, many students in RSENr do complete minors, either within the school or in other departments across campus. Five minors are offered through RSENr, and are open to all students. Interested students should contact the chair of the minor program or department:

- Environmental Studies
- Forestry
- Geospatial Technologies
- Parks, Recreation and Tourism
- Wildlife Biology

The Honors College

The Honors College (HC) offers an intensely focused, academically challenging environment for some of the university's most outstanding undergraduate students. The Honors College involves a broad cross-section of the university community, existing not as a cloistered academic enclave but as a vital part of that larger community. The Honors College is above all a community of scholars — students and faculty — committed to the ideals of excellence in scholarship, academic rigor, and intellectual inquiry and engagement.

ADMISSION TO THE HONORS COLLEGE

Admission to the Honors College is based on prior academic performance and is gained through one of two avenues. First year students may be invited to the HC based on the strength of their application to the university; no additional application is required. Around 150 first year students comprise each year's class. Because the college exists to recognize and encourage academic excellence, it also welcomes applications for admission from sophomores who were not in the HC in their first year, but were among the top performers as first year students at UVM. Sophomore admission requires an application form, a 3.40 grade-point average at the end of the first year, a letter of recommendation from a UVM faculty member, and a brief essay. Over 100 sophomores are admitted annually. Students transferring into their first or second year at UVM should contact the Honors College office to express their interest.

ACADEMIC STANDARDS

Students whose overall GPA falls below 3.20 will be given one semester to raise it back over this level. Failure to do so will make them subject to dismissal from the HC. The dean has discretion to take personal considerations into account prior to dismissal for low achievement. Students will be subject to dismissal from the HC if they receive grades of C- or below for more than eight credits of course work or if they are not making satisfactory progress towards completion of Honors College requirements. Students with a serious academic integrity offense, determined by standard university procedure, will be dismissed from the HC.

CURRICULUM

Honors College students have "dual citizenship": they are members of both the HC and one of the seven undergraduate degree granting schools and colleges. The Honors College supplements and enriches degree offerings with multidisciplinary courses and seminars that broaden intellectual horizons and stimulate discussion, debate, writing, research and reflection. Honors College courses are taught by distinguished faculty drawn from the range of academic disciplines at UVM. Enrollment in Honors College seminars is limited to Honors College students. Honors College courses often count towards fulfilling degree requirements. Students who complete all Honors College curricular requirements, in addition to the degree requirements of their home school or college, graduate as Honors College Scholars.

The First Year Seminars

The first semester seminar provides a common experience (three credits) for all first year students in the Honors College. This course examines knowledge acquisition from the perspective of different disciplines through reading and discussion of classic works and contemporary writings. It is taught in small seminars (about 20 students in each section) intended to promote intellectual dialogue. The seminar is writing intensive, requiring multiple drafts of papers that encourage students to develop their reasoning and sharpen their focus through their writing. It is designed to guide students in thinking rigorously from many contexts. The course is supplemented by plenary lectures by professionals, visiting faculty and university faculty. The entire university community is invited to these lectures. The second semester offers a choice of seminars on the theme of diversity, allowing students to progress toward completing the University Approved Diversity requirement.

Sophomore Seminar

Sophomores take two three-credit seminars, one in the fall and one in the spring, selected from an extensive slate of offerings created for HC students by faculty in schools and colleges university-wide. Topics vary from year to year.

Junior and Senior Year

Typically, in the junior year, students take a minimum of three credits of course work in their home school or college that prepares them for their senior year Honors project. Senior students complete a six-credit research thesis or senior project approved by their home school or college. Requirements for both years vary slightly across the schools and colleges.

Residential Component

The Honors College is housed in a residential complex at University Heights. This beautiful facility provides housing for HC students, as well as permanent office space for the HC administration and staff. In addition, the complex includes classroom space, lounges, and meeting space for the Honors College. Students are strongly encouraged to live in the Honors College residence.

Co-Curricular Activities

All UVM faculty and students and the general public are invited to participate in frequent Honors College events such as lectures and symposia presented by faculty, students, and distinguished visiting scholars and artists.

ADVISING AND SUPPORT

The Honors College provides special advising for students throughout UVM in two areas. It advises undergraduates interested in pursuing research under the mentorship of a faculty member by maintaining a database of research opportunities and administering funding programs. It also provides mentoring for students applying for nationally competitive fellowships and scholarships (e.g., Fulbright, Truman, Udall, Goldwater, and Rhodes).

Undergraduate Minors - Descriptions

Requirements for Academic Minors for Undergraduates

An undergraduate student may choose to pursue an academic minor. An academic minor at UVM shall be composed of a set of courses that reflect a coherent body of knowledge in one or more disciplines. A minor shall require between fifteen and twenty hours of course work, of which at least nine hours must be at the 100-level or above. A minor shall require no more than the credit equivalent of three standard classroom courses (nine to twelve credits) of prerequisites that are not part of the minor, although exceptions to this rule may be allowed with just cause.

At least half of the courses used to satisfy the minor must be taken at UVM. The student may choose any set of applicable courses from his/her transcript to satisfy the minor requirements. The grade-point average of these chosen courses must be at least 2.00. Courses used to satisfy a minor may not be taken pass/no pass.

Accounting

College/School: School of Business Administration

Requirements BSAD 161 and 162 plus an additional two (2) accounting courses of at least three credits each numbered above BSAD 162.

Prerequisites BSAD 060 and 061 with a grade of at least a C in each of these courses: EC 011, 012; MATH 019 or 021; and STAT 141.

Exception: EC 170, NR 140, STAT 143, or completion of both PSYC 109 and 110 may be substituted for STAT 141 if required by the student's major.

Computer competency: Students are presumed to have basic microcomputer literacy, including working knowledge of word processing and spreadsheet software. Students lacking this basic knowledge are responsible for attaining it through course work, self study, tutorials or workshops.

Ineligible majors Business Administration
Contact studentservices@bsad.uvm.edu

African Studies

College/School: College of Arts and Sciences

Department: Global and Regional Studies Program

Requirements A total of eighteen credits (six courses), at least nine of which must be at the 100-level or above and which must include the following:

Core Courses (at least four from the following): ANTH 162, ENGS 061, GEOG 150, HST 040 or HST 041, POLS 177.

Secondary Courses (two courses chosen from among the following): ENGS 173, FREN 289, GEOG 150, HST 040, or HST 041 (where it does not count towards fulfilling the core course requirements listed above), HST 140, HST 141, HST 142, HST 241, SOC 272.

Prerequisites ANTH 021 and/or POLS 071.

ALANA U.S. Ethnic Studies

College/School: College of Arts and Sciences

Department: ALANA U.S. Ethnic Studies Program

Requirements Eighteen credits (six courses) including ALAN 051 and fifteen credits to be chosen from the list of ALANA approved courses (consult program website or office for list) of which at least nine must be at the 100-level or above. Students should consult with an ALANA U.S. Ethnic Studies Program advisor in devising their course of study.

Prerequisites Intro and intermediate level courses for varying subject areas to get to the appropriate level of 100.

Animal Science

College/School: College of Agriculture and Life Sciences

Department: Animal Science

Requirements Sixteen credits including ASCI 001 plus nine credits at the ASCI 100-level or above including at least three credits at the ASCI 200-level.

Prerequisites CHEM 023 or higher, BIOL 001 or higher.

Contact person Helen.Maciejewski@uvm.edu

Anthropology

College/School: College of Arts and Sciences

Department: Anthropology

Requirements Eighteen credits in anthropology, including six credits from the following core courses: ANTH 021, 024, 026, 028. Of the twelve additional credits, at least nine credits must be at the 100-level or above. The following courses do not count towards the minor: ANTH 190; 197/198; 201; 297/298.

Ineligible majors Anthropology

Applied Design

College/School: College of Agriculture and Life Sciences

Department: Community Development and Applied Economics

Requirements Nine credits including CDAE 015 Visual Communication; CDAE 001 Drafting & Design Drawing or CDAE 016 Sketching and Illustration; CDAE 101 Computer Aided Drafting and Design or CDAE 231 Applied Computer Graphics. Plus six advisor-approved credits. Students from the College of Arts and Sciences must have their advisor pre-approve the two focus courses. Nine of the fifteen credits must be at the 100-level or above.

Prerequisites CDAE 001 or instructor's permission required for CDAE 101; CDAE 015 required for CDAE 231.

Ineligible majors Studio Art

Contact person Jane.Petrillo@uvm.edu

Art History

College/School: College of Arts and Sciences

Department: Art and Art History

Requirements Eighteen credits, including six credits from ARTH 005, 006, and 008; twelve credits of 100-level courses or above.

Ineligible majors Art History

Asian Studies

College/School: College of Arts and Sciences

Department: Global and Regional Studies Program

Requirements Eighteen credits in courses from the Asian Studies listing (see Courses of Instruction - Asian Studies) including at least two courses in an Asian language, and at least one course in each of two other academic disciplines. At least nine credits must be at the 100-level or above. For students who have demonstrated fluency in an Asian language relevant to the other courses they have chosen for their minor concentration (for instance, native speakers of the language), the language requirement will be waived, and courses from a third academic discipline can be substituted.

Prerequisites One or two intro level courses may be necessary in order to get into a 100-level Asian Studies course.

Ineligible majors Asian Studies

Biochemistry

College/School: College of Agriculture and Life Sciences

College of Arts and Sciences

College of Medicine

Department Biochemistry Program

Requirements Seventeen credits of chemistry course work: CHEM 143, 144; BIOC/CHEM/MMG 205, 206, 207 (CHEM 141 may be substituted for 143, and CHEM 142 may be substituted for 144).

Restrictions Not available to Chemistry majors and minors.

Biology

College/School: College of Arts and Sciences

Department: Biology

Requirements BCOR 011/012 or BIOL 001/002; three courses at the 100-level or higher chosen from courses acceptable for the biology major, at least one of which must include a laboratory. One course may be taken from the advanced offerings of other biologically-oriented departments. Consult the Biology Department for a list of approved courses.

Prerequisites CHEM 031, 032 concurrent with BCOR 011, 012.

Ineligible majors Biology (B.A.), Biological Sciences (B.S.), Plant Biology (B.A.), Zoology (B.A., B.S.)

Other information CHEM 141, 142 and MATH 019 or above may be necessary for advanced offerings.

Business Administration

College/School: School of Business Administration

Requirements Introductory Accounting: BSAD 065 or 060 and 061.

One course selected from BSAD 120, 132, 141, 150, 173, or 180.

Three (3) additional BSAD courses, at least three credits each. These BSAD electives may be selected from any BSAD course numbered 100 or above, whether or not they are in the preceding requirement list. Business Administration minors who choose to study abroad may use one upper-level business course taken abroad towards their minor requirements.

Prerequisites EC 011 and 012, MATH 019 or 021, STAT 141.

Exception: EC 170, NR 140, STAT 143, or completion of both PSYC 109 and 110 may be substituted for STAT 141 if required by the student's major. Prerequisite courses must be completed with a cumulative GPA of at least a 2.00 before admission to the minor in Business Administration.

Computer competency: Students are presumed to have basic microcomputer literacy, including working knowledge of word processing and spreadsheet software. Students lacking this basic knowledge are responsible for attaining it through course work, self study, tutorials or workshops.

Ineligible majors Business Administration

Contact studentservices@bsad.uvm.edu

Canadian Studies

College/School: College of Arts and Sciences

Department: Global and Regional Studies Program

Requirements Eighteen credits to include GRS 091 or HST 066 (HST 065 upon approval of advisor), and fifteen credits to be chosen from the Canadian content list (see major listing for approved courses) of which at least twelve credits must be at the 100-level or above. Students will fulfill the language requirement with French.

Prerequisites Through FREN 052 or equivalent. Intro level courses for varying subject areas to get to the 100 level in course offerings.

Ineligible majors Canadian Studies

Other information FREN 052 is not included in the minor credits.

Chemistry

College/School: College of Arts and Sciences

Department: Chemistry

Requirements CHEM 031 or CHEM 035, CHEM 032 or CHEM 036; and one of the two following sequences: CHEM 141 or CHEM 143, CHEM 142 or CHEM 144; and one of the following: CHEM 121, CHEM 131, CHEM 161 or CHEM 162; or CHEM 161 or CHEM 162 and CHEM 042 or CHEM 141.

Ineligible majors Chemistry (B.A., B.S.), Biochemistry (B.S.), Environmental Science Chemistry focus track

Prerequisites PHYS 152 and MATH 121 (or CHEM 167) required for CHEM 161. PHYS 012 (or PHYS 152) required for CHEM 162.

Chinese

College/School: College of Arts and Sciences

Department: Asian Languages and Literatures

Requirements Fifteen credits of Chinese with at least nine of those credits at the 100-level, including CHIN 102 or its equivalent. Three credits at or above the 100-level in Chinese linguistics or literature may be substituted for three credits of language study beyond CHIN 102 or its equivalent.

Other information Additional courses in Chinese may be taken to make a major in Asian Studies and a minor in Chinese possible without more than one course overlap.

Classical Civilization

College/School: College of Arts and Sciences

Department: Classics

Requirements Eighteen credits from the following (of which at least nine credits must be above 100): all courses in Greek and Latin above 050-level; all courses in Classics; ARTH 146, ARTH 148, ARTH 149; and all special topic courses in Classics, Latin or Greek. All Classical Civilization minors must fulfill the college foreign language requirement, preferably in Greek or Latin.

Prerequisites GRK 001, 002 or LAT 001, 002 if necessary.

Ineligible majors Classical Civilization

Other information A major in European Studies, Greek, History, Italian Studies, or Latin and a minor in Classical Civilization may be possible if additional courses are taken in order to reduce overlap to one course.

Communication Sciences and Disorders

College/School: College of Nursing and Health Sciences

Department: Communication Sciences and Disorders

Requirements LING 080 and CSD 094, three courses at the 100-level or above, and one course at the 200-level or above (but NOT CSD 262, 271, or 272). In addition to CSD courses, the following are also accepted: any two LING courses (but NOT 164 or 165); ANTH 176; any two of PSYCH 121, 130, and 161.

Ineligible majors Communication Sciences and Disorders

Community and International Development

College/School: College of Agriculture and Life Sciences

Department: Community Development and Applied Economics

Requirements CDAE 002 World Food, Population & Development; CDAE 061 Principles of Community Development Economics (CAS students may substitute EC012 for CDAE 061); CDAE 102 Sustainable Community Development.

One of the following three courses: CDAE 171 Community and International Economic Transformation, CDAE 296 Field Experience/Practicum (Internship), or CDAE 273 Project Development and Planning.

Plus one of the following courses: CDAE 166 Intro to Community Entrepreneurship, CDAE 167 Financial Management for Community Entrepreneurship, CDAE 237 Economics of Sustainability, CDAE 251 Contemporary Policy Issues in Community and International Development, CDAE 255 Applied Consumption Economics, or CDAE 272 International Economic Development or others as approved by minor advisor.

Prerequisites Instructor's permission or CDAE 061 required for CDAE 102 or 237; CDAE 002, 061 required for CDAE 171; CDAE 171 as a pre- or co-requisite for CDAE 273 or instructor's permission; sophomore standing required for CDAE 166; CDAE 166 required for CDAE 167; instructor's permission or CDAE 102 required for CDAE 251; EC 172 or CDAE 254 required for CDAE 255; junior standing required and instructor's permission or CDAE 102 for CDAE 272; CDAE 273 is a co-requisite for CDAE 272.

Ineligible majors Community and International Development

Contact person Jane.Kolodinsky@uvm.edu

Community Entrepreneurship

College/School: College of Agriculture and Life Sciences

Department: Community Development and Applied Economics

Requirements CDAE 166 Intro to Community Entrepreneurship; CDAE 167 Financial Management for Community Entrepreneurship; CDAE 168 Marketing for Community Entrepreneurship; CDAE 266 Decision Making for Community Entrepreneurship. One of the following courses: CDAE 157 Consumer Law or CDAE 267 Strategic Planning for Community Entrepreneurship.

Prerequisites Sophomore standing required for CDAE 166; CDAE 166 required for CDAE 167; CDAE 061 and 166 required for CDAE 168; CDAE 166, MATH 019 and CALS 085 or CS 002 required for CDAE 266; sophomore standing required for CDAE 157; instructor permission for CDAE 267.

Ineligible majors Community Entrepreneurship

Contact person Kathleen Liang cliang@uvm.edu

Computer Science

College/School: College of Engineering and Mathematical Sciences

Department: Computer Science

Requirements Eighteen credits in Computer Science to include nine credits at the 100-level or above. Minor curricula must be approved by a Computer Science advisor. Pre-approved tracks are available on the Computer Science Department's website at www.uvm.edu/~cems/cs.

Prerequisites MATH 019 or 021.

Contact person Robert.Snapp@uvm.edu

Consumer Affairs

College/School: College of Agriculture and Life Sciences

Department: Community Development and Applied Economics

Requirements CDAE 127 Consumer, Markets, and Public Policy; CDAE 128 The Consumer & Advertising; CDAE 159 Consumer Assistance Program; CDAE 157 Consumer Law & Policy. Plus one of the following: CDAE 102 Sustainable Community Development, or CDAE 250 Research Methods, or CDAE 255 Applied Consumption Economics.

Prerequisites Sophomore standing required for CDAE 127, 157, and 159; junior standing required for CDAE 128.

Contact person Jane.Kolodinsky@uvm.edu

Consumer and Advertising

College/School: College of Agriculture and Life Sciences

Department: Community Development and Applied Economics

Requirements CDAE 015 Visual Communication; CDAE 127 Consumers, Markets, and Public Policy; CDAE 128 The Consumer & Advertising; CALS 183 Communication Methods. One additional three or more credit advisor-approved course.

Prerequisites Sophomore standing CDAE 127; junior standing required for CDAE 128.

Ineligible majors Public Communication

Contact person Jane.Kolodinsky@uvm.edu

Dance

College/School: College of Arts and Sciences

Department: Music and Dance

Requirements Eighteen credits in Dance (DNCE). Nine credits must be at the 100-level or above. Three credits in dance history (DNCE 050); six credits in dance technique (two courses from DNCE 012, 111, 112); and three credits in dance composition (one course from DNCE 060 or 160). Six additional credits from remaining DNCE courses.

Ecological Agriculture

College/School: College of Agriculture and Life Science

Department: Plant and Soil Science

Requirements The following courses or course choices are required with a minimum of fifteen credits: PSS 021 and 212. One course from the following: CDAE 002, ENVS 002, NFS 073. Two courses from any of the following: ASCI 110, ASCI 122, PSS 106, PSS 112, PBIO/PSS 117, PSS 124, PSS/ASCI 143, PSS 154, PSS 156, PSS 161, PSS 162, PSS 268, CDAE 208/ASCI 230, or appropriate PSS special topics (as approved by the Plant and Soil Science Undergraduate Affairs committee).

Ineligible majors Ecological Agriculture

Contact person Sid.Bosworth@uvm.edu

Economics

College/School: College of Arts and Sciences

Department: Economics

Requirements Eighteen credits including EC 011, 012; and four courses from EC 020-196, three of which must be from EC 110-196. Minors are not required to take MATH 019, although they will need to if they wish to take EC 170, EC 171 or EC 172.

Ineligible majors Economics

Electrical Engineering

College/School: College of Engineering and Mathematical Sciences
Department: Electrical Engineering Program
Requirements Nineteen credits in Electrical Engineering consisting of EE 003, 004, 081, 082 and nine credits in EE numbered above 101.
Prerequisites MATH 021, 022, 121, 271 (or 230); PHYS 031, 021, 042, 022.
Other information Students must obtain an advisor from the ECE program.
Contact person Jun.Yu@uvm.edu

English

College/School: College of Arts and Sciences
Department: English
Requirements Eighteen credits including six credits taken from one of the following sequences: ENGS 021/022, 023/024, 025/026, 027/028, or 085/086; and a minimum of nine credits at the 100-level or above.
Ineligible majors English
Restrictions Arts and Sciences students only.

Environmental Sciences: Biology

College/School: College of Arts and Sciences
Department: Environmental Sciences Program
Requirements BIOL 001/002 or BCOR 011/012; BCOR 102 and two additional upper-division non-biology courses chosen in consultation with co-advisor.
Prerequisites CHEM 031/032 concurrent with BCOR 011/012; MATH 019 or 021 required for BCOR 102.
Ineligible majors Biology (B.A.), Biological Sciences (B.S.), Plant Biology (B.A.), Zoology (B.A., B.S.)
Other information Prerequisites for upper division courses will vary.

Environmental Sciences: Geology

College/School: College of Arts and Sciences
Department: Environmental Sciences Program
Requirements GEOL 055, 101, 110, and two additional upper-division non-geology courses chosen in consultation with minor advisor.
Prerequisites GEOL 001 required for GEOL 101.
Ineligible majors Environmental Sciences: Geology (B.A., B.S.)

Environmental Studies

College/School: The Rubenstein School of Environment and Natural Resources
College of Arts and Sciences
College of Agriculture and Life Sciences
Department: Environmental Studies Program
Requirements Seventeen credits in Environmental Studies consisting of ENVS 001, 002, and nine credits at the 100-level or above, including three credits at the 200-level. (Of the nine credits, one non-ENVS course at the appropriate level may be substituted with the approval of the student's advisor and the Environmental Program.)
Contact person Elizabeth.Getchell@uvm.edu

European Studies

College/School: College of Arts and Sciences
Department: Global and Regional Studies Program
Requirements Eighteen credits to include three credits at the 200-level from both European culture and thought and European history and society areas; and six credits at the 100-level or above from the European language area.
Prerequisites Through 052 in a European Language; intro and intermediate level courses in varying subject areas to get to the appropriate 200-level in two different areas.
Ineligible majors European Studies
Other information A major in Classical Civilization, French, German, Greek, Italian Studies, Latin or Spanish and a minor in European Studies may be possible if additional courses in languages or other subject areas are taken in order to reduce overlap to one course.

Film and Television Studies

College/School: College of Arts and Sciences
Department: English
Requirements Eighteen credits including (a) at least one from FTS 007, 008 or 009; (b) FTS 121, 122, and 123; (c) six credits chosen from any other FTS offerings; ARTH 139, 140, 148; SOC 043, 150, 243; or additional courses approved by the Director of Film and Television Studies. (Students should consult the FTS course brochure and the registrar's website each semester for details about available courses.)
Ineligible majors Film and Television Studies
Restrictions Arts and Sciences students only.

Food Systems

College/School: College of Agriculture and Life Science
Department: Nutrition and Food Science
Plant and Soil Science
Community Development and Applied Economics
Requirements A minimum of eighteen credits. Choose three of the following: PSS 021, NFS 073, PBIO 006, CDAE 002. Choose three of the following for a total of at least nine credits: NFS 153, NFS 185, ASCI 122, CDAE 128, PSS 154, PSS 156, ENVS 183, CDAE 208/ASCI 230, or appropriate ASCI/NFS/CDAE/PSS special topics (as approved by the participating departments' curriculum committees).
Contact person Deborah.Neher@uvm.edu or Amy.Trubek@uvm.edu

Forestry

College/School: The Rubenstein School of Environment and Natural Resources
Department: Forestry Program
Requirements A minimum of sixteen credits, with at least nine at the 100-level or higher. Required courses: FOR 001 Forest Conservation or FOR 073 Small Woodland Management; FOR 021 Dendrology. Additional forestry courses to total sixteen credits.
Prerequisites Variable, depending on upper level courses chosen. Typically, these might include: NR 001 or another introductory biological science, NR 103 or other ecological science, NR 025 or other measurements/mapping experience.
Other information Note: Rubenstein School students may not count FOR 001 towards completion of minor.
Contact envnr@uvm.edu or 802-656-4280

French

College/School: College of Arts and Sciences

Department: Romance Languages and Linguistics

Requirements Eighteen credits in French numbered 100 or above. FREN 101, one 100-level culture course (FREN 131 or 132), one 100-level literature course (FREN 141 or 142). Six of the eighteen credits must be in courses at the 200-level. Readings and Research (FREN 197, 198) or Advanced Readings and Research (FREN 297, 298) may not be counted toward a minor.

Prerequisites Through FREN 052.

Ineligible majors French

Other information A major in European Studies and a minor in French may be possible if additional courses in language are taken in order to reduce overlap to one course.

Geography

College/School: College of Arts and Sciences

Department: Geography

Requirements Eighteen credits in geography including at least six credits from the following core courses (GEOG 040, 070, 081); at least nine credits at the 100-level or above; and three credits of an additional geography course, excluding GEOG 191, 197, 198, 297, 298.

Ineligible majors Geography

Geology

College/School: College of Arts and Sciences

Department: Geology

Requirements One geology course from GEOL 001, 005, or 055; GEOL 101; GEOL 110; plus six additional credits at the 100-level or above.

Ineligible majors Geology (B.A., B.S.), Environmental Sciences: Geology (B.S.)

Other information Note: GEOL 007 Earth Hazards will not count for the major or minor.

Geospatial Technologies

College/School: The Rubenstein School of Environment and Natural Resources
College of Arts and Sciences
College of Engineering and Mathematical Sciences

Department: Geography
Geology
Civil Engineering Program

Requirements Five courses (fifteen credits with at least nine credits at 100-level or above) which must include: one course in Geospatial Technologies: NR 025, GEOG 081, CE 010/CE 012, ENSC 130, GEOL 151/GEOG 144;

Any one Geographic Information Systems course: GEOG 184 or NR 143;

Any one course from Remote Sensing: NR 146 or GEOG 185;

Any two electives (either two from Group A or one course each from Group A and Group B):

Group A: NR 243, 245; GEOG 287, 281a, 281b; NR 285
Independent Study for Advanced GIS;

Group B: CS 014, 021 Programming in Python, CS 042, 148, 189; ENGR 002, CDAE 101.

Prerequisites Variable, depending on upper level courses chosen.

Other information Geography majors who undertake the Geospatial Technologies minor are required to complete thirty-three credits in Geography and fifteen credits towards the Geospatial Technologies minor. GEOG 081 (Geotechniques) may be used to count towards both the major and the minor. However, students are still required to complete thirty-three credits of Geography courses.

Contact envnr@uvm.edu or 802-656-4280

German

College/School: College of Arts and Sciences

Department: German and Russian

Requirements Five courses at the GERM 100- or 200-level, one of which must be GERM 155 or 156.

Prerequisites Through GERM 052.

Ineligible majors German

Other information A major in European Studies and a minor in German may be possible if additional courses in German are taken to reduce overlap to one course.

Gerontology

College/School: College of Arts and Sciences

Department: Sociology

Requirements The minor in gerontology consists of eighteen credits. Required courses (twelve credits): SOC 020 (or HDFS 020 or NURS 020), SOC 120, 220, 222. Electives (six credits): ANTH 189; HDFS 266; NURS 100 (or HDSF 152); SOC 154, 254.

Ineligible majors May not be sole minor for sociology majors.

Other information If majoring in sociology, SOC courses that are used for the minor are included in the forty-five credit major rule.

A major in sociology and a minor in gerontology may be possible if additional courses in sociology are taken in order to reduce overlap to one course.

Global Studies

College/School: College of Arts and Sciences

Department: Global and Regional Studies Program

Requirements Eighteen credits, including GRS 001 (Intro to Global Studies) and six credits drawn from list of core courses: ANTH 021; CDAE 002; EC 040; ENV5 002; GEOG 050; HIST 010; POLS 051. Remaining nine credits should be drawn from the list of Global Studies electives each semester, study abroad program, or in consultation with the Global Studies advisor, and must be at the 100-level or higher. No more than six credits used toward the minor may be taken from any one discipline.

Ineligible majors Global Studies

Greek Language and Literature

College/School: College of Arts and Sciences

Department: Classics

Requirements Fifteen credits of Greek at GRK 051 or above (including nine at the 100-level or above), which may include one three-credit course at the 100-level or above in Latin or Classics.

Prerequisites Through GRK 002; HST 009 or CLAS 023 or one course in Philosophy, Greek, Greek Culture (Classics), Literature, History, Anthropology, or Sociology.

Ineligible majors Greek

Other information A major in Classical Civilization and a minor in Greek Language and Literature may be possible if additional courses in Greek are taken to reduce overlap to one course.

Green Building and Community Design

College/School: College of Agriculture and Life Sciences

Department: Community Development and Applied Economics

Requirements

Graphical Communication: (Choose one course) CDAE 001 Drafting and Design Drawing or CDAE 118 Visual Presentation Techniques.

Green Building: (Choose three credits) CDAE 170 Solar Design Strategies, Building, and Construction, CDAE 131 Light Frame Building, or approved summer courses at Yestermorrow.

Renewable Energy: (Choose three credits) CDAE 006 Energy Alternatives, CDAE 106 Renewable Energy Workshop, ENSC 285 Renewable Energy Principles and Applications, approved summer courses at Yestermorrow or other advisor-approved course.

Green Communities: (Choose three credits) CDAE 102 Sustainable Community Development, CDAE 276 Community Design Studio, CDAE 171 Community and International Economic Transformation, approved summer courses at Yestermorrow or other advisor-approved course.

Green Landscapes: (Choose one course) PSS 137 Landscape Design Fundamentals, PSS 196 Special Topics (see Registrar's Page for Semester offerings), PSS 238 Ecological Landscape Design, ENVS 177 Intro to Landscape Restoration, PSS 156 Permaculture, approved summer courses at Yestermorrow or other advisor-approved course.

Capstone: (Choose one course) NR 288, NR/CDAE 289 Ecological Design Studio, or CDAE 273.

Ineligible majors Students majoring in Environmental Science (ENSC) may obtain the Green Building Community Design minor with only one overlapping course.

Contact person Dan Kirk: dkirk@uvm.edu

History

College/School: College of Arts and Sciences

Department: History

Requirements Eighteen credits to include three credits in any course at the introductory (below 100) level, plus nine credits at the intermediate (100) or advanced (200) level. These must also include six credits in each of two of the Department's areas of study (the Americas; Europe; Africa/Asia/Middle East/Global).

Ineligible majors History

Holocaust Studies

College/School: College of Arts and Sciences

Department: Holocaust Studies Program

Requirements Eighteen credits of relevant course work, at least nine of which must be at the 100-level or above, and must include HST 139 and 190. No more than three credits may come from courses also used to fulfill a major.

Prerequisites HST 016; two semesters of German at any level (another European language may be substituted after consultation with the director).

Other information A major in History and a minor in Holocaust Studies may be possible if additional courses in History are taken to reduce overlap to one course.

Human Development and Family Studies

College/School: College of Education and Social Services

Department: Leadership and Developmental Sciences

Requirements Eighteen credits including HDFS 005, 060, 065 and any three 100-level HDFS courses or complete HDFS 161 and 189, and one 200-level HDFS course except HDFS 200, 265, 291, 296.

Ineligible majors This minor cannot be the sole minor for Sociology or psychology majors but is acceptable as a second minor, especially for persons interested in careers involving work with families and youth. For other majors, it can be the sole minor.

Contact person Jacqueline.Weinstock@uvm.edu

Individually Designed

College/School: College of Arts and Sciences

Requirements The ID minor must consist of at least eighteen credits of course work, of which at least nine credits must be at the 100-level or above. No more than nine credits completed prior to application for the ID minor may be applied to the eighteen credits required for the proposed minor. No courses in the student's Arts and Sciences major department may be applied to the eighteen credits required for the minor. An application must be submitted to the Committee on Honors and Individual Studies for approval. Applications may be found in the dean's office, College of Arts and Sciences.

Other information Minor must be approved prior to the end of the student's junior year.

No more than nine credits of the proposed minor may be complete at the time of the application.

Italian

College/School: College of Arts and Sciences

Department: Romance Languages and Linguistics

Requirements Eighteen credits in courses taught in the Italian language and numbered 100 or above. Readings and Research (ITAL 197, 198) or Advanced Readings and Research (ITAL 297, 298) may not be counted toward a minor.

Prerequisites Through ITAL 052.

Ineligible majors Italian

Other information A major in European Studies or Italian Studies and a minor in Italian may be possible if additional courses in Italian are taken in order to reduce overlap to one course.

Italian Studies

College/School: College of Arts and Sciences

Department: Romance Languages and Linguistics

Requirements Eighteen credits of which at least nine credits must be at the 100-level or above from the following categories:

- Courses in Italian:* at least six credits in courses taught in Italian at the 100-level or above;
- Significant Italian content:* up to twelve credits from among the courses listed under Category B in the description of the Italian Studies major;
- Partial Italian content:* up to three credits from among the courses listed under Category C in the description of the Italian Studies major. Among the courses taught in English, no more than six credits may be applied from any one academic discipline.

Prerequisites Through ITAL 052; Intro level courses may be necessary for other subject areas that deal with Italian content and these will vary each semester.

Ineligible majors Italian Studies

Other information A major in European Studies and a minor in Italian Studies may be possible if additional Italian courses and courses in other subject areas are taken to reduce overlap to one course.

Japanese

College/School: College of Arts and Sciences

Department: Asian Languages and Literatures

Requirements Fifteen credits of Japanese with at least nine of those credits at the 100-level, including JAPN 102 or its equivalent. Three credits at or above the 100-level in Japanese linguistics or literature may be substituted for three credits of language study beyond JAPN 102 or its equivalent.

Other information A major in Asian Studies and a minor in Japanese may be possible if additional courses in Japanese are taken to reduce overlap to one course.

Latin American and Caribbean Studies

College/School: College of Arts and Sciences

Department: Global and Regional Studies

Requirements

A. *Students who are not Spanish majors:* eighteen credits (six courses)

1. Completion of SPAN 052 or above (three credits).
2. Completion of five of the following courses: ANTH 161; HST 062 or 063; GEOG 156; POLS 174; SPAN 142, 279, 281, 286, 287, 293, or 294; GRS 195 or 196.

B. *Students who are Spanish majors:* eighteen credits (six courses)

1. Completion of one of the following courses: SPAN 279, 281, 286, 287, 293, or 294.
2. Completion of five of the following courses: ANTH 161; HST 062 or 063; GEOG 156; POLS 174; GRS 195 or 196.

Prerequisites Through SPAN 051; Intro and intermediate level courses for varying subject areas to get to the appropriate level of 100 or 200.

Ineligible majors Latin American and Caribbean Studies

Latin Language and Literature

College/School: College of Arts and Sciences

Department: Classics

Requirements Fifteen credits including nine at the 100-level or above of Latin at 051 or above, which may include one three-credit course at the 100-level or above in Greek or Classics.

Prerequisites Through LAT 002; HST 009 or CLAS 023, or one course in Philosophy, Greek, or Greek Culture (Classics).

Ineligible majors Latin

Other information A major in Classical Civilization and a minor in Latin Language and Literature may be possible if additional courses in Latin are taken to reduce overlap to one course.

Linguistics

College/School: College of Arts and Sciences

Department: Romance Languages and Linguistics

Requirements Eighteen credits, to include LING 080 (Intro to Linguistics) and fifteen additional credits of Linguistics courses. Other relevant courses may be chosen with the consultation of a Linguistics minor advisor. Of these fifteen credits, at least nine credits must be at the 100-level or above. No more than three credits may come from courses also used to fulfill the student's major.

Prerequisite course work not included in minor PSYC 109 or 161 (or permission) required for CSD 208; PSYC 001 and either PSYC 109 or 130 required for PSYC 236 and 237. Foreign language courses 001, 002, 051 and 052 are required for upper level courses. In addition, GERM 155 or 156 and one other 100-level German course are required for GERM 213; SPAN 140 is required for SPAN 211.

Mathematics: Pure

College/School: College of Engineering and Mathematical Sciences

Department: Mathematics and Statistics

Requirements MATH 021, 022 or 019, 023; MATH 052 or 121, and nine additional credits in mathematics courses numbered 100 or above. If both MATH 052 and 121 are taken, MATH 121 counts as one of the three 100- or 200-level courses needed. Computer Science or Computer Engineering majors may substitute MATH 054 for 052. The course plan for a mathematics minor must be approved by a mathematics faculty advisor.

Contact person James.Burgmeier@uvm.edu

Microbiology

College/School: College of Agriculture and Life Sciences

Department: Microbiology and Molecular Genetics

Requirements MMG 101, 104; BCOR 101 or 103. Minors also take six additional credits of upper-level courses in their area of interest.

Prerequisites BCOR 011 and 012, CHEM 031 and 032, CHEM 141 and 142.

Contact person Douglas.Johnson@uvm.edu

Middle East Studies

College/School: College of Arts and Sciences

Department: Global and Regional Studies

Requirements Eighteen credits (six courses) related to the Middle East. All students pursuing the minor must take HST 045 or 046. The remaining five courses can be chosen from the list of Middle East Studies courses offered each semester. At least three of these five courses should be 100-level (intermediate) or higher. Students may consult with the Middle East Studies director and propose other courses with sufficient Middle East content to fulfill the requirements. The director of the program must approve any course not listed before it can be considered to fulfill the requirements for the minor.

There is no language requirement for the minor. Students are strongly encouraged to take one year of a Middle Eastern Language (such as Arabic or Hebrew); however this will not count towards the minor.

Prerequisites Intro and intermediate level courses for varying subject areas to get to the appropriate level of 100 or 200.

Molecular Genetics

College/School: College of Agriculture and Life Sciences

Department: Microbiology and Molecular Genetics

Requirements MMG 101, MMG 104, BCOR 103 or BCOR 101. Minors also take six additional credits of upper-level courses in their area of interest.

Prerequisites BCOR 011 and 012, CHEM 031 and 032, CHEM 141 and 142.

Contact person Douglas.Johnson@uvm.edu

Music

College/School: College of Arts and Sciences

Department: Music and Dance

Requirements Eighteen credits in music composed of six credits in music history/literature, six credits in music theory (except MU 009) and six credits in applied lessons or performing ensembles. Nine credits must be at the 100-level above.

Ineligible majors Music (B.A., B.M.)

Nutrition and Food Sciences

College/School: College of Agriculture and Life Sciences

Department: Nutrition and Food Sciences

Requirements A total of fifteen credits in Nutrition and Food Sciences, nine credits consisting of NFS 043, 053, 143, plus six credits of NFS didactic courses numbered at or above the 100-level. Independent study, field experience and undergraduate research cannot be counted in this total.

Contact person Robert.Tyzbir@uvm.edu

Parks, Recreation, and Tourism

College/School: The Rubenstein School of Environment and Natural Resources

Department: Parks, Recreation and Tourism Program

Requirements

1. A minimum of nine semester credits are required from the following: PRT 001, 050, 138, 153, 157, 158.
2. A minimum of six semester credits to be selected from the following: PRT 230, 235, 240, 255, 258.

Prerequisites None. However, some optional courses may have additional prerequisites. Please check individual course information.

Other information: Some optional courses may have additional prerequisites. Please check individual course information.

Contact envnr@uvm.edu or 802-656-4280

Pharmacology

College/School: College of Medicine
Graduate College

Department: Pharmacology

Requirements Fifteen credits are required for the minor, including PHRM 201, 272, 290. Additional courses may be selected from PHRM 302, 303, 305, 328, 372, 373, 381. One extra-departmental course, approved by the designated minor advisor, can be used for credit towards the minor. Potential choices for the one allowed extra-departmental course include ANNB 323, BIOC 212, BIOL 288, CHEM 205, CHEM 306, CHEM 342, MPBP 295, NFS 263 or PSYC 223.

Prerequisites BIOL 001 and 002 or equivalent; CHEM 031 and 032 or CHEM 035 and 036; CHEM 141 and 142 or equivalent.

Other information Students must have a B average and junior status to qualify for admission to the minor.

Contact person George.Wellman@uvm.edu

Philosophy

College/School: College of Arts and Sciences

Department: Philosophy

Requirements Eighteen credits in philosophy including:

1. One course from PHIL 101, 102, 140;
2. One additional course (three credits) at/above the 100-level;
3. One course (three credits) at the 200-level;
4. Three courses at any level.

Credit not awarded for more than one Philosophy course numbered below 100, except that credit will be given for PHIL 013 in addition to one other course numbered below 100.

Ineligible majors Philosophy

Physics

College/School: College of Arts and Sciences

Department: Physics

Requirements PHYS 051, 152 (or PHYS 031 and 125 with 022), PHYS 128 and three additional credits at the PHYS 200-level excluding PHYS 201 and 202. Note: mathematics through 121 is needed for PHYS 128.

Prerequisites MATH 021, 022, 121.

Ineligible majors Physics (B.A., B.S.)

Plant Biology

College/School: College of Agriculture and Life Sciences
College of Arts and Sciences

Department: Plant Biology

Requirements At least fifteen credits of course work in Plant Biology including one introductory semester course (choose from PBIO 004, BIOL 001 or BCOR 011, BIOL 002 or BCOR 012); two courses at or above the 100-level; and at least one course at the 200-level.

Prerequisites The required introductory course is likely to be the prerequisite for all the remaining courses. There are no implicit requirements.

Ineligible majors Plant Biology, Biology, Biological Sciences

Contact person david.barrington@uvm.edu

Political Science

College/School: College of Arts and Sciences

Department: Political Science

Requirements Eighteen credits in Political Science, including at least six credits from the core courses (POLS 021, 041, 051, 071), and at least nine credits at the level of 100 or above. Of the nine credits at the 100-level or above, students must complete at least six credits in UVM political science courses (excluding study abroad, transfer credit, readings and research). Internships will not count toward the eighteen credits required for the minor. At least nine of the eighteen credits used to satisfy this minor must be taken at the University of Vermont.

Ineligible majors Political Science

Psychology

College/School: College of Arts and Sciences

Department: Psychology

Requirements Eighteen credits including:

1. PSYC 001 and 109*;
2. Three of the following: PSYC 104, 119, 121, 130, 152, 161;
3. One course (three or four credits) at the 200-level.

*Students earning the minor may instead complete SOC 100.

Ineligible majors Psychology (B.A., B.S.)

Restrictions Arts and Sciences students only.

Public Communication

College/School: College of Agriculture and Life Sciences

Department: Community Development and Applied Economics

Requirements CDAE 024 Fundamentals of Public Communication, CDAE 124 Public Communication Media, and an additional nine advisor-approved electives, at least six of which must be at 100-level or above.

Prerequisites ENG 001, CALS 183 and Statistics/Research Course (e.g., STAT 111, STAT 141, CDAE 250); junior standing required for CDAE 124.

Ineligible majors Public Communication

Contact person Jane.Kolodinsky@uvm.edu

Religion

College/School: College of Arts and Sciences

Department: Religion

Requirements Eighteen credits in religion, including the following:

1. An introductory course numbered 020-027;
2. REL 100 Interpretation of Religion;
3. One intermediate level course examining a religious tradition (114-170);
4. One course on a comparative topic (numbered 101-109);
5. One course at the 200-level;
6. An additional religion course.

Ineligible majors Religion

Russian

College/School: College of Arts and Sciences

Department: German and Russian

Requirements Twenty credits to include RUSS 051, 052 or its equivalent, and four courses in Russian at the 100- and/or 200-level.

Prerequisites Through RUSS 002

Ineligible majors Russian

Other information A major in Russian/East European Studies and a minor in Russian may be possible if additional courses in Russian are taken in order to reduce overlap to one course.

Russian/East European Studies

College/School: College of Arts and Sciences

Department: Global and Regional Studies

Requirements Twenty credits to include: RUSS 051, 052 or its equivalent and four courses from the following: EC 116; WLIT 118; HST 027, 137, 138; POLS 172.

Prerequisites Through RUSS 002; Intro level courses for varying subject areas to get to the appropriate level of 100.

Ineligible majors Russian and East European Studies

Sexuality and Gender Identity Studies

College/School: College of Arts and Sciences

Department: Women's and Gender Studies

Requirements Eighteen credits including WGST 075. Nine credits must be at or above the 100-level. No more than nine credits may come from any one department. No more than three total credits may come from WGST 191, 192, 297, 298 (internship and independent study). No more than three credits may come from classes also used to fulfill a major. Students should consult the current Sexuality and Gender Identity Studies course listings each semester for a full list of available courses.

Sociology

College/School: College of Arts and Sciences

Department: Sociology

Requirements Eighteen credits in sociology including SOC 001; SOC 090; nine additional credits at the 100-level; three credits at any level.

Prerequisites It is recommended that SOC 001 and 090, or 001 and 101 be completed before the start of the junior year. SOC 001 and either 090, 100 or 101, or instructor's permission, is a prerequisite for enrollment in any 200-level course.

Ineligible majors Sociology

Soil Science

College/School: College of Agriculture and Life Sciences

Department: Plant and Soil Science

Requirements The following is required with a minimum of seventeen credits: PSS 161, and four other courses from the following list: PSS 162, 261, 264, 268, 269.

Prerequisites None

Contact person Donald.Ross@uvm.edu

Spanish

College/School: College of Arts and Sciences

Department: Romance Languages and Linguistics

Requirements Eighteen credits in Spanish above SPAN 100, of which nine must be in courses numbered above 200. Courses to include:

1. Six credits of advanced language study from SPAN 101, 105, 109, 201, 202;
2. Six credits of literature (three of those credits must be in SPAN 140);
3. Six additional elective credits. No more than six credits from category (1) may be counted toward the minor. Readings and Research (SPAN 197, 198) or Advanced Readings and Research (SPAN 297, 298) may not be counted toward the minor.

Prerequisites Through SPAN 052.

Ineligible majors Spanish

Other information A major in European Studies or Latin American and Caribbean Studies and a minor in Spanish may be possible if additional courses in Spanish are taken in order to reduce overlap to one course.

Special Education

College/School: College of Education and Social Services

Department: Education

Requirements Complete the following course: EDSP 005 Issues Affecting Persons w/Disabilities. Select two core courses, as approved by the minor advisor, from the following areas: EDSP 200 Special Education Law, EDSP 202 Severe Disabilities: Char & Intervene, EDSP 217 Behavior Analysis in Special Education, EDSP 224 Meeting the Instructional Needs of All Students, EDSP 274 Culture of Disability, EDSP 280 Assessment in Special Education, EDSP 290 Early Lit and Math Curriculum, EDSP 295 Lab Experience in Education, EDSP 297 Adolescent Literature and Math Curriculum. Select three elective courses from any of the above core courses, and/or the elective courses listed below: EDSP 200 Social Construction of Disability, ASL 001 American Sign Language I, ASL 002 American Sign Language II, CSD 020 Intro to Disordered Communication, CSD 022 Phonetics, CSD 094 Development of Spoken Language, CSD 023 Linguistics, CSD 313 Augmentative Communication, CSD 080 Intro to Linguistics, CSD 299 Autism Spectrum Disorders: Assessment & Intervention.

Prerequisites Completion or enrollment in EDSP 005 and a GPA of 3.00 or above.

Other information Students apply to the minor through contacting the Special Education Program in the Education Department. The number of students accepted to the minor is contingent on available space, with priority given to students in the College of Education and Social Services. Accepted students are assigned a minor advisor who must approve all program plans. Students may apply selected course work to becoming certified in Special Education. There may be a \$150.00 lab fee for students who include the 60 hour practicum above and beyond the minor.

Contact special.education@uvm.edu

Speech and Debate

College/School: College of Arts and Sciences

Department: Theatre

Requirements Eighteen credits to include nine credits from SPCH 011, 031, 051, 071, 072, 082 or 083 and nine credits at or above the 100-level.

Statistics

College/School: College of Engineering and Mathematical Sciences

Department: Mathematics and Statistics

Requirements

1. One course in calculus (MATH 019 or 021 or equivalent);
2. Total of fifteen credits of statistics courses;
3. One introductory statistics course such as STAT 051, 111, 140, 141, 143, 211 or EC170 (in which case EC170 counts for three of the fifteen credits of STAT needed); no more than seven credits of introductory courses, including STAT 011, may count towards the needed fifteen total.
4. STAT 201 or a computer programming course such as CS 016 or 021 or above.

Ineligible majors Statistics major in CEMS (within Mathematics B.S. degree); Statistics Concentration in CAS (within Mathematics major)

Other information Each student must have a minor advisor appointed by the statistics program director that signs off on the minor form summarizing the courses to be taken by the student.

Contact person Ruth.Mickey@uvm.edu

Sustainable Landscape Horticulture

College/School: College of Agriculture and Life Sciences

Department: Plant and Soil Science

Requirements The following courses or course choices are required with a minimum of fifteen credits: PSS 010, 123, 125, 137. One other course from the following list: PSS 106, PBIO/PSS 117, PSS 138, 145, 156, 161, 238 or appropriate PSS special topics course (as approved by the Plant and Soil Science Undergraduate Affairs committee).

Ineligible majors Sustainable Landscape Horticulture

Contact person Mark.Starrett@uvm.edu

Theatre

College/School: College of Arts and Sciences

Department: Theatre

Requirements THE 050, 150; two courses from THE 010, 020, 030, 040; two additional three credit courses above level 100.

Ineligible majors Theatre

Vermont Studies

College/School: College of Arts and Sciences

Department: Global and Regional Studies Program

Requirements Eighteen credits (at least five courses), of which at least nine credits must be at the 100-level or above. As an interdisciplinary minor, it must include at least fifteen credits from departments outside the major. Completion of VS 052, three of the following courses: VS 055, 064, 092 or 192, 123, 158, 160, 184, and two additional courses from an approved list chosen in consultation with the Vermont Studies advisor.

Wildlife Biology

College/School: The Rubenstein School of Environment and Natural Resources

Department: Wildlife and Fisheries Biology Program

Requirements Fifteen credits. Required courses: WFB 130, 174, 285 or 273. Elective courses: WFB 131, 150, 176, 177, 185, 187, 224, 273, 274, 275, 279, 285, 287.

Prerequisites BIOL 001 (or BCOR 011), BIOL 002 (or BCOR 012), and an ecology course (NR 103, BIOL 102).

Contact envnr@uvm.edu or 802-656-4280

Women's and Gender Studies

College/School: College of Arts and Sciences

Department: Women's and Gender Studies

Requirements Eighteen credits of course work to include WGST 073, 273 and six credits at the 100-level or above to be chosen with the approval of the Women's and Gender Studies Committee or the consent of a Women's and Gender Studies advisor. Students may take a maximum of nine credits in any one discipline toward the minor. Not all sections of a multisection course will necessarily meet Women's and Gender Studies approval for the minor. (Students should consult the course listings each semester for further details.)

Ineligible majors Women's and Gender Studies

Zoology

College/School: College of Arts and Sciences

Department: Biology

Requirements BCOR 011/ 012 or BIOL 001/ 002; three courses at the 100-level or above, chosen from courses within the biology department, at least one of which must include a laboratory.

Prerequisites CHEM 031, 032 concurrent with BCOR 011, 012.

Ineligible majors Zoology (B.A., B.S.), Biology (B.A.), Biological Sciences (B.S.), Plant Biology (B.A.)

Other information Prerequisites for upper division courses vary.

Diversity Courses

Approved for the AY 2012-13

The following courses have been approved for Category One for the AY 2012-13:

ALAN 051	D1	Intr ALANA US Ethnic Stdies	HST 188	D1	Afr Amer Hst - Civil War-pres
ALAN 269	D1	Cross-Cultrl Psyc - Clin Prsp	LING 135	D1	Language and Ethnicity
ANTH 064	D1	Native Americans of Vermont	LING 176	D1	African American English
ANTH 160	D1	North American Indians	MU 005	D1	Intro to Jazz History
ANTH 169	D1	Latinos in the US	MU 019	D1	Latin Jazz Immersion
ANTH 187	D1	Race and Ethnicity	NR 006	D1	Race & Culture in NR
DNCE 150	D1	Jazz in American Dance	NR 207	D1	Power, Privilege & Envrnmt
EC 153	D1	African Amer in the US Econ	POLS 028	D1	Race & Ethnicity in the US
EDFS 001	D1	Race and Racism in the U.S.	POLS 029	D1	Amer Civil Rights Movemnts
ENGR 010	D1	Dvrsty Issues - Math/Sci/Egr	POLS 129	D1	Const Law - Civil Rights Amer
ENGS 031	D1	Afr Am Lit & Culture	PSYC 269	D1	Cross-Cultrl Psyc - Clin Pers
ENGS 057	D1	Race&Ethnic Lit Stds - Intro	SOC 019	D1	Race Relations in the US
ENGS 111	D1	Race & Ethnic in Lit Stdies	SOC 119	D1	Race & Ethnicity
ENGS 159	D1	Afr Am Lit to Harlem Ren	SOC 219	D1	Race Relations
ENGS 160	D1	Afr Am Lit & Cul Before 1900	SWSS 060	D1	Racism & Contemporary Issue
ENGS 176	D1	Afr Am Lit since Harlem Ren	SWSS 140	D1	SW w/Indigenous - VT Abenaki
ENGS 177	D1	Topics 20C Afr Am Lit & Cul	THE 075	D1	Diversity - Cont US Theatre
FTS 135	D1	Race & Ethnicity in Film/TV	THE 076	D1	Contemp US Latina/o Theatre
GEOG 060	D1	Geography/Race&Ethnic in US	VS 064	D1	Native Americans of Vermont
HDFS 141	D1	Interrogating White Identity	WLIT 116	D1	Latino Writers US - Cont Pers
HST 068	D1	Race & Nation in the US			
HST 187	D1	Afr Amer Hst - 1619-Civil War			

The following courses have been approved for Category Two for the AY 2012-13:

ANTH 021	D2	Cultural Anthropology	ARTH 185	D2	Japanese Art
ANTH 024	D2	Prehistoric Archaeology	ARTH 187	D2	Chinese Painting
ANTH 028	D2	Linguistic Anthropology	ARTH 188	D2	Indian Painting
ANTH 059	D2	Culture and Environment	ARTH 189	D2	Topics in Non-Western Art
ANTH 104	D2	Archaeology of the Americas	ARTH 192	D2	Inter Spec Topics Asian Art
ANTH 130	D2	Ancient Mesoamerica	ARTH 285	D2	Seminar in Asian Art
ANTH 152	D2	Chinese Culture	BSAD 258	D2	International Market Analysis
ANTH 161	D2	Cultures of South America	CDAE 002	D2	World Food,Pop & Develop
ANTH 162	D2	Cultures of Africa	CLAS 145	D2	Comparative Epic
ANTH 163	D2	South Pacific Cultures	CLAS 149	D2	Hist of Ancient Near East
ANTH 165	D2	Peoples of South Asia	CSD 274	D2	Culture of Disability
ANTH 166	D2	Peoples of the Middle East	DNCE 005	D2	Intro to World Dance Cult
ANTH 172	D2	Gender, Sex and Culture	DNCE 031	D2	African Forms
ANTH 179	D2	Environmental Anthropology	EC 040	D2	Economics of Globalization
ANTH 180	D2	Psychological Anthropology	EC 045	D2	Latin American Development
ANTH 209	D2	Caribbean Archaeology	ECSP 202	D2	Introduction to EI/ECSE
ARTH 008	D2	Asian Art	EDFS 206	D2	Comparative Education
ARTH 146	D2	Egypt & the Ancient Near E			

Diversity Category Two courses for the AY 2012-13 CONTINUED

EDHI 230	D2	Training in Intergrp Dialog	HST 252	D2	Seminar on China
EDSP 005	D2	Iss Aff Persons W/Disabil	MU 007	D2	Intro World Music Cultures
EDSP 201	D2	Foundations of Special Ed	MU 105	D2	Intro to Jazz History
EDSP 274	D2	Culture of Disability	MU 107	D2	World Music Cultures
ENGS 179	D2	Topics in African Lit	NFS 050	D2	Cheese and Culture
ENGS 182	D2	Colonial/Post-Col World Lit	NFS 073	D2	Farm to Table - Our Food Sys
ENVS 153	D2	Ethnobotany	NFS 185	D2	Food and Culture
ENVS 154	D2	Traditional Ecological Knowledge	NH 202	D2	Social Justice and Health
ENVS 167	D2	Global Environmental Hst	PHIL 121	D2	Chinese Philosophy I
ENVS 179	D2	Ecofeminism	PHIL 221	D2	Topics in Chinese Phil
ENVS 182	D2	Religion and Ecology	POLS 157	D2	Internatl Politics Middle E
GEOG 050	D2	World Regional Geography	POLS 168	D2	Middle East Politics
GEOG 150	D2	Geography of Africa	POLS 174	D2	Latin American Politics
GEOG 151	D2	Geography of India	POLS 175	D2	Govt & Politics of China
GEOG 154	D2	Geog of Development	POLS 176	D2	Govt & Politics of Japan
GEOG 156	D2	Latin America	POLS 177	D2	Pol Sys of Trop Africa
GRS 001	D2	Intro to Global Studies	POLS 266	D2	Politics of Persian Gulf
GRS 200	D2	Seminar in Global Studies	POLS 280	D2	Central Asian Politics
HDFS 167	D2	Sexual & Gender Identities	PRNU 241	D2	Public/Community Health
HDFS 267	D2	Adv Gender & Sexual Iden	PSS 003	D2	Coffee Ecol & Livelihoods
HLTH 103	D2	Intro to Global Health	REL 020	D2	Intro Rel - Comparative
HLTH 105	D2	Cultural Health Care	REL 021	D2	Intro Rel - Asian Traditions
HLTH 145	D2	Women's Hlth & Spirituality	REL 026	D2	Intro Rel - African Religions
HS 112	D2	History of Zionism to 1948	REL 029	D2	Intro Rel - Global Religion
HS 119	D2	Modern Jewish History	REL 130	D2	Islam
HST 009	D2	Global History to 1500	REL 132	D2	Buddhist Traditions
HST 010	D2	Global History Since 1500	REL 141	D2	Religion in Japan
HST 035	D2	History of India to 1750	REL 145	D2	Religion in China
HST 036	D2	History of India since 1750	REL 163	D2	Women & Religion in Africa
HST 040	D2	African History to C-1870	REL 167	D2	Christianity in Africa
HST 041	D2	Africa C-1870 to Present	REL 234	D2	Buddhism in Sri Lanka
HST 045	D2	Hst Islam&Middle E to 1258	RMS 188	D2	Org&Ldrshp in AthTrn&Ex Sc
HST 046	D2	Hst Islam&Mid E Since 1258	SOC 122	D2	Women & Gender in Society
HST 055	D2	History of China and Japan	SOC 171	D2	Soc Chng&Dev Persp 3rd Wrld
HST 062	D2	Colonial Latin Amer Hist	SOC 212	D2	Int'l Migration & Amer Soc
HST 063	D2	Modern Latin Amer History	SOC 218	D2	Disability as Deviance
HST 067	D2	Global Environmental Hst	SOC 272	D2	Soc of African Societies
HST 106	D2	Himalayas: 1750 to present	SWSS 047	D2	Theories in Social Work I
HST 107	D2	Visual Cultures of India	SWSS 048	D2	Theories in Social Work II
HST 112	D2	History of Zionism to 1948	SWSS 229	D2	Soc Work&Disability Rights
HST 119	D2	Modern Jewish History	WGST 073	D2	Intro to Women's&Gender Std
HST 140	D2	W Africa - Holy War-Colonial	WGST 075	D2	Intr Sexuality/Gnder Identity
HST 141	D2	History of Southern Africa	WGST 101	D2	Women & Gender in Society
HST 146	D2	Hist of Modern Middle East	WGST 116	D2	Women & Religion in Africa
HST 149	D2	History of Ancient Near East	WGST 179	D2	Ecofeminism
HST 150	D2	Modern China	WLIT 020	D2	Literatures of Globalizatn
HST 151	D2	Modern Japan	WLIT 109	D2	Japanese Lit-Premodern
HST 211	D1	Cultures of Colonialism: India	WLIT 119	D2	Japanese Literature-Modern
HST 240	D2	Compar Slavery - Hist Persp	WLIT 145	D2	Comparative Epic
HST 250	D2	Seminar in East Asian Hst			

Courses of Instruction

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.

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.

Courses numbered from 1-99 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.

Courses numbered from 100-199 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.

Courses numbered from 200-299 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 prior study at the intermediate level in the discipline, or in a related discipline, or some specified equivalent preparation.

Courses are alphabetized by course prefixes. Prefixes appear in major and minor requirement descriptions.

A&S Interdisciplinary AS

095 Focus:First Year Seminar See Schedule of Courses for specific titles. *Credits: 1-4*

ALANA U.S.Ethnic Studies ALAN

051 D1:Intr ALANA US Ethnic Stdies Survey of the experience of ALANA peoples in the U.S. as well as a theoretical analysis of issues of race, culture, gender, and diverse traditions in the American multicultural setting. *Credits: 3*

055 Racism and American Culture Survey and analysis of racism in the development of American institutions and its effects upon ALANA groups and societies. *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

158 Amer Multicultrl Heritage History and culture of ALANA groups, their role in and contributions to the American cultural heritage. Prerequisite: 51 or 55 or having previously satisfied the College of Arts and Sciences Race and Ethnicity requirement. *Credits: 3*

159 Am Cultrl Images ALANA People Comparative study of ALANA groups and the stereotypical and archetypal impressions projected on peoples of color in American society. Prerequisite: 51 or 55 or having previously satisfied the College of Arts and Sciences Race and Ethnicity requirement. *Credits: 3*

191 Field Experience:Internship Prerequisites: Junior standing, six hours of 100-level courses in appropriate field and program permission (a contract must be obtained from and returned to the ALANA Studies program during preregistration). *Credits: 3*

192 Field Experience Seminar Prerequisites: Junior standing, six hours of 100-level courses in appropriate field and program permission (a contract must be obtained from and returned to the ALANA Studies program during preregistration). *Credits: 3*

195 Intermediate Special Topics Intermediate courses or seminars beyond the scope of existing ALANA offerings. See Schedule of Courses for specific titles. Prerequisite: Sophomore standing. *Credits: 1-18*

196 Intermediate Special Topics Intermediate courses or seminars beyond the scope of existing ALANA offerings. See Schedule of Courses for specific titles. Prerequisite: Sophomore standing. *Credits: 1-18*

197 Readings and Research *Credits: 1-12*

198 Readings and Research *Credits: 1-12*

269 D1:Cross-Cultrl Psyc:Clin Prsp Introduction to issues posed for psychologists in their work with ALANA (African, Latino/a, Native and Asian American) and international populations. Critical appraisal of readings, research and case studies. Prerequisites: PSYC 1, 109. (Cross listed with PSYC 269) *Credits: 3*

277 Sem in ALANA US Ethnic Stdy Interdisciplinary examination of theories on the position of ALANA peoples in U.S. culture and society. Emphasis on relationship between race, class, gender, and ethnicity. Prerequisites: Six hours in ALANA U.S. Ethnic studies; admission to ALANA U.S. Ethnic Studies minor program. *Credits: 3*

295 Advanced Special Topics Advanced courses or seminars on topics beyond the scope of existing departments. See Schedule of Courses for specific titles. Prerequisite: Junior standing. *Credits: 1-18*

296 Advanced Special Topics Advanced courses or seminars on topics beyond the scope of existing departments. See Schedule of Courses for specific titles. Prerequisite: Junior standing. *Credits: 1-18*

297 Independent Study Special topics in consultation with ALANA U.S. Ethnic Studies faculty. Prerequisites: Permission of program director; junior standing. *Credits: 3*

298 Independent Study Special topics in consultation with ALANA U.S. Ethnic Studies faculty. Prerequisites: Permission of program director; junior standing. *Credits: 3*

Agriculture & Life Science CALS

001 Foundations:Communication Meth Foundational course to acclimate CALS First-Year students to college life and develop individual and group public speaking skills through giving and critically analyzing presentations. *Credits: 3*

002 Foundation:Information Tech Foundational course to acclimate CALS First-Year students to college life and develop information technology skills through use of computer hardware and software and internet applications. *Credits: 3*

085 Computer Applications Use of computer operating systems programming languages, electronic communications, word processing, spreadsheet modeling and graphics, and internet software related to the agricultural and life sciences. *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 0.5-18*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

125 Teaching Assistant Development TA's develop skills in areas of leadership, group dynamics, interpersonal effectiveness, and assertiveness as group facilitators in Beginnings course. Prerequisite: Sophomore standing, permission. *Credits: 3*

183 Communication Methods Introduction to informational and persuasive public speaking. Developing individual and group oral communication skills through giving and critically analyzing presentations. *Credits: 3*

195 Special Topics Appropriate for interdepartmental and interdisciplinary topics in Agriculture and Life Sciences. Permission of Dean's Office. *Credits: 0.5-12*

196 Special Topics Appropriate for interdepartmental and interdisciplinary topics in Agriculture and Life Sciences. Permission of Dean's Office. *Credits: 1-12*

American Sign Language ASL

001 American Sign Language I Introduction of American Sign Language with emphasis on visual receptive and expressive use including facial expressions and gestures. Elements of the Deaf Culture are explored. *Credits: 4*

002 American Sign Language II Discusses concepts and principles: advanced vocabulary, grammar patterns, use of space/modulation of signs for time/location. Further explores Deaf Culture. Prerequisite: ASL 001 or CMSI 001 or equivalent. *Credits: 4*

051 American Sign Language III Stresses fluency of expressive and receptive skills for conversational competence. Introduces increasingly complex grammatical aspects. In-depth study of Deaf Culture. Prerequisites: ASL 002 or CMSI 002 or equivalent. *Credits: 3*

052 American Sign Language IV Expansion of ASL III. Intended to refine competence in receptive and expressive abilities through exposure to stylistic and regional ASL renditions. Deaf Community involvement. Prerequisite: ASL 051 or CMSI 051 or equivalent. *Credits: 3*

095 Introductory Special Topics *Credits: 0-18*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Anatomy & Neurobiology ANNB

195 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Undergrad Research Individual laboratory research under guidance of faculty member. Prerequisite: Departmental permission. *Credits: 1-6*

198 Undergrad Research Individual laboratory research under guidance of faculty member. Prerequisite: Departmental permission. *Credits: 3-6*

201 Human Gross Anatomy Lectures and detailed regional cadaver dissections emphasize functional anatomy of major systems (e.g. musculoskeletal, cardiovascular, nervous). Required of Physical Therapy students; others with departmental permission. *Credits: 6*

225 Human Neuroanatomy Functional anatomy of the human nervous system and its cells. Focus on both peripheral and central nervous system. Lectures and laboratory (gross and microscopic anatomy). Prerequisites: Permission of instructor *Credits: 3*

261 Neurobiology Focus on molecular and cellular aspects of the nervous system. Electrical signaling, synaptic transmission, signal transduction, neural development, plasticity and diseases. Prerequisites: BIOL 103 or ANPS 19 & 20. (Cross listed with BIOL 261). *Credits: 3*

295 Special Topics See Schedule of Courses for specific titles. UG only. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. UG only. *Credits: 1-18*

Anatomy/Physiology ANPS

019 Ugr Hum Anatomy & Physiology Two-semester lecture course with credit given only upon completion of both semesters. Structure and function of human body will be presented in a 3 lecture/week format with an additional online lab component. Completion of additional self-study units will be required. Required of all PRNU DIET, NFS, PE, ME, RADT, NMT, MLS, AT, EXMS and BSCI students; others with instructor's permission. *Credits: 4*

020 Ugr Hum Anatomy & Physiology Two-semester lecture course with credit given only upon completion of both semesters. Structure and function of human body will be presented in a 3 lecture/week format with an additional online lab component. Completion of additional self-study units will be required. Required of all PRNU, DIET, NFS, PE, ME, RADT, NMT, MLS, AT, EXMS and BSCI students; others with instructor's permission. Prerequisite: ANPS 019. *Credits: 4*

Animal Science ASCI

001 Introductory Animal Sciences An overview of the genetics, nutrition, reproduction, and management of livestock and recreation species; introduction to animal behavior, animal disease, and biotechnology. *Credits: 4*

004 Dairy Cattle Judging Principles of dairy cattle judging demonstrated and practiced using live animals. *Credits: 2*

006 Companion Animal Care & Mgmt Scientific principles of nutrition, breeding selection, health, management practices, pet therapy, and animal bonding. Primary emphasis on cat and dog. *Credits: 3*

043 Fundamentals of Nutrition Comprehensive study of specific nutrients in terms of their availability, function, and utilization in mammalian species. Prerequisites: High school chemistry and biology. *Credits: 3*

097 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 0.5-15*

098 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 0.5-15*

108 Equine Enterprise Management Provides guidelines for understanding risks, liabilities and other pertinent topics necessary for running a successful equine-related business. Prerequisite: ASCI 001. *Credits: 3*

110 Animal Nutrit, Metab & Feeding Principles of meeting the nutrient requirements of animals, especially as they relate to the practical problems of formulation and production systems. Prerequisite: ASCI 043. *Credits: 4*

115 Introduction to Equine Studies Overview of the scientific and practical application of equine management and selection principles. Housing, nutrition, herd health, reproduction, and career opportunities. *Credits: 4*

117 Horse Health and Disease Discusses the basic anatomy and physiology of the horse, common equine diseases and problems, their diagnoses, prevention, and treatment. Prerequisites: ASCI 001, a biology course or instructor permission. *Credits: 3*

118 Appl Animal Health A study of small and large domestic animal diseases. Natural response to disease, methods of diagnosis, control, and treatment. Prerequisites: ASCI 001, a biology course or instructor permission. *Credits: 3*

119 Equine Training Techniques Behavior modification and training of the young horse under saddle and in the cart. Introduction to interdisciplinary directions open to the equine athlete and to conditioning programs associated with these options. *Credits: 3*

121 Equus A hands-on equine management experience. Students perform horse duties, recordkeeping, and make financial and management decisions on a horse boarding operation. Prerequisites: Sophomore standing; instructor permission. *Credits: 2-4*

122 Animals in Soc/Animal Welfare Designed to heighten awareness and understanding of human-animal relationships in society, agriculture, and science. Prerequisite: Sophomore standing. *Credits: 3*

125 Equine Instructing Techniques Examines philosophies, concepts and teaching-learning strategies needed for the development of sound equine instructing skills. Prerequisites: ASCI 115 or Instructor's Permission. *Credits: 3*

134 CREAM A two-semester course in which students perform the work and make the financial and management decisions associated with the CREAM dairy herd. Prerequisite preferred: Sophomore/junior standing, instructor permission. *Credits: 4*

135 CREAM A two-semester course in which students perform the work and make the financial and management decisions associated with the CREAM dairy herd. Prerequisite preferred: Sophomore/junior standing, instructor permission. *Credits: 4*

141 Anat&Physiol Domestic Animals A comprehensive review of the structure and function of domestic animals, emphasizing those of economic importance. Differences between mammalian and avian species are discussed. Prerequisites: Biology 1, a chemistry course or instructor permission. *Credits: 4*

143 Forage and Pasture Mgmnt Principles and practices of growing and utilizing forage plants for hay, silage and pasture; introduction to management intensive grazing; understanding forage quality. Pre/co-requisites: PSS 10 or 1 sem Biology or 1 sem Plant Biology or permission. Cross-listing: PSS 143. *Credits: 4*

154 Dog Training and Behavior Canine behavior is thoroughly examined and applied to the training and behavior modifications of dogs. Prerequisites: ASCI Major or Instructor Permission. *Credits: 3*

155 FARMS Junior Planning Seminar The course objective is to introduce students to: 1) on-campus research and learning resources, and 2) Vermont's dairy industry through field trips, and discussion of business' strengths and weaknesses. Prerequisite: Enrollment in FARMS program. *Credits: 2*

156 FARMS Senior Planning Seminar The course provides opportunity for students to develop and present an oral and written formal research project proposal for their Senior research project (ASCI 252). Prerequisite: Enrollment in FARMS program. *Credits: 2*

161 Lab Animal Health & Disease An introduction to laboratory animal science and welfare covering animal care and management, the correct performance of experimental procedures, and the regulatory and legislative framework governing it. Prerequisite: ASCI 001, a biology course or instructor permission. *Credits: 3*

168 Animal Genetics and Breeding The discussion of genetic principles and their application in the improvement of farm animals. Student teams develop a breeding plan in a semester project. Prerequisites: BIOL 001 or BCOR 011 or permission. *Credits: 3*

171 Zoos, Exotics & Endang Species From gorillas to golden lion tamarinds, how human attitudes, activities, utilization, and management strategies impact wild and captive animal populations. Prerequisite: ASCI 001 or instructor permission. *Credits: 3*

181 Animal Science Career Seminar Discussion and workshop activities exploring careers in animal and food science. Includes resume preparation and interview training. Prerequisites: sophomore standing. *Credits: 1*

191 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 0.5-15*

192 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 0.5-15*

195 Field Experience Professionally-oriented field experience under joint supervision by faculty and business or community representative. Prerequisite: Instructor's permission. Total credits towards graduation cannot exceed 15 hours. *Credits: 0.5-15*

196 Field Experience Professionally-oriented field experience under joint supervision by faculty and business or community representative. Prerequisite: Instructor's permission. Total credits towards graduation cannot exceed 15 hours. *Credits: 0.5-15*

197 Undergraduate Research Research activity under direction of qualified staff member. Must have faculty member approval. Written proposal and report required. Prerequisites: Junior standing, Department Chair's permission. *Credits: 0.5-15*

198 Undergraduate Research Research activity under direction of qualified staff member. Must have faculty member approval. Written proposal and report required. Prerequisites: Junior standing, Department Chair's permission. *Credits: 0.5-15*

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. Prerequisites: ASCI 001, ASCI 115 or instructor permission. *Credits: 3*

208 Equine Industry Issues Case-based course enhances students' abilities to integrate information, use logical thought processes, and produce concise, organized solutions to real problems, from individual horses to industry-wide. Prerequisites: ASCI 115 or ASCI 117 or instructor permission. *Credits: 3*

211 Summer Farm Management A work-study program on the modern practices associated with farm management. Taught at Miner Institute, Chazy, NY. For students with a strong interest in farm management. Prerequisites: Junior, senior, or graduate standing. *Credits: 4*

213 Dairy Herd Management Organization and management of the dairy herd. Practical application of feeding, reproduction, milking, and general management principles. Prerequisites: Junior standing or instructor permission. *Credits: 4*

214 Dairy Herd Management Organization and management of the dairy herd. Practical application of feeding, reproduction, milking, and general management principles. Prerequisites: Junior standing or instructor permission. *Credits: 4*

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*

216 Endocrinology Physiology of endocrine and autocrine/paracrine systems and growth factors. Prerequisite: Course in both biology and physiology; one course in anatomy desirable. *Credits: 3*

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. Prerequisites: One chemistry course and one course in anatomy and physiology, or instructor's permission. *Credits: 3*

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*

231 Adv Ruminant Nutr&Dairy Feed Integration of microbial growth and fermentation with metabolism to define nutrient requirements in ruminant animals and application to current feeding practices in dairy production systems. Prerequisite: 110. *Credits: 2*

233 Dairy Cattle Breeding Setting breeding goals, making selection and mating decisions; balancing opposing forces to maximize genetic progress, and understanding the underlying genetic principles. Prerequisites: A genetics course, a statistics course, and permission. *Credits: 2*

234 Advanced Dairy Management An intensive, residential program at the Miner Institute providing an in-depth experiential program in the management of the dairy herd. Prerequisites: ASCI 110, 134 or 135 or equivalents. Fifteen hours. *Credits: 15*

252 FARMS Senior Project The students will conduct independent research focused on a project proposal that was developed and approved in previous course work (ASCI 156). Prerequisites: FARMS Program enrollment, ASCI 156. *Credits: 1-18*

263 Clin Top:Companion Animal Med The use of case studies in companion animal medicine to develop clinical, analytical, and diagnostic skills. Prerequisites: ASCI 118, 141, junior standing. *Credits: 3*

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, 141, junior standing. *Credits: 3*

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. Prerequisites: ASCI 171 and instructor permission. *Credits: 3*

297 Advanced Special Topics Written courses, seminars or topics beyond the scope of existing offerings. See Schedule of Courses for specifics. Prerequisite: Department chair's permission. May enroll more than once for maximum of 15 hours. *Credits: 0.5-15*

298 Advanced Special Topics Written courses, seminars or topics beyond the scope of existing offerings. See Schedule of Courses for specifics. Prerequisite: Department chair's permission. May enroll more than once for maximum of 15 hours. *Credits: 0.5-15*

Anthropology ANTH

010 Careers with Anthropology Explores careers for students with an anthropology background. Students research careers, job listings, and internships, and prepare materials that highlight skills learned in anthropology courses. *Credits: 1*

021 D2:Cultural Anthropology Introduction to cultural anthropology, using fieldwork-based concepts and methods to study diverse cultural views and practices, varied forms of social organization, and contemporary global issues. *Credits: 3*

023 Anthro Third World Dev A survey of the role of applied anthropology in the understanding and analysis of development efforts to alleviate (mostly) third world problems. *Credits: 3*

024 D2:Prehistoric Archaeology Examination of the origins and development of culture from the earliest human fossils through the appearance of civilization; the nature of archaeological data and interpretations. *Credits: 3*

026 Biological Anthropology Introduction to the study of the evolution and physical variation of humanity from a biocultural perspective. *Credits: 3*

028 D2:Linguistic Anthropology Introduction to linguistic anthropology, focusing on language and communication as they pertain to human culture and human social interaction. *Credits: 3*

040 Parenting and Childhood Introduction to the anthropology of parenting and childhood from birth to adolescence. Both biological anthropological and cultural anthropological approaches are explored through a cross-cultural perspective. *Credits: 2-3*

055 Business Anthropology Combines practical and academic perspectives in the cross-cultural study of business values and practices. Comparative studies include business cultures, cross-cultural marketing, management issues, and globalization. Online, summer session only. *Credits: 3*

059 D2:Culture and Environment Integrated Social Science Program seminar exploring the importance of anthropological and cultural perspectives for critical understanding of global environmental issues. *Credits: 3*

064 D1:Native Americans of Vermont Vermont's native peoples from their earliest appearance in the region until today. Archaeological and ethnographic data reviewed in the broader perspective of aboriginal Northeastern cultural history. Alternate years. Cross-listed with VS 064 *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

102 Anthropology of Sports This course examines the cultural significance of sports from around the world. Prerequisite: ANTH 021. *Credits: 3*

103 Political Anthropology This course explores the cultural aspects of political institutions, structures, and processes in societies from around the world. Prerequisite: ANTH 021. *Credits: 3*

104 D2:Archaeology of the Americas Archaeological overview of North and South America from the peopling of the New World to European contact in the sixteenth century. Prerequisite: ANTH 024. *Credits: 2-3*

123 Social Crisis This course investigates human sociocultural responses to crisis and radical social change. *Credits: 3*

125 History of Anthropology Examination of the major theories, theorists, and socio-political contexts central to historical development of the discipline of Anthropology. Prerequisites: ANTH 21, 24, 26 or 28. *Credits: 3*

127 Modernity & Material Culture Covers anthropological theories and case studies of modernity and consumption including circulation and reproduction of objects, consumer culture, globalization, and material aspects of cultural change. Prerequisite: ANTH 021. *Credits: 3*

130 D2:Ancient Mesoamerica Archaeological, epigraphic, historic, architectural, and ideological information from ancient Mesoamerican civilizations will be analyzed to understand their origins, florescence, and decline. Prerequisite: ANTH 024. *Credits: 3*

133 Stone Tool Technology A combination of lecture, lab analysis, stone tool experimentation and replication will be used to understand archaeological artifact assemblages of stone. Prerequisite: ANTH 24. *Credits: 3*

134 Prehistory of North America Archaeological overview of North America from the peopling of the New World to European contact in the sixteenth century. Prerequisite: ANTH 024. *Credits: 3*

135 Prehistory of the US Southwest Archaeological overview of the American Southwest, from the peopling of the New World to European contact in the sixteenth century. Pre/co-requisite: ANTH 024. *Credits: 3*

140 Primates and Anthropology A survey of behavior and anatomy of nonhuman primates (monkeys, apes and prosimians) from an anthropological perspective. Pre/co-requisites: Anth 21 or Anth 26. *Credits: 3*

142 Introduction to Syntax This course serves as an introduction to the syntax of natural languages and a rigorous approach to the analysis of sentence structure. Pre/co-requisites: ANTH 028 or LING 080. Cross-listed with CSD 166 and LING 166. *Credits: 3*

151 Anth of East Europe Survey of cultures of Central and Eastern Europe during the socialist and post-socialist periods with an emphasis on social, cultural and economic transformation since 1985. Pre/co-requisites: ANTH 21 or a 100-level Russia/East European Studies course. *Credits: 3*

152 D2:Chinese Culture Introduction to Chinese culture and society, examining core cultural values and practices, gender and the lifecycle, sociocultural diversity, impacts of economic development and social change. *Credits: 3*

153 Gender in the Middle East Exploring gendered aspects of religion, colonialism, anti-colonial struggles, feminism, revolution, family law, citizenship, expressive culture, and conflict through ethnography of the Middle East. Prerequisite: ANTH 021. *Credits: 3*

155 Anthropology of Islam Ethnographic study of religious practice and social life of contemporary Muslim communities worldwide, including shared tradition, cultural diversity, community and personhood, gender, politics, and Islamic revitalization. Pre/co-requisites: ANTH 021 or 028. *Credits: 3*

156 Cultural Contexts of HIV/AIDS Examines the ways in which HIV/AIDS affects populations based on socio-economic, political and cultural contexts. Prerequisite: ANTH 021. *Credits: 3*

160 D1:North American Indians Ethnographic survey of major native American cultures of Mesoamerica and the U.S. against background of aboriginal culture history, and problems of contact with European cultures. Prerequisite: 21. Alternate years. *Credits: 3*

161 D2:Cultures of South America Ethnographic survey of major native American cultures south of Mesoamerica against background of aboriginal culture history, and their relation to present day culture spheres. Prerequisite: 21. Alternate years. *Credits: 3*

162 D2:Cultures of Africa Ethnographic survey of representative native societies of sub-Saharan Africa and major colonial/immigrant minorities emphasizing changes resulting from colonialism, independence, and modernization. Prerequisite: 21. Alternate years. *Credits: 3*

163 D2:South Pacific Cultures Survey of major cultural areas of the South Pacific including problems of prehistory, contact with Western colonialism, and contemporary life. Prerequisite: 21. Alternate years. *Credits: 3*

164 Indians of the NE: Vermont Vermont's native peoples from their earliest appearance in the region until today. Archaeological and ethnographic data reviewed in the broader perspective of aboriginal Northeastern cultural history. Prerequisite: ANTH 21 or 24. Cross-listing: VS 164 *Credits: 3*

165 D2:Peoples of South Asia Culture and social organization of peoples of Pakistan, India, Bangladesh, and Sri Lanka. Theoretical issues in anthropological analysis of these societies discussed. Prerequisite: 21. Alternate years. *Credits: 3*

166 D2:Peoples of the Middle East Culture and social organization of peoples living in lands from Morocco to Afghanistan, including a consideration of Islam. Prerequisite: 21. Alternate years. *Credits: 3*

167 Native Peoples of Canada Traditional life-ways of the native peoples of Canada, Indian, and Inuit; contemporary issues in native life in Canada. Prerequisites: 21 or Geography 152 or History 65 or 66. Alternate years. *Credits: 3*

169 D1:Latinos in the US Survey of peoples of Latino/Hispanic descent living in the U.S. Course examines their similarities and differences in history, ethnic identification and cultural practices. Prerequisite: 21. *Credits: 3*

172 D2:Gender, Sex and Culture Cross-cultural study of gender, sex and sexuality, including exploring the cultural construction of categories and cultural practices related to gender, sex and sexuality. Pre/co-requisite: ANTH 21. *Credits: 3*

174 Culture, Health and Healing Introduction to medical anthropology. Social and cultural perspectives on health and illness experiences, doctor-patient interactions, healing practices, and

access to health and health care. Pre/co-requisites: ANTH 21 or 3 credits of SOC. Cross-listings: SOC 155 *Credits: 3*

176 Topics in Linguistic Anthro Intermediate level special topics in linguistic anthropology. Pre/co-requisites: ANTH 28 or CSD 80. *Credits: 3*

178 Sociolinguistics Exploration of language and nonverbal interactions as cultural activities. Focus on rules and patterns people display appropriate to communication and social interaction. Prerequisite: ANTH 028 or LING 080. Cross-listed with LING 178. *Credits: 3*

179 D2:Environmental Anthropology Introduction to how culture mediates human-environmental interactions. Topics include cultural, spiritual, and political ecology; forms of resource management; environmentalism; sustainable development; and environmental justice. Pre/co-requisites: ANTH 21, 23, 24 or instructor permission. *Credits: 3*

180 D2:Psychological Anthropology Examines the role of culture in shaping personhood, identity, experience, cognition, emotion, mental illness, interpersonal relations, socialization processes, and human development across the lifecycle. Pre/co-requisites: ANTH 21. *Credits: 3*

181 Law, War and Disorder Introduction to the anthropology of law and conflict management emphasizing the cultural fora and social organization of disputes and efforts to deal with conflict. Prerequisite: 21. *Credits: 3*

183 The Anthropology of Genocide Examines large-scale killing from an anthropological perspective using the comparative method, social-structural, cultural and political-economy models. Proposed solutions are also critically assessed. Prerequisite: ANTH 021. *Credits: 3*

184 Street Children Explores elements that both connect and distinguish populations of street children worldwide from an anthropological perspective. Prerequisite: ANTH 021. *Credits: 3*

187 D1:Race and Ethnicity (Same as Sociology 119.) Description and analysis of ethnic, racial, and religious groups in the U.S. Examination of social/cultural patterns in the larger society and in these groups themselves. Prerequisite: 21. *Credits: 3*

188 Historical Archaeology Survey of field, lab, and archival research methods; specialized studies of material culture; selected topics on ethnicity in the Americas, gender and status. Prerequisites: 24. Alternate years. *Credits: 3*

189 Aging in Cross-Cultural Persp Aging from an anthropological perspective. Topics include exploration of biological and cultural aspects of human aging across the adult lifecycle in a variety of cultural groups. Pre/co-requisites: ANTH 21 or SOC 20; Alternate years. *Credits: 3*

190 ISSP Thesis Independent study for students enrolled in Integrated Social Sciences Program; final product is thesis. Prerequisite: Enrollment in ISSP courses. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research *Credits: 1-6*

198 Readings & Research *Credits: 1-12*

200 Field Work in Archaeology Methods and techniques of archaeological investigation in field situations and the laboratory analysis of data. Pre/co-requisites: ANTH 024, and one 100-level course in anthropology or history, or instructor's permission. *Credits: 6*

201 Practicum & Internship Supervised service or research integrating theoretical and practical anthropological issues. Prerequisite: Nine hours of anthropology. *Credits: 1-12*

202 Anthropology of Media Examines the major analytical frameworks, theoretical debates, and methodological tools for studying contemporary media technologies and expressive cultures anthropologically. Pre/co-requisites: ANTH 021; one 100-level ANTH course. *Credits: 3*

203 Tourism & Heritage Examining tourism from an anthropological perspective, including: museums; souvenirs and tourist art; national, racial, ethnic, and indigenous identities; gender; and theories of performance and re-enactment. Pre/co-requisites: ANTH 021 and one 100-level ANTH course. *Credits: 3*

209 D2: Caribbean Archaeology Examination of past Amerindian and Colonial era cultures in the Caribbean and the major theoretical and methodological issues surrounding their investigation. Pre-requisites: ANTH 024 and one 100-level ANTH course. *Credits: 3*

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: 24, one 100-level anthropology course; or Historic Preservation 201; or graduate standing in Historic Preservation Program, or History 121, 122, or 149. Alternate years. *Credits: 3*

220 Develop & Applied Anthropology Seminar examines the application of anthropological knowledge and methodologies to alleviate social problems around the world, with a special focus on the cultural politics of expertise. Prerequisites: ANTH 23, three 100-level courses, or instructor's permission. Alternate years. *Credits: 3*

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: 21, one 100-level course. *Credits: 3*

228 Social Organization Examination of the basic anthropological concepts and theories used in the cross-cultural analysis of kinship and marriage. Prerequisites: 21, one 100-level course. *Credits: 3*

240 Human Osteology & Archaeology An exploration of the human skeleton as a means of reconstructing past lives both at the level of individuals (forensics) and populations (archaeology and bioarchaeology). Prerequisites: ANTH 24 or 26 and one 100-level Anthropology course. *Credits: 3*

244 Amer Indian Identity Politics An examination of the ways in which American Indian identity is shaped by socio-historical processes within and outside Native communities. Prerequisites: ANTH 021, one 100-level ANTH course. *Credits: 3*

245 Laboratory Archaeology Exploration of laboratory methods of archaeology through the analysis of excavated materials. Prerequisites: ANTH 024; one 100-level course in Anthropology. *Credits: 3*

250 Museum Anthropology The cultural context of selected archaeological and ethnographic collections at Fleming Museum; cataloguing, conservation, research, and interpretation of objects; exhibition design and ethical issues. Prerequisites: Junior standing; Anthropology, Art History, Studio Art majors and minors. Alternate years. *Credits: 3*

272 Language, Gender and Sexuality Examines different theoretical approaches to understanding gender and sexuality through the study of language use, emphasizing analysis of crosscultural data from a linguistic anthropological perspective. Prerequisites: ANTH 028 or LING 080 and one 100-level anthropology or linguistics course. Cross-listed with LING 272. *Credits: 3*

276 Adv Topics in Linguistics Advanced special topics in linguistics, sociolinguistics and linguistic anthropology. Pre/co-requisites: ANTH 28 and one 100-level ANTH course or permission of instructor. *Credits: 3*

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: 21, one 100-level course, or 21, six hours in the social sciences. Alternate years. *Credits: 3*

284 Linguistic Anthropology Mthds Exploration of key methodologies in linguistic anthropology, including theories and practice of eliciting linguistic data, conducting interviews, transcribing audio- and video-taped interactions, and analyzing conversations. Pre/co-requisites: ANTH 28 or CSD 80 and 1 Anthropology course at the 100 level or above. *Credits: 3*

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*

295 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisites: 21, one 100-level course. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisites: 21, one 100-level course. *Credits: 1-18*

297 Advanced Readings & Research Prerequisite: Junior or senior standing. *Credits: 1-3*

298 Advanced Readings & Research Prerequisite: Junior or senior standing. *Credits: 1-3*

Arabic ARBC

001 Elementary Arabic I The development of initial reading, listening, speaking, and writing skills in Modern Standard Arabic. Attention will be given to the mastering of the Arabic alphabet. *Credits: 4*

002 Elementary Arabic II Continuation of ARBC 001. Students are expected to continue mastering skills in reading, listening, speaking, and writing. Prerequisite: ARBC 001. *Credits: 4*

051 Intermediate Arabic I Students will continue to learn grammatical structures and improve their Arabic listening, speaking, reading, and writing skills. Prerequisite: ARBC 002. *Credits: 4*

052 Intermediate Arabic II Continuation of ARBC 051. Students will continue to develop their communicative skills. Prerequisite: ARBC 051. *Credits: 4*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Art Education EDAR

140 Foundation Studio El Ed Majors Students select a foundation studio course (Art 2, 3 or 4) from those sections designated each semester on the course schedule. See course descriptions listed under Art. *Credits: 3*

177 Curriculum & Pract in Elem Art Study and implementation of curriculum in elementary school. Students work directly in an elementary classroom. Lectures and discussions. Prerequisites: Eighteen hours studio art, junior standing. *Credits: 4*

178 Curriculum&Pract Middle/HS Art Study and implementation of curriculum in middle and high school. Students work directly in a middle or high school. Lectures and discussions. Prerequisite: Eighteen hours studio, junior standing. *Credits: 4*

200 Contemporary Issues Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisites: Twelve hours in education and related areas. *Credits: 1-6*

283 Current Issues in Art & Ed Research and discussion of issues relevant to contemporary art and the teaching of art. Prerequisite: Senior standing or permission. *Credits: 3*

284 Current Issues in Art & Ed Research, discussions, and field work relevant to contemporary art and the teaching of art. Prerequisite: Junior standing or permission. *Credits: 3*

295 Laboratory Experience in Educ Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences. One to six hours. *Credits: 1-15*

Art History ARTH

005 Western Art: Ancient - Medieval Introduction to the visual arts, primarily painting, sculpture, and architecture in the Western world from prehistoric through Gothic. *Credits: 3*

006 Western Art: Renaissance-Modern Introduction to the visual arts, primarily painting, sculpture, and architecture in the Western World from Renaissance to present. Prerequisite: It is recommended that ARTH 5 be taken before 6. *Credits: 3*

008 D2: Asian Art Introduction to the artistic tradition and major architectural monuments of India, China, Japan and Southeast Asia. *Credits: 3*

095 Introduction to Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introduction to Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

140 Hist of Optical Media as Art Theory and development of the art of "optical media:" photography, film, and video. Emphasis on discovery and explication of technical, aesthetic, and expressive properties. Prerequisite: one of the following: ARTH 6, FTS 7, FTS 8. *Credits: 3*

146 D2: Egypt & the Ancient Near E The development of sculpture, painting, and architecture in Mesopotamia and Egypt 3000-300 B.C.. Prerequisite: 5. *Credits: 3*

148 Greek Art Development of painting, sculpture, architecture, and related arts in Greek lands 3000-30 B.C. Prerequisite: 5. *Credits: 3*

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

155 Topics in Medieval Art Selected aspects of European art from the end of the Roman Empire through the Gothic period. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: 5. *Credits: 3*

158 Northern European 1400-1600 Netherlandish and German art of the period. Special attention to Jan van Eyck, Rogier van der Weyden, Hugo van der Goes, Durer, Bosch, and Bruegel. Prerequisite: 5. *Credits: 3*

161 Italian Renaissance Painting Painting in Italy from Gothic innovations of Giotto and Duccio through establishment of 15th-century Renaissance style to the High Renaissance works of Leonardo da Vinci, Raphael, Michelangelo and Titian. The development of Venetian painting. Prerequisite: 5. *Credits: 3*

164 Italian Renaissance Sculpture Sculpture in Italy from its Gothic sources through the Renaissance. Special attention to Ghiberti, Donatello, and Michelangelo. Prerequisite: 5. *Credits: 3*

165 Topics European Art 1600-1800 Selected aspects of the painting, sculpture, and architecture of the Baroque, Rococo, and/or Neo-Classical periods. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: 6. *Credits: 3*

170 Topics in Modern Art Selected aspects of the painting, sculpture, and architecture of Europe and North America during the 19th and 20th centuries. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: 6. *Credits: 3*

172 19th Century European Painting Examination of major movements in European painting from Neo-Classicism and Romanticism through Post-Impressionism. Prerequisite: 6. *Credits: 3*

174 20th-Century Art A survey of movements and new media in European and American painting, sculpture, mixed media, performance, and the influences of film and photography on traditional media. Prerequisites: three hours of art history and preferably 172 or 181. Alternate years. *Credits: 3*

177 19th & 20th Cent Arch & Design The theory and practice of building and design from the early 19th century to the recent past. Prerequisites: 6 or a course in Historic Preservation. *Credits: 3*

179 Issues in Contemporary Art A study of selected examples of recent and current art and/or architecture. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: three hours of Art History. *Credits: 3*

180 N American Art 1600-1900 Painting, sculpture, and architecture in the U.S. and Canada from Colonial beginnings (Hispanic, Franco, Angelo) to WWI. Emphasis on the development of nationalist sensibilities as they emerge from European sources. Prerequisites: ARTH 006 or GRS 091 (Canada). *Credits: 3*

185 D2: Japanese Art Architecture, sculpture, painting, prints and decorative arts and their relationships to Japanese culture. Prerequisites: three hours in art history or one of the Asian Studies courses: History 151, Religion 21, 132, 141. Alternate years. *Credits: 3*

187 D2: Chinese Painting History of Chinese painting, emphasizing the landscape painting of the 11th to 17th centuries. Prerequisite: Six hours of art history, three at the 100 level or instructor's permission. Alternate years. *Credits: 3*

188 D2: Indian Painting Mural, manuscript, and miniature painting from India from the 5th and 19th centuries. Topics to include: courtly and religious patronage and regional styles. Prerequisites: Three hours of art history or instructor's permission. *Credits: 3*

189 D2: Topics in Non-Western Art Selected aspects of the arts of an area not covered in our regular European, American, and Asian courses. Material and emphasis vary with instructor. May be repeated for credit with instructor's permissions. Prerequisite: three hours in Art History. *Credits: 3*

190 Internship: Art History Prerequisites: junior standing, six hours of 100-level course work in appropriate field, departmental permission (a contract must be obtained from and returned to the Department of Art during preregistration). *Credits: 3*

192 D2: Inter Spec Topics Asian Art See schedule of Course for specific titles. Prerequisite: three hours in Art History or Asian Studies. *Credits: 3*

195 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

198 Readings & Research Prerequisite: departmental permission. *Credits: 1-6*

199 Topics:Gender,Race,Ethn in Art Study of selected aspects of gender, "race," or ethnicity in art, and/or of the contributions of women or ethnically diverse people to the visual arts. Material and emphasis vary with instructor. May be repeated for credit with instructor's permission. Prerequisite: three hours in Art History. *Credits: 3*

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; junior or senior standing. *Credits: 3*

285 D2:Seminar in Asian Art Prerequisites: One of the following: ARTH 8, 185, 187, 188, or 196 when the topic is Asian; three additional hours of a 100-level course either in art history or Asian Studies. *Credits: 3*

295 Adv Special Topics:Art History See Schedule of Courses for specific titles. *Credits: 1-18*

296 Adv Special Topics:Art History See Schedule of Courses for specific titles. *Credits: 1-18*

Art Studio ARTS

001 Drawing Introductory study of visual experience through drawing and its transformation of the three-dimensional visual world onto a two-dimensional surface. Emphasis varies with instructor. *Credits: 3*

002 Two-Dimensional Studies A studio course exploring through classroom projects how we perceive space and how we work with materials and concepts to organize two-dimensional surfaces. *Credits: 3*

003 Three-Dimensional Studies Introductory study of the manipulation of actual space in diverse media. Emphasis varies with instructor. *Credits: 3*

011 Introduction to Fine Metals Emphasizes design in the third dimension. Basic metal fabrication techniques, soldering, forming, forging, fusing, and casting. Drawing required. Fall semester only. *Credits: 3*

095 Introduction to Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introduction to Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

111 Fine Metals Continuation of three-dimensional fabrication with work in chasing, repousse, casting, stone setting and more complex methods of construction. Design and drawing required. Prerequisite: 11. Fall semester only. *Credits: 0-3*

113 Clay: Hand Building Investigation of surfaces and three-dimensional forms. Focus on variety of construction methods, surface treatment, and firing techniques. Related clay and glaze technology. Prerequisites: 1 or 2, and 3. *Credits: 3*

114 Clay: Wheel Throwing Development of throwing skills and the capacity to create a range of forms. Investigation of surface treatment techniques such as slip painting and glazing. Low-fire and stoneware firing. Related clay and glaze technology. Prerequisites: 1 or 2, and 3. *Credits: 3*

115 Intermediate Drawing Intense investigation of drawing and elements related to the discipline. The figure used to introduce drawing exercises dealing with contour, gesture, color, and compositional geometry. Prerequisite: 1 and 2. *Credits: 3*

116 Drawing From the Figure Drawing from the model, emphasizing in-depth studies in different media. Prerequisite: 1 and 2. *Credits: 3*

121 Painting Painting as an investigation of color, space and visual perception using traditional motifs and exploring individually developed directions. Prerequisites: 1 and 2. *Credits: 3*

131 Printmaking: Etching Basic procedures in zinc plate printing, stressing design and technical control of aquatint, etching, drypoint

and embossment. Prerequisites: 1 and 2. Offered alternate semesters. *Credits: 3*

132 Printmaking: Silkscreen Basic procedures in stencil printing, stressing design and technical control of stencil cutting, glue and tusche resist and photo-silkscreening. Prerequisites: 1 and 2. Offered alternate semesters. *Credits: 3*

133 Printmaking: Lithography Basic procedures in planographic printing from stone, stressing design and technical competence. Intensity of investigation varies with individual student. Prerequisites: 1 and 2. *Credits: 3*

137 Photography Photographic processes as methods of seeing, emphasizing visual discovery through informed manipulation of materials. Students explore light, camera, photosensitive materials relating to photographic realities. Prerequisite: one of the following: 1, 2, 4. *Credits: 3*

138 Color Photography Exploration of color films, cameras, and color printing processes as a means for recording, enhancing and expressing students' subjective experiences. Prerequisite: ARTS 001 or 002. *Credits: 3*

139 Animation Techniques of single frame filmmaking, including drawing on film, producing a flipbook, animating a repetitive form, a two-dimensional sequence, and a three-dimensional sequence. Prerequisites: Any two of the following: ARTS 001, 002, 003. *Credits: 3*

141 Sculpture Exploration of manipulative materials. Prerequisite: 3. *Credits: 3*

142 Art from Scraps Students explore in a series of projects how discarded objects and material from everyday life, the "found object" tradition, can become materials for sculpture. Prerequisite: 2 and 3. *Credits: 3*

144 Digital Art Exploration of the computer as an artistic medium, focusing on a variety of approaches for creating and displaying imagery. Prerequisite: 2. *Credits: 3*

145 Graphic Design The application of graphic design principles to practical problems, including the impact of popular design on society, and the exploration of visual elements in contemporary printing processes. Prerequisite: 1 or 2. *Credits: 3*

147 Visual Environment Exploration of public spaces, structures, architectural detail, landscaping, roadways, lighting, etc. Field trips; meeting with planners and architects; projects. Prerequisites: 1, 2, or 3. *Credits: 3*

148 Motion Picture Production Study of the principles, properties and potentials of four-dimensional media through production exercises, viewing, reading and discussion. Includes theoretical, conceptual and technical information. Prerequisites: one of the following: ARTS 1, 2, 3 and one of the following: FTS 121, ARTH 140 *Credits: 3*

191 Internship: Field Experience Prerequisites: junior standing, six hours of 100 level courses in appropriate field, departmental permission (a contract must be obtained from and returned to the Department of Art during preregistration). *Credits: 3*

195 Intermediate Special Topics Intermediate course or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics Intermediate course or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

197 Rdgs&Rsch: Tutorial in Studio Independent/individual research in studio art. Prerequisites: junior standing, six hours of studio art courses at 100 level, departmental permission (a contract must be obtained from and returned to the Department of Art during preregistration). *Credits: 1-6*

213 Advanced Ceramics Advanced investigations of methods exploring content, form, surface, and color of ceramics and elements related to the discipline. Prerequisite: 113 or 114. *Credits: 3*

215 Advanced Drawing Intense investigations of drawing and elements that relate to that discipline. Emphasis on conceptual method, contemporary techniques, and both objective and non-objective source material. Prerequisite: 115 or 116. *Credits: 3*

221 Advanced Painting Advanced explorations of painting emphasizing issues of scale, materials, and techniques both traditional and contemporary, and their relationship to both the discipline and current issues. Prerequisites: 121. *Credits: 3*

237 Advanced Photography Continuation of 137 and 138, exploring the implications of photography and encouraging students to use the medium to better understand their relationship to the world. Prerequisites: ARTS 137 and 138. *Credits: 3*

241 Advanced Sculpture Advanced investigation of sculpture. Students work on individual projects under supervision of instructor. Periodic group discussion and analyses of work in progress. Prerequisite: 141 *Credits: 3*

244 Advanced Digital Art Advanced exploration of the computer as an artistic medium for creating imagery. Focus on using the computer to animate images and integrate sound. Emphasis on conceptual issues in digital art. Prerequisite: 144. *Credits: 3*

248 Adv Motion Picture Production Advanced study of the principles, properties and potentials of four-dimensional media through production exercises, viewing, reading and discussion. Includes theoretical, conceptual and technical content. Prerequisites: ARTS 148 or FTS 141 *Credits: 3*

281 Advanced Studies in Studio Art Work in close consultation with faculty sponsor on a specific and advanced project. Prerequisite: senior standing, major or qualified minor in studio art, departmental permission (a contact must be obtained from and returned to the Department of Art during preregistration), six hours of 100-level courses in topic of contract. *Credits: 3*

283 Advanced Seminar in Studio Art Advanced seminar for senior studio art majors covering a range of topics. Prerequisites: senior standing, major in studio art, instructor's permission. *Credits: 3*

295 Special Topics in Studio Art Advanced work in existing departmental offerings. Prerequisite: Instructor's permission only. *Credits: 1-18*

296 Special Topics in Studio Art Advanced work in existing departmental offerings. Prerequisite: Instructor's permission only. *Credits: 1-18*

Astronomy ASTR

005 Exploring the Cosmos Survey of ancient astronomy, planets and moons, stars and their evolution, galaxies and quasars, and Big-Bang cosmology. Includes night sky observations. *Credits: 3*

023 Astr Lab I: Measuring the Sky Measurements of the properties of the planets, stars, and galaxies using graphical analysis, computer simulations and photographs. Prerequisites: Concurrent enrollment or credit in ASTR 5. *Credits: 1*

024 Astronomy Lab II: Imaging Sky Sky observations using binoculars, optical and radio telescopes. Observations are recorded with drawings, photographic film, and digital imaging devices. Some dark room work. Prerequisites: Concurrent enrollment or credit in ASTR 5. *Credits: 1*

057 Hist/Pract Ancient Astronomy A cross-cultural survey of astronomical practices of ancient peoples. Sky watching, time reckoning and calendar making. Constellations, astrological practices, and planetary theories. Prerequisites: ASTR 5 or other introductory science course. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

153 Moons & Planets Celestial mechanics, formation of the stars, and planetary materials. Planets, satellites, asteroids, meteors, and comets. Planetary surfaces, interiors, and atmospheres. Origins of life. Prerequisites: ASTR 005; MATH 010 or equivalent. *Credits: 3*

155 The Big Bang Ancient cosmologies, beginning of time, origin of matter, cosmic background radiation, antimatter and dark matter, the expanding universe and origin of structure. Prerequisites: ASTR 005; MATH 010 or equivalent. *Credits: 3*

157 Stars & Galaxies Instruments and observations. Stars and their evolution. Black holes and compact objects. The interstellar medium. Relativity and galactic structure and galaxy formation. Prerequisites: ASTR 005; MATH 010 or equivalent. *Credits: 3*

177 Spacecraft Astronomy Survey of recent astronomical satellites such as Hubble, Chandra and Fermi LAT; their design, orbital characteristics and findings. Prerequisites: ASTR 005; MATH 010 or equivalent. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

257 Modern Astrophysics (Same as Physics 257) Prerequisite: One 100-level course in physical science or engineering. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Athletic Training AT

158 Fundamentals of Athletic Trng A required course offered for those students seeking admission into the Athletic Training Education Program. Course includes a laboratory component and 50 clinical experience hours. *Credits: 4*

159 Practicum in Athletic Trng I Course one in a series of practicum courses that sequentially develop clinical skills in a laboratory learning environment. Students are provided clinical assignments. Pre/co-requisites: Acceptance into the Athletic Training Education Program. *Credits: 2*

160 Practicum in Athletic Trng II Course two in a series of practicum courses that sequentially develop clinical skills in a laboratory learning environment. Students are provided clinical assignments. Pre/co-requisites: Acceptance into the Athletic Training Education Program. *Credits: 2*

161 Practicum in Athletic Trng III Course three in a series of practicum courses that sequentially develop clinical skills in a laboratory learning environment. Students are provided clinical assignments. Pre/co-requisites: Acceptance into the Athletic Training Education Program. *Credits: 2*

162 Practicum in Athletic Trng IV Course four in a series of practicum courses that sequentially develop clinical skills in a laboratory learning environment. Students are provided clinical assignments. Pre/co-requisites: Acceptance into the Athletic Training Education Program. *Credits: 2*

184 Injury Eval & Recognition I Evaluation and recognition of injuries to the head, neck, and lower extremities. Areas covered include injury mechanisms, etiology, pathology, and clinical signs and symptoms. Pre/co-requisites: 157 and 158. *Credits: 4*

185 Injury Eval & Recognition II Evaluation and recognition of injuries to the spine and upper extremities. Areas covered include injury mechanisms, etiology, pathology, and clinical signs and symptoms. Pre/co-requisites: AT 184. *Credits: 4*

187 Rehabilitation Techniques Post-injury and post-operative rehabilitation and conditioning techniques involved in returning an active individual to normal and athletic activity. Pre/co-requisites: AT 157, 158, 184 *Credits: 3*

189 Recog & Tx of Med Cond in AT Contemporary general medical issues in the field of Athletic Training. Topics include general medical conditions and disabilities, systemic diseases, pharmacology, and male & female health issues. Pre/co-requisites: Junior standing; Athletic Training Major. *Credits: 3*

190 Senior Clinical Experience I Supervised field work in both on and off-campus experiences in Athletic Training settings including: High School, Clinic, College/University, and Professional Sports. Pre/co-requisites: Senior standing in Athletic Training Education Program. *Credits: 6-12*

192 Senior Clinical Experience II Supervised fieldwork in both on and off-campus Athletic Training settings including: High School, Clinic, College/University, Research, and Professional Sports. Pre/co-requisites: AT 190, Senior standing in Athletic Training Education Program. *Credits: 6-12*

195 Special Topics in Athl Trng Contemporary issues in the field of Athletic Training. Topics include: pharmacology, general medical conditions and disabilities, male & female health issues, and psychology in sport. Pre/co-requisites: Junior standing and Athletic Training major. *Credits: 1-18*

BioCore BCOR

011 Exploring Biology Exploring biology from cells to organisms. Topics include origins of life; ancestral organisms; uni- and multi-cellular energetics; evolution of respiration and metabolism ; and the genetic code. Credit not given for both BCOR 011 and BIOL 001. Pre/co-requisites: Concurrent enrollment or credit in Chemistry 31 or 32. *Credits: 4*

012 Exploring Biology An evolutionary perspective to exploring biology. Topics include: patterns of inheritance; Darwinian evolution; evolution of biodiversity; ecology of organisms; human effects on biological systems. Credit not given for both BCOR 012 and BIOL 002. Pre/co-requisites: Concurrent enrollment or credit in Chemistry 31 or 32. *Credits: 4*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

101 Genetics The basis of inheritance, covering topics from classical genetics to modern molecular studies. Analysis of genetic data emphasized, from prokaryotic, animal, and plant systems. Pre/co-requisites: Biol 1, 2 or BCOR 11, 12, Chemistry 31, 32, organic chemistry recommended. *Credits: 3*

102 Ecology and Evolution Ecosystem and community structure; population growth; species interactions and niche dynamics; population and chromosomal genetics; speciation in fossil records; ecology of animal behavior; applied ecology. Pre/co-requisites: Biol 1, 2 or BCOR 11, 12, Math 19 or 21. *Credits: 4*

103 Molecular and Cell Biology Explores the fundamental processes of life. Topics include cellular metabolism; structure and function of organelles; cell cycle; signal transduction; biology of cancer. Pre/co-requisites: Biol 1, 2 or BCOR 11, 12, Chemistry 31, 32. (Chemistry 141, BCOR 101 recommended). *Credits: 4*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Biochemistry BIOC

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

185 Survey of Biochemistry Broad coverage of biochemical topics suitable for students in the applied health sciences. Prerequisite: CHEM 042 or acceptable course work in organic chemistry. Cross-listed with PBIO 185. *Credits: 3*

187 Survey of Biochemistry: Lab Introduction to techniques and equipment used for the isolation and quantitative analysis of amino acids, proteins, carbohydrates and DNA enzymes in biological materials. Pre/co-requisite: BIOC 185. Cross-listed with PBIO 187. *Credits: 1*

191 Undergraduate Research Participation in a research program currently being pursued by a faculty member of department. Written report due at end of each semester. Prerequisites: CHEM 31, 32 or 35, 36. Some programs may require additional courses in biology or chemistry. Credit as arranged, up to four hours per semester. *Credits: 1-6*

192 Undergraduate Research Participation in a research program currently being pursued by a faculty member of department. Written report due at end of each semester. Prerequisites: CHEM 31, 32 or 35, 36. Some programs may require additional courses in biology or chemistry. Credit as arranged, up to four hours per semester. *Credits: 1-18*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

205 Biochemistry I Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisites: CHEM 142 or 144. Crosslisted with CHEM 205 and MMG 205. *Credits: 3*

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. Crosslisted with CHEM 206 and MMG 206. *Credits: 3*

207 Biochemistry Lab Introduction to biochemical tools, including spectrometry, chromatography, and electrophoresis; natural and recombinant enzyme isolation; assays of DNA-modifying enzymes; computer-based structure/function exercises. Corequisites: BIOC 205 or 206. Crosslisted with CHEM 207 and MMG 207. *Credits: 2*

212 Biochemistry of Human Disease Molecular approach to genetic, metabolic, and infectious diseases; recombinant DNA technology and medicine; molecular biology of cancer. Prerequisites: CHEM 42 or 141. *Credits: 3*

240 Macromol Struct Prot&Nucl Acid Introduction to structural biology and macromolecular structure with an emphasis on protein-protein and protein-nucleic acids interactions. Prerequisites: Biology 1, 2; Organic Chemistry; Junior standing recommended; Crosslisted with MMG 240; Alternate years. *Credits: 3*

284 Biochemistry Senior Seminar Oral and written presentation of a subject of current biochemical interest. Prerequisite: Audit of BIOC 381. Cross-listed: CHEM 284, MMG 284. *Credits: 1*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Biological Sciences BSCI

195 Biological Sciences Seminar Presentations and discussion of selected topics by students, staff, and invited guests. Suggested attendance for all first-year and transfer students in Biological Science for one semester. *Credits: 1*

196 Biological Sciences Seminar Presentations and discussion of selected topics by students, staff, and invited guests. Suggested attendance for all first-year and transfer students in Biological Science for one semester. *Credits: 1*

197 Undergrad Research Special study and research activity under direction of qualified staff member. Requires written proposal and final project report. Prerequisites: Research advisor and program chairperson approval. Credit as approved with maximum of six hours for undergraduate program. *Credits: 1-12*

198 Undergrad Research Special study and research activity under direction of qualified staff member. Requires written proposal and final project report. Prerequisites: Research advisor and program chairperson approval. Credit as approved with maximum of six hours for undergraduate program. *Credits: 1-6*

297 Advanced Undergraduate Rsch Undergraduate students are involved in advanced individual research projects sponsored by a faculty member. Arrangements are made with individual faculty members and Biological Sciences Program Director approval. Pre/co-requisites: BSCI 197/198 or advisor's permission. *Credits: 1-12*

298 Advanced Undergraduate Rsch Undergraduate students are involved in advanced individual research projects sponsored by a faculty member. Arrangements are made with individual faculty members and Biological Sciences Program Director approval. Pre/co-requisites: BSCI 197/198 or advisor's permission. *Credits: 1-12*

Biology BIOL

001 Principles of Biology Principles of cellular biochemistry; cell biology; genetics and evolution. Topics: biochemistry; metabolism, cell structure/function; respiration; photosynthesis; molecular, Mendelian and population genetics; genetics of evolution. Credit not given for both BIOL 001 and BCOR 011. *Credits: 4*

002 Principles of Biology Principles of organismal biology; nature of scientific inquiry, plant form and function, pollination ecology, animal phylogeny illustrated by comparative anatomy and physiology; animal behavior. Credit not given for both 2 and BCOR 12. *Credits: 4*

003 Human Biology For nonscience majors. Selected biological topics relevant to humans, such as cancer, human genetics, environmental toxicants; biological concepts necessary for understanding these problems. *Credits: 3*

004 The Human Body For nonscience majors. Introduction to basic human anatomy and organ system physiology emphasizing normal homeostatic mechanisms and the changes that accompany common disorders and diseases. *Credits: 3*

006 Evolutionary Biology For nonscience majors. The process of biological evolution; evidence for evolution; mechanisms of evolutionary change; origin of adaptations; evolution of behavior; social and reproductive behavior. *Credits: 3*

009 Science As a Way of Knowing History of scientific method and its application to generation of knowledge. How science seeks to understand the origin and diversity of life. Lab research project. *Credits: 3*

086 Intro to Forensic Biology An introductory-level course covering crime scene investigation, methods of evidence collection, identifying a body, cause of death and producing DNA profiles. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

106 Cell Structure and Function Molecules, structures, and physiology of cell membranes; energy transformations; nuclear and cytoplasmic events; extracellular matrix; cell signaling; and cell types and fates. Prerequisites: Bio 1, 2 (or BCOR 11, 12); Chem 141, 142 recommended *Credits: 4*

168 Mathematics of Biology Discrete biological processes: nonlinear differential equations. Continuous processes: ordinary differential equations, phase plane methods, quantitative solutions. Applications: population dynamics, epidemiology, Michaelis-Menten kinetics, autocatalysis, muscle contraction. Includes a lab. May not be taken concurrently with or after MATH 268. Pre/co-requisites: MATH 022 or 023, MATH 124. Cross listing: MATH 168. *Credits: 3*

191 Research Apprenticeship Participation in a faculty research project. Students must follow all departmental guidelines. May be repeated for credit. *Credits: 0-3*

192 Research Apprenticeship Participation in a faculty research project. Students must follow all departmental guidelines. May be repeated for credit. *Credits: 0-3*

193 Internship in Biology Professional experience, containing a substantial academic component, with an off-campus organization or campus unit other than Biology Department. Students must follow all departmental guidelines. Prerequisite: Departmental permission. *Credits: 3*

194 Internship in Biology Professional experience, containing a substantial academic component, with an off-campus organization or campus unit other than Biology Department. Students must follow all departmental guidelines. Prerequisite: Departmental permission. *Credits: 3*

195 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Special Topics See Schedule of Courses for specific titles. *Credits: 0-18*

197 Undergraduate Research Individual research under faculty guidance. Enroll following departmental guidelines. Pre/co-requisites: Junior or senior standing, departmental permission. *Credits: 3 OR 6*

198 Undergraduate Research Individual research under faculty guidance. Enroll following departmental guidelines. Pre/co-requisites: Junior or senior standing, departmental permission. *Credits: 3 OR 6*

202 Quantitative Biology Topics in quantitative methods in biological research, including statistics and computer-based analysis. Prerequisite: One of BCOR 101, 102, 103; MATH 19, 20. *Credits: 3*

203 Population Ecology Analysis of growth, regulation, and interrelations of biological populations in theoretical, laboratory, and natural systems. Prerequisite: BCOR 102. *Credits: 3*

204 Adv Genetics Laboratory Laboratory experiments to provide experience with modern genetic techniques. Bench work and data analysis emphasized. Prerequisite: BCOR 101. *Credits: 4*

205 Adv Genetics Laboratory Laboratory experiments to provide experience with modern genetic techniques. Bench work and data analysis emphasized. Prerequisite: BCOR 101. *Credits: 4*

208 Morphology&Evolution Insects Systematics, morphology, and anatomy of insect taxa, with comparisons to related arthropods. Prerequisite: BCOR 102 *Credits: 4*

209 Field Zoology Collection, identification, and ecology of arthropods. Substantial field collecting. Prerequisite: BCOR 102. *Credits: 4*

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: BCOR 103. *Credits: 4*

217 Mammalogy Classification, identification, morphology, evolution, and distribution of mammals. Prerequisite: BCOR 102. *Credits: 4*

219 Compar/Func Vertebrate Anatomy Structure, function, and phylogeny, with evolutionary and functional trends of all chordate groups. Prerequisites: Two courses from BCOR 101, 102, 103. *Credits: 4*

223 Developmental Biology An analysis of the cellular, subcellular, molecular, and genetic mechanisms that operate during oogenesis and embryogenesis in invertebrate and vertebrate organisms. Prerequisites: BCOR 101, 103. *Credits: 3*

225 Physiological Ecology Processes by which animals cope with moderate, changing, and extreme environments. Prerequisites: BCOR 102, BIOL 255. *Credits: 3*

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: Permission of instructor. *Credits: 3*

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: 1 OR 3*

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-requisites: BCOR 101 *Credits: 0-4*

255 Comparative Physiology Physiology at the organ, systems, and organismal levels. Capstone course to consolidate biological concepts. Pre/co-requisites: BCOR 101, 102, 103. *Credits: 4*

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-listing: ANNB 261. *Credits: 3*

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*

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's permission. *Credits: 3*

264 Community Ecology Theoretical and empirical analyses of community structure. Topics include population growth, meta-population dynamics, competition, predation, species diversity, niches, disturbance succession, island biogeography, and conservation biology. Prerequisites: BCOR 102; at least junior standing. *Credits: 3*

265 Developmntl Molecular Genetics Current topics in developmental genetics explored through lectures and discussions of current literature; emphasis on molecular approaches. Prerequisites: BCOR 101. *Credits: 3*

266 Neurodevelopment Current topics in developmental neurobiology through lectures and discussions of primary literature. The course is designed for advanced undergraduate life science majors. Pre/co-requisites: BCOR 101, 103. *Credits: 3*

267 Molecular Endocrinology Study of hormone action at the cellular and molecular level. Prerequisite: BCOR 101. *Credits: 4*

268 Medical Entomology Examines the arthropod vectors of temperate and tropical diseases that affect human health, using an ecological and a systematics approach. Prerequisites: BCOR 102 or instructor permission. *Credits: 3-4*

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. Prerequisites: Biology 1, 2 or BCOR 11, 12; BCOR 102 recommended. *Credits: 3*

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 (102 recommended). *Credits: 3*

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 Instructor *Credits: 3*

275 Human Genetics Application of genetic techniques to the study of human biology. Topics include pedigree analysis, linkage analysis, and complex genetic disorders of medical importance. Prerequisite: BCOR 101. *Credits: 3*

276 Behavioral Ecology Adaptive significance of behavior in natural environments. Evolutionary theory applied to behavior and tested with field data. Prerequisites: BCOR 102 or instructor permission. *Credits: 3*

277 Sociobiology The evolutionary biology of social behavior in animals. Topics include the evolution of sociality, social interactions, and the functional organization of social groups. Prerequisite: BCOR 102. *Credits: 3*

280 Molecular Ecology Molecular genetic tools and analytical methods used to investigate ecological processes in natural populations of plants and animals. Prerequisite: BCOR 102. *Credits: 4*

286 Forensic DNA Analysis Theory and techniques of modern genetics used to produce and analyze a DNA profile in forensic science. Emphasis on degraded or contaminated DNA samples. Prerequisite: BCOR 101. *Credits: 3*

288 Seminar in Forensic Biology Capstone course in seminar format for undergraduates concentrating in Forensic Biology in the Biology major; discussions, readings, guest speakers. Pre/corequisites: Chem 141, 142; BCOR 101. *Credits: 1*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

297 Advanced Undergraduate Rsrch Research under faculty guidance. Enroll following departmental guidelines. May not be used toward advanced course requirements for BA students in Biology or Zoology. Pre/co-requisites: Junior or Senior Standing; Department permission. *Credits: 3 OR 6*

298 Advanced Undergraduate Rsrch Research under faculty guidance. Enroll following departmental guidelines. May not be used toward advanced course requirements for BA students in Biology or Zoology. Pre/co-requisites: Junior or Senior Standing; Department permission. *Credits: 3 OR 6*

299 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

Biostatistics 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: STAT 111, 141 or 143; or 211. Cross-listed with STAT 200. *Credits: 3*

211 Statistical Methods I Cross listed with STAT 211. *Credits: 3*

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-listing: STAT 221. *Credits: 3*

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 stat course, 221 or 225 recommended, matrix algebra recommended. Cross-listing: STAT 223. *Credits: 3*

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-listings: STAT 229. *Credits: 3*

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*

235 Categorical Data Analysis (Cross listed with Statistics 235.) Measures of association and inference for categorical and ordinal data in multiway contingency tables. Log linear and logistic regression models. Prerequisite: 211. *Credits: 3*

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: 151 or 153 or 251; 141 or equivalent; Math 121. Cross-listed: STAT 241 *Credits: 3*

251 Probability Theory Distribution of random variables and functions of random variables. Expectations, stochastic independence, sampling and limiting distributions (central limit theorems). Concepts of random number generation. Pre/co-requisites: Math 121; STAT 141 or 153 recommended. Cross-listings: MATH 207, STAT 251. *Credits: 3*

261 Statistical Theory 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. Pre/co-requisites: STAT 251 or either STAT 151 or STAT 153 with instructor permission. Cross-listed with STAT 261. *Credits: 3*

Business Administration BSAD

035 Workplace Communications Students enrolled must participate in an approved internship. Exploration of classroom theory applied to workplace. Focus on communication and writing. Prerequisite: Business major or minor; sophomore standing. *Credits: 1*

040 Information Technology & Mgmt Introduction to use of technology and computers in decision-making functions of management. Includes coverage of information technology, computer software applications, and programming. Credit cannot be received for Computer Science 2 or Computer Science 3 after completion of BSAD 40. Students required to bring laptop with BSAD software to every class. Pre/co-requisites: BSAD only. *Credits: 3*

060 Financial Accounting Introduction to the accounting system and generally accepted accounting principles that govern income determination and financial position presentation. Prerequisite: BSAD majors or minors, CSIS, EMGT; sophomore standing. Credit will be granted for only one of BSAD 60 or BSAD 65. *Credits: 3*

061 Managerial Accounting Introduction to use of accounting for planning, cost behavior, budgeting, analysis and decision making. Prerequisites: BSAD 60 or 65; BSAD majors or minors, CSIS, EMGT; sophomore standing. *Credits: 3*

065 Fundamentals of Accounting Overview of the financial accounting model and basic managerial accounting concepts, including accounting for service, merchandising and manufacturing companies, financial statement components, cost analysis for planning/decision making. Prerequisites: Non-BSAD majors, sopho-

more standing. Credit will be granted for only one of BSAD 60 or BSAD 65. *Credits: 4*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 0-6*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

101 Business Savvy Introduces non-business majors to the fundamentals of accounting, finance, marketing, operations, human resources, and strategy. Students also participate in an integrative, comprehensive business simulation. Pre/co-requisites: Non-BSAD majors only; junior, senior, or recent graduate standing; minimum GPA = 2.5 or instructor permission. *Credits: 6*

117 Business Law I Concepts of law as related to business, including law of contracts, sales, bailments, and negotiable instruments, business and laws of agency, partnerships, and corporations. Prerequisites: Sophomore standing *Credits: 3*

118 Business Law II Concepts of law as related to business, including law of contracts, sales, bailment, and negotiable instruments, business and law agency, partnerships, and corporations. Prerequisites: Sophomore standing *Credits: 3*

120 Prin Mgmt & Org Behavior Fundamentals of organizational behavior, management, motivation, leadership, and teamwork in a diverse and global context. Pre/co-requisites: Junior standing. *Credits: 3*

121 ST in Organizational Behavior Focuses on ways in which individuals and work groups within organizations can be better utilized as organizational resources. Prerequisite: BSAD 120. *Credits: 3*

123 Collective Barg & Conflict Res Focuses on union-employer relations and on developing the student's negotiation skills. Topics include the union contract, the causes of strikes, and the techniques for resolving conflict. A bargaining simulation is incorporated. Prerequisite: BSAD 120. *Credits: 3*

127 International Management Reviews special problems in the management of human resources in a global economy. Focuses on cultural differences, a comparison of labor-management systems in a number of countries, the role of multinational corporations, and the impact of foreign enterprises on employment practices in host countries. Prerequisites: BSAD 120; senior standing. *Credits: 3*

132 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-requisites: Economics 011 & 012; junior standing. *Credits: 3*

137 Entrepreneurial Leadership This experiential course is suitable for students aiming for leadership roles in an existing organization or for those who want to launch a new venture. Prerequisite: Junior standing. *Credits: 3*

138 Entrepreneurship: Bus Planning Develop a business plan for creation of a new venture. Explore financial and market feasibility and draw upon conceptual foundations of entrepreneurship. Prerequisite: BSAD 137 or permission of the instructor, senior standing. *Credits: 3*

141 Mgmt Information Systems Integrates computer hardware and software concepts with a classical methodology for developing business information systems. Presents the relevant factors in the development of information systems. Discusses the problems of analyzing, designing, and implementing such systems. Students required to bring laptop with BSAD software to every class. Pre/co-requisites: BSAD 060 and 061 or BSAD 040 or Computer Science major. Business majors may not earn credit for CS 042. *Credits: 3*

142 Structured Business Prgmming Fundamental principles of business computer programming. Topics include: the constructs of structured programming, modular development, sequential and nonsequential access techniques. Exercises include data editing, reporting, file updating. An on-line program development mode is used. Credit cannot be received for both CS 14 and BSAD 142. Prerequisite: BSAD 141. *Credits: 3*

143 Struc Anyl & Dsgn Business Sys In-depth study of business information system development cycle emphasizing analysis and design phases. Structured analysis and design techniques used to develop models of business information systems. Case studies such as payroll, inventory, accounts receivables, order entry, billing. Prerequisite: BSAD 141. *Credits: 3*

144 Data Base Development & Admin Data base system development cycle from analysis to design, implementation, and administration. Central focus on complex data structure modeling, data base implementation and administration. A project involving analysis, design, and implementation required. Prerequisites: BSAD 141, BSAD 143 or instructor's permission. *Credits: 3*

145 Managing Info System Resource Theory and practice of managing resources of an organization's information system. Responsibilities and interactions of upper level, function area, and information system managers emphasized. Topics include project selection and control, staffing, organizing, planning, and managing the information system function. Students required to bring laptop with BSAD software to every class. Pre/co-requisites: BSAD 120, BSAD 141, concurrent enrollment in BSAD 144, or instructor's permission. *Credits: 3*

146 Business Data Communications The course covers basic concepts of data communications, networking, and network management and security. Focus is on local area networking (LAN) technologies and protocols. Includes various hands on lab-based exercises. Pre/co-requisites: BSAD mjrs only; Jr stdg; BSAD 141 *Credits: 3*

150 Marketing Management The place of marketing in our economy. Analysis of the market structure by function, institutions, and commodities. Consumer and organizational activities reviewed. Credit cannot be received for CDAE 168 after completion of BSAD 150. Prerequisites: STAT 141; EC 011, 012; junior standing. *Credits: 3*

152 Business to Business Marketing Exploration and analysis of the marketing of goods and services to organizations. Topics include organizational buying, market segmentation, positioning, pricing, communication, physical distribution and customer service, and sales management. Prerequisite: BSAD 150. *Credits: 3*

153 Consumer Behavior Exploration and analysis of research evidence from marketing and behavioral science relevant to a theory of consumer behavior. Emphasis also given to research methodologies. Credit cannot be received for both CDAE 127 and BSAD 153. Prerequisite: BSAD 150. *Credits: 3*

155 Marketing Communications Emphasizes the coordination of advertising and sales promotion into cohesive, single-minded promotional programs. Stresses the need to integrate promotional activity into the overall marketing strategy. Credit cannot be received for both CDAE 128 and BSAD 155. Prerequisite: BSAD 150. *Credits: 3*

156 Product Management Course provides an overview of product management. Key perspectives that shape the field including the new product development process will be emphasized. Pre/co-requisites: BSAD 150; BSAD major or minor; junior standing. *Credits: 3*

161 Intermediate Accounting I Study of how corporations account for and present the results of their financial activities. Emphasizes accounting for assets, current liabilities, and the related revenue and expenses. Provides overview of the four primary financial statements and accompanying notes. Pre/co-requisites: BSAD 60, Jr. Standing. *Credits: 3*

162 Intermediate Accounting II Continuation of Intermediate Accounting I, with emphasis on accounting and reporting of liabilities, owners' equity and related effect on income determination of an enterprise. Prerequisites: BSAD 161/261, junior standing. *Credits: 3*

165 Marketing Analysis and Action A second-level undergraduate 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 150. *Credits: 3*

170 Business Forecasting Methods Looks inside the crystal ball at major forecasting methods (Smoothing, Regression, Econometric, Box-Jenkins, Combined), and analyzes elements of good forecasting practice in an organization. Extensive use of PC forecasting packages. Prerequisites: Statistics 141, Economics 11, 12, junior standing. *Credits: 3*

173 Production&Operations Analysis Study of the design, management and improvement of the activities that create and deliver a firm's products and services. Pre/co-requisites: Math 20 or 21, Statistics 141, junior standing. *Credits: 3*

175 Management of Technology (Cross-listed with Engineering Management 175.) *Credits: 3*

178 Quality Control Analysis and design of systems for obtaining quality in operations. Statistical process control (SPC) emphasized, along with current management philosophies and concepts. Prerequisites: Math 20 or 21, Statistics 141 or equivalent; junior standing. *Credits: 3*

180 Managerial Finance The financial function in the corporation. Techniques for evaluating current use of resources and proposed resource acquisitions or dispositions. Credit cannot be received for CDAE 167 after completion of BSAD 180. Prerequisites: BSAD 061 or 065, Economics 012, Statistics 141; junior standing. *Credits: 3*

181 Intermediate Financial Mgmt Examines key areas of financial decision making. With cases and problems, issues such as capital budgeting, leasing, mergers, and acquisitions examined. Prerequisite: BSAD 180. *Credits: 3*

183 International Finance Mgmt Theories and practices of international financial management examined. Topics investigated include: systems of international exchange, spot and forward markets, and expropriation and exchange risk. Prerequisite: BSAD 180. *Credits: 3*

184 Financial Institutions&Markets Study of level and structure of interest rates and characteristics of financial institutions and markets. Topics include market vs. natural rate of interest, interest rate structure, behavior of interest rates. Prerequisite: BSAD 180. *Credits: 3*

191 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: senior standing; BSAD 120, 150, 180 (recommended to take after completing all BSAD Field Courses). *Credits: 3*

192 Business Process Improvement Familiarizes students with the basic conceptual issues of continuously improving business processes to compete more effectively on quality, time, and cost. Prerequisite: Junior standing. *Credits: 3*

193 Honors Business Rsch Methods Prepares students for thesis or project requirement. Upon completion, students will be fully versed in the research process and understand different research methodologies. Prerequisites: BSAD Honors College students only; junior standing; completion of the basic business core courses. *Credits: 3*

194 Internship Independent research under faculty supervision, in connection with a preprofessional work experience. Written requirements include a substantive analysis of an aspect of the internship, linking it with the academic curriculum. Prerequisites: Completion of the Basic Business Core courses; at least one Business Field Course, cumulative GPA of at least a 3.0; permission of the School of Business Administration. *Credits: 3*

195 Special Topics Specialized or experimental courses offered as resources permit. *Credits: 1-18*

196 Special Topics Specialized or experimental courses offered as resources permit. *Credits: 1-18*

197 Independent Study Independent investigation designed by the student as a means of applying prior course work to a specialized problem. Well suited for senior projects. Prerequisite: Permission of BSAD Undergraduate Studies Committee. *Credits: 1-6*

198 Independent Study Independent investigation designed by the student as a means of applying prior course work to a specialized problem. Well suited for senior projects. Prerequisite: Permission of BSAD Undergraduate Studies Committee. *Credits: 1-6*

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*

226 Current Iss in Mgmt & Org Thry Subjects may include training and development, selection and recruitment, and affirmative action. Prerequisite: BSAD 120. *Credits: 1-3*

251 Marketing Research The role of research in a marketing information framework. Emphasis on survey research, data collection, and analysis. Experimental designs also examined. Prerequisites: BSAD 150. *Credits: 3*

252 Marketing Research Practicum Market research field project. Students design survey instruments, collect and analyze data, and present results to clients in a business environment. Prerequisite: BSAD 251 and instructor permission. *Credits: 3*

256 Retail Management Course provides an overview of retail management. Key perspectives that shape the field including strategic planning, merchandising, and competitive advantage are emphasized. Pre/co-requisites: BSAD 150; BSAD majors or minors, MBA or senior standing. *Credits: 3*

258 D2:Intr'l 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: Junior, senior or graduate standing; BSAD 150 or permission of instructor. *Credits: 3*

260 Financial Statement Analysis A study of the concepts and techniques underlying corporate financial statement analysis, with an emphasis on equity valuation models. Prerequisites: BSAD 180 or 308. *Credits: 3*

263 Environmntl & Social Reporting An examination of voluntary and mandatory reporting of environmental and other social activities along with related issues through readings and research. Prerequisites: Junior standing; BSAD 061 or 065 or 306. *Credits: 3*

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*

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*

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-requisites: BSAD 162. *Credits: 3*

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*

268 Adv Topics in Management Acctg Emphasizes use of internal and external information in management decision making; includes cost of inventory, business activities, strategic use of information, long-range planning. Prerequisites: BSAD 061 or 306 or equivalent; senior or graduate standing. *Credits: 3*

270 Quant Anly 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. Prerequisites: Math 20 or 21, Statistics 141. *Credits: 3*

282 Security Val & Portfolio Mgmt Examination of theories and evidence on the investment decision process including operations of equity securities markets, market efficiency, financial asset prices, and portfolio management. Prerequisites or Corequisites: BSAD 180 or 308. *Credits: 3*

285 Options and Futures Financial derivatives - options, futures and swaps. Topics include: structures of the markets for exchange traded and over-the counter derivatives; identification and exploitation of arbitrage opportunities; use and misuse of derivatives to hedge risk in both financial and product markets. Prerequisites or Corequisites: Jr Stdg; BSAD 180 or BSAD 308. *Credits: 3*

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-Requisites: By Invitation. *Credits: 3*

289 Real Estate Finance This course is an introduction of real estate finance and investments. Topics include urban economics, appraisal, investment value analysis, financing, and development. Pre/co-requisites: BSAD 180; BSAD major, minor, MBA, Junior standing. *Credits: 3*

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: Junior, Senior stdg or Instructor Permission. Cross-listed with Mechanical Engineering 265, Statistics 265. *Credits: 3*

295 Special Topics Advanced courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles and prerequisites. Prerequisite: Senior standing. *Credits: 1-18*

298 Business Admin Honors Project Honors project dealing with business administration and management topics. Honors College students only. Pre/co-requisites: By application only; see BSAD honors faculty advisor. *Credits: 3-6*

299 Business Admin Honors Thesis Honors thesis dealing with business administration topics. Honors College students only. Pre/co-requisites: By application only; see BSAD honors faculty advisor. *Credits: 3-6*

Cell Biology CLBI

295 Special Topics See Schedule of Courses for specific titles. Credit as arranged. *Credits: 1-8*

Chemistry CHEM

023 Outline of General Chemistry One-semester survey of principles and concepts of general chemistry, topics covered include bonding, mole ratios, equilibrium and nuclear chemistry. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 25, 31 or 35. *Credits: 4*

025 Outline of General Chemistry One-semester survey of principles and concepts of general chemistry, topics covered include bonding, mole ratios, equilibrium and nuclear chemistry. NO LABORATORY. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 23, 31 or 35. *Credits: 3*

026 Outline of Organic & Biochem Broad overview of most important facts and principles of organic and biochemistry and interrelationships between these branches of chemistry. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 28, 42 or 44. Prerequisites: CHEM 23 or 31. *Credits: 4*

028 Outline of Organic & Biochem Broad overview of most important facts and principles of organic and biochemistry and of interrelationships between these branches of chemistry. NO LABORATORY. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 26, 42 or 44. Prerequisites: CHEM 23 or 25 or 31. *Credits: 3*

031 General Chemistry 1 First semester of a two-semester sequence. Topics include matter, stoichiometry, gas laws, thermochemistry, quantum theory, atomic structure, electronic configurations, bonding and intermolecular forces. May not be taken for credit concurrently with, or following receipt of, credit for, CHEM 23, 25 or 35. *Credits: 4*

032 General Chemistry 2 Second semester of a two-semester sequence. Topics include solutions, kinetics, equilibrium, acid-base chemistry, aqueous ionic equilibria, thermodynamics, electrochemistry and nuclear chemistry. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 36. Prerequisites: CHEM 31 or 35. *Credits: 4*

035 General Chemistry for Majors 1 For students with a strong background in physical sciences. Topics include atomic and molecular structure, gas behavior, molecular geometries, intermolecular interactions elementary thermochemistry and stoichiometry. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 23, 25 or 31. *Credits: 4*

036 General Chemistry for Majors 2 Second semester of a two-semester sequence. Topics include equilibrium thermodynamics (acid/base chemistry, solubility and electrochemistry), transition metal coordination complexes and spectroscopy. May not be taken concurrently with, or following receipt of, credit for CHEM 32. Prerequisites: CHEM 31 or 35. *Credits: 4*

039 Introduction to Research Overview of methods, areas, and instrumentation of modern chemical research, including hands-on laboratory experiences and written and oral presentations of a research project. Prerequisite: score of 4 or 5 on the AP Chemistry examination or permission of department. *Credits: 2*

040 Introduction to Research Overview of methods, areas, and instrumentation of modern chemical research, including hands-on laboratory experiences and written and oral presentations of a research project. Prerequisite: score of 4 or 5 on the AP Chemistry examination or permission of department. *Credits: 2*

042 Intro Organic Chemistry Bonding, structure, physical properties and chemical reactivity of basic organic functional groups and molecules of technological and biological significance, including carbohydrates, lipids, proteins. Not recommended for pre-medical students. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 26, 28, 44, 141, or 143. Prerequisites: CHEM 23 or 31. *Credits: 4*

044 Intro Organic Chemistry Bonding, structure, physical properties and chemical reactivity of simple organic functional groups and molecules of technological and biological significance, including

carbohydrates, lipids, proteins. NO LABORATORY. Not recommended for pre-medical students. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 26, 28, 42, 141 or 143. Prerequisites: CHEM 23 or 25 or 31. *Credits: 3*

075 Global Energy Prospective Overview of U.S. and global energy sources and uses; state of alternative energy; projected energy demand and impacts of conventional and alternative energy sources. *Credits: 1*

095 Intro Special Topics See Schedule of Courses for specific titles. *Credits: 0-18*

096 Intro Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

121 Quantitative Analysis Theory and practice of volumetric and gravimetric analysis. Theoretical discussion of indicators, buffers, pH, etc. Introduction to data analysis, spectrophotometry, and chromatography. Prerequisite: 32 or 36. *Credits: 4*

131 Inorganic Chemistry Symmetry, group theory, molecular structure; electronic structure of atoms; bonding models including MO, crystal field, and ligand field; solid state, acid-base, and simple organometallic systems. Prerequisites: Credit for or concurrent enrollment in 142 or 144. *Credits: 3*

141 Organic Chemistry 1 Survey of properties and reactivity of organic compounds with consideration of bonding, stereochemistry, and reaction mechanisms. Designed for premedical and biological sciences students. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 42, 44 or 143. Prerequisites: CHEM 32 or 36. *Credits: 4*

142 Organic Chemistry 2 Survey of the reactivity of organic compounds and applications to synthesis. Spectroscopy is discussed in relation to compound characterization. Designed for premedical and biological sciences students. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 144. Prerequisites: CHEM 141 or 143. *Credits: 4*

143 Organic Chemistry for Majors 1 Survey of principles and reactivity of organic compounds with consideration of bonding, stereochemistry and reaction mechanism. Designed for chemistry majors. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 42, 44 or 141. Prerequisites: CHEM 32 or 36. *Credits: 4*

144 Organic Chemistry for Majors 2 Survey of the reactivity of organic compounds and applications to synthesis. Spectroscopy is discussed in relation to compound characterization. Designed for chemistry majors. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 142. Prerequisites: CHEM 141 or 143. *Credits: 4*

146 Advanced Organic Laboratory Laboratory for chemistry majors that covers advanced techniques used in organic chemistry research. Hands-on practice in multi-step synthesis, purification, identification, and spectroscopy. Prerequisites: CHEM 142 or 144. *Credits: 2*

161 Quantum Chemistry Fundamentals of quantum mechanics, with applications to atomic structure, bonding, and spectroscopy. Introduction to statistical mechanics. Prerequisites: CHEM 32 or 36, PHYS 152 (or equivalent) and CHEM 167 or MATH 121. *Credits: 3*

162 Thermodynamics & Kinetics Properties of gases and solutions, equilibria, thermodynamics and kinetics. Prerequisites: CHEM 32 or 36, PHYS 12 or 152 (or equivalent). *Credits: 3*

167 Physical Chemistry Preparation (Same as Math. 167.) Review of relevant mathematical and physical concepts as applied to physical chemistry. Prerequisites: 32 or 36; Math. 22. *Credits: 1*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

198 Readings & Research *Credits: 1-6*

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. Prerequisites: CHEM 121, and 142 or 144; CHEM 161 strongly recommended. *Credits: 3*

202 Advanced Chemistry Laboratory Laboratory problems requiring modern analytical, physical, and inorganic synthetic techniques. Journal article writing. Prerequisites: CHEM 201. *Credits: 2*

205 Biochemistry I Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisites: CHEM 142 or 144. Crosslisted with BIOC 205 and MMG 205. *Credits: 3*

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. Prerequisites: 205. Crosslisted with BIOC 206 and MMG 206. *Credits: 3*

207 Biochemistry Lab Introduction to biochemical tools, including spectrometry, chromatography, and electrophoresis; natural and recombinant enzyme isolation; assays of DNA-modifying enzymes; computer-based structure/function exercises. Corequisites: 205 or 206. Crosslisted with BIOC 207 and MMG 207. *Credits: 2*

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. Prerequisites: CHEM 142 or 144, and 162. *Credits: 3*

221 Instrumental Analysis Systematic survey of modern methods of chemical analysis. Fundamental principles and applications of spectroscopy, electrochemistry, and separation techniques. Prerequisites: 121; credit for or concurrent enrollment in 161 or 162 strongly recommended. *Credits: 3*

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 144, and 221, or instructor's permission. *Credits: 3*

225 Electroanalytical Chemistry Principles and techniques of modern electrochemical analysis and applications to redox chemistry. Heterogeneous effects; voltammetry; electron-transfer processes and reactions. Prerequisites: CHEM 221. *Credits: 3*

226 Analytical Spectroscopy Principles of optical spectroscopic methods of analysis. Emphasis on theory and practice of atomic spectroscopy and new molecular spectroscopic methods. Prerequisite: 221. Alternate years. *Credits: 3*

227 Spec Topics in Analytical Chem Selected topics of current interest in analytical chemistry. New techniques and methodologies, especially in chemical instrumentation. Credit as arranged. *Credits: 1-3*

228 Spec Topics in Analytical Chem Selected topics of current interest in analytical chemistry. New techniques and methodologies, especially in chemical instrumentation. Credit as arranged. *Credits: 1-4*

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 142 or 144; credit for or concurrent enrollment in CHEM 161. *Credits: 3*

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. Prerequisites: CHEM 131 or 231. *Credits: 3*

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 231, and 161. *Credits: 3*

237 Special Topics: Inorganic Areas of current interest involving inorganic systems. *Credits: 1-3*

238 Special Topics: Inorganic Areas of current interest involving inorganic systems. *Credits: 1-3*

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. Prerequisites: CHEM 142 or 144. *Credits: 3*

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. Prerequisites: CHEM 241. *Credits: 3*

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 144; 161 and 162 strongly recommended. *Credits: 3*

257 Special Topics in Organic Chem Advanced level discussion of specific topics in organic chemistry of current interest such as photochemistry, carbenes, bioorganic chemistry, magnetic resonance, etc. Credit as arranged. *Credits: 1-3*

258 Special Topics in Organic Chem Advanced level discussion of specific topics in organic chemistry of current interest such as photochemistry, carbenes, bioorganic chemistry, magnetic resonance, etc. Credit as arranged. *Credits: 1-3*

262 Chemical Thermodynamics Classical and statistical thermodynamics. Systematic study of applications of thermodynamics to chemical problems. Prerequisites: CHEM 161 and 162. *Credits: 3*

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*

267 Special Topics: Physical Selected topics of current interest in physical chemistry. *Credits: 1-3*

268 Special Topics: Physical Selected topics of current interest in physical chemistry. *Credits: 1-3*

282 Senior Seminar Oral and written presentation of a subject of current chemical interest. Prerequisite: Audit of 381. *Credits: 1*

284 Biochemistry Senior Seminar Oral and written presentation of a biochemical topic, with a strong emphasis on citations from current literature. Undergraduates only. Prerequisites: Senior standing. Cross-listed: BIOC 284, MMG 284 *Credits: 1*

285 Special Topics *Credits: 1-3*

286 Special Topics *Credits: 1-3*

291 Undergraduate Research Research in chemistry in a faculty member's laboratory. Prerequisites: Departmental permission. Credit as arranged with maximum of four hours per semester and 12 hours total. *Credits: 1-4*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

Chinese CHIN

001 Elementary A study of Mandarin Chinese designed to give the beginning student the fundamental grammar and vocabulary for speaking, reading, and writing the modern national language. *Credits: 4*

002 Elementary A study of Mandarin Chinese designed to give the beginning student the fundamental grammar and vocabulary for speaking, reading, and writing the modern national language. *Credits: 4*

020 Chinese Characters Understand the Chinese writing system and learn to recognize and write basic Chinese characters. *Credits: 1*

051 Intermediate A continuation of 1, 2 designed to enable the student to converse in everyday Chinese, and to read and write simple texts. Prerequisite: 2 or equivalent. *Credits: 4*

052 Intermediate A continuation of 1, 2 designed to enable the student to converse in everyday Chinese, and to read and write simple texts. Prerequisite: 2 or equivalent. *Credits: 4*

095 Special Topics Introductory courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-6*

096 Special Topics Introductory courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-6*

101 Advanced Chinese Structured readings with emphasis on sentence structures, vocabulary expansion, and increased fluency in self-expression. Prerequisite: 52 or equivalent. *Credits: 3*

102 Advanced Chinese Structured readings with emphasis on sentence structures, vocabulary expansion, and increased fluency in self-expression. Prerequisite: 52 or equivalent. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

197 Readings & Research Individual research project or directed reading in area of special interest to student. Prerequisite: Instructor's permission. Variable credit. *Credits: 1-6*

198 Readings & Research Individual research project or directed reading in area of special interest to student. Prerequisite: Instructor's permission. Variable credit. *Credits: 1-6*

201 Adv Conversation & Composition To improve oral and written proficiency through reading newspapers and short stories, discussion, and composition. Prerequisites: CHIN 102 or equivalent. *Credits: 3*

202 Adv Conversation & Composition To improve oral and written proficiency through reading newspapers and short stories, discussion, and composition. Prerequisite: CHIN 201 or equivalent. *Credits: 3*

295 Advanced Special Topics Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisites: CHIN 202 or equivalent. *Credits: 1-12*

296 Advanced Special Topics Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisites: CHIN 202 or equivalent. *Credits: 1-12*

Civil & Environmental Engr CE

001 Statics Fundamentals of statics; composition and resolution of forces; the analysis of force systems in two and three dimensions; and centroids and moments of inertia. Prerequisite: Sophomore standing Engineering. *Credits: 3*

002 CE Graphic Design Computer-aided and hand generation of: geometric shapes; dimensioning; pipe drafting; foundations and

structures; survey plots; graphs and charts; topography; and highway geometry. *Credits: 3*

003 Intro to Civil & Envir Engr Introduces Civil and Environmental Engineering through hands-on-design, group projects, inquiry-based learning, systems thinking, critical thinking, and computational exercises. *Credits: 2*

010 Geomatics An introduction to surveying including distance and angle measurements, leveling, traverse surveys, error propagation, topographical mapping, global positioning systems (GPS), and geographic information systems (GIS). Prerequisite: Sophomore standing CEE. *Credits: 4*

011 MATLAB for Solving Engr Pblms Engineering problem solving, computer programming, standard numeric computation, visualization tools, and systems thinking using MATLAB. Prerequisites: Concurrent enrollment in Math 20 or Math 22. *Credits: 4*

012 Geomatics Lab Laboratory exercises in surveying applications: distance, angle, elevation, traverse, topography, global positioning systems (GPS), and geographic information systems (GIS). Pre/co-requisites: CE 10. *Credits: 1*

015 Pollution & Solutions Introduction to environmental issues and potential solutions. Emphasis on problem solving: description, decomposition, research, analysis, and performance evaluation. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

100 Mechanics of Materials (Same as Mechanical Engineering 14.) Stress, strain, temperature relationships, torsion, bending stresses, and deflections. Columns, joints, thin-walled cylinders. Combined stresses and Mohr's circle. Prerequisites: CE 1, MATH 121 *Credits: 3*

101 Materials Testing Experimental stress analysis methods; fundamental properties of metals, plastics, and wood; effects of size, shape, method, speed of loading, and strain history on these properties. Pre-co-requisites: Concurrent with CE 100. *Credits: 1*

125 Eng Econ & Decision Analyses Comparing engineering alternatives; economic evaluations including costs, returns, taxes, and depreciation; project optimization with linear/non-linear models; scheduling; risk and reliability analyses by simulation. Prerequisites: Math 21. *Credits: 3*

132 Environmental Systems Systems thinking and the systems approach as applied to environmental systems with linkages to transportation; feedback and emergent properties; systems modeling; economics; environmental engineering introduction (mass balance, hydrology, air pollution). Prerequisite: Sophomore standing CEE. *Credits: 3*

133 Transportation Systems Transportation systems planning, analysis, and design with foci on modeling, decision support, environmental impacts, and economic evaluation. Prerequisite: CE 132; Co-requisite: CE 010. *Credits: 3*

134 Engineering Systems Modeling Applied numerical and dynamic simulation modeling with applications to groundwater, climate change, watershed management; economic decision analysis. Prerequisites: CE 132. MATH 271, CS 020 or CS 016. *Credits: 3*

140 Transportation Analysis of transportation systems; technological characteristics; the transportation planning process and techniques of travel modeling and forecasting for both urban and rural areas. Prerequisite: 10, junior standing in CE, or instructor's permission. *Credits: 3*

142 Structural Roadway Design Properties of construction materials; design of mixes; analyses of pavement performance; structural design of pavements; highway earthwork, drainage, and construction techniques. Prerequisites: CE 133, 180. *Credits: 3*

150 Environmental Engineering Basic phenomena and theoretical principles underlying water supply, air and water pollution control, and industrial hygiene. Prerequisites: Chemistry 31 or 25, Math. 22. *Credits: 3*

151 Water & Wastewater Engineering Design of treatment systems for water supply, groundwater remediation, domestic and hazardous wastewater, sewer design; semester-long design projects; ethics; environmental health impacts; governmental regulations. Co-requisite: CE 132. *Credits: 3*

154 Environmental Anyl Practice Analytical procedures used in measuring environmental parameters (includes BOD, COD, Alkalinity, Coliform). Fundamental methods applied to actual waste samples and subsequent data analysis. Prerequisite: CE 132. *Credits: 2*

160 Hydraulics Mechanics of incompressible fluids; flow meters; flow in closed conduits and open channels; elements of hydraulic machinery; laboratory studies of flow and hydraulic machinery. Prerequisites: CE 001, MATH 121, MATH 271, CS 016 or CS 020. *Credits: 4*

161 Water Resource Engineer Design Formulation of water resource projects; development of design methods for: surface water, risk, storage, and control structures, open channels, and drainage systems; design project. Prerequisite: 160. *Credits: 3*

170 Structural Analysis I Analysis of statically determinate beams, frames, and trusses; expected loads, reactions; influence lines; moving loads; geometric methods for displacement calculations; introduction to matrix analysis for trusses. Prerequisites: CE 100, MATH 271, CS 016 or CS 020. *Credits: 4*

172 Structural Steel Design Theory and design of steel structures including flexural members, axially loaded members and combined stress members; design of composite members; and plastic analysis and design. Pre/co-requisite: CE 170. *Credits: 3*

173 Reinforced Concrete Analysis of stresses in plain and reinforced concrete members; design of reinforced concrete structures; and theory of prestressed concrete. Prerequisite: CE 170. *Credits: 3*

175 Senior Design Project Student teams will integrate the multiple areas of specialization in civil/environmental engineering in comprehensive design experience; professional practice; ethics; written and oral presentations to professional review panels. Prerequisite: Senior Standing. *Credits: 3*

176 Senior Design Seminar Guest lecturers from private practice discussing professional issues; integration of multidiscipline teams from student design projects; and oral and written presentations. Co-requisite: One design elective; senior standing. *Credits: 1*

180 Geotechnical Principles Characteristics and classification of soils; physical, mechanical and hydraulic properties of soils; seepage; the effective stress principle; stress distribution, consolidation, settlement; shear strength; laboratory testing. Prerequisite: CE 100. *Credits: 4*

191 Special Projects Investigation of special topic under guidance of faculty member. Library investigations, unique design problems, laboratory and field studies. Prerequisites: Senior standing, departmental permission. *Credits: 3*

192 Special Projects Investigation of special topic under guidance of faculty member. Library investigations, unique design problems, laboratory and field studies. Prerequisites: Senior standing, departmental permission. *Credits: 3*

193 College Honors *Credits: 1-6*

194 College Honors *Credits: 1-6*

195 Special Topics See Schedule of Courses for specific titles. Prerequisite: Senior standing in Civil Engineering. *Credits: 1-18*

210 Airphoto Interpretation Aerial photographic interpretation: principles of stereoscopic viewing, identification or airphoto features related to landform, vegetation, drainage, soils, topography use of airphoto interpretation in soil identification. *Credits: 3*

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*

226 Civil Engineering Systems Anyl Linear programming, dynamic programming, network analysis, simulation; applications to scheduling, resource allocation, routing, and a variety of civil engineering problems. Prerequisite: Senior or graduate standing in CEE or instructor permission. Cross-listing: CSYS 226. *Credits: 3*

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 133. *Credits: 3*

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-listing: CSYS 245. *Credits: 3*

247 Alt Sustainable Waste Treatmnt Consideration of cultural paradigms that encourage waste generation. Design of alternative treatment systems including composting, constructed wetlands, anaerobic digestion. Research and hands-on design project. Prerequisite: CE 151. *Credits: 3*

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. Prerequisites: Senior standing in engineering or sciences. *Credits: 3*

249 Solid Wastes Significance of solid wastes from municipal, industrial, agricultural, mining; optimization and design of collection, disposal, recycle systems; sanitary landfills, incineration, composting, material recovery. Prerequisites: CHEM 025, PHYS 021. *Credits: 3*

251 Envr Facility Dsgn/Wastewater Design of wastewater conveyance and treatment facilities; sewage treatment plant design; equipment selection. Prerequisite: 151. *Credits: 3*

252 Industrial Hygiene Industrial hygiene problems; effects of pollutants on health; threshold limit values; emphasis on the engineering evaluation of hazard and control techniques. Prerequisites: Chemistry 31 or 25, Physics 31. *Credits: 3*

253 Transportation & Air Quality Air pollution sources, measurement methods, legislation, vehicle emissions formation, control and transport processes. Emphasis on emission factor and dispersion multi-scale modeling using latest modeling tools. Co-requisites: CE 133, 134 or instructor permission. *Credits: 3*

254 Environmental Quantitive Anyl Course focuses on chemical, biochemical and physical processes; diffusion, equilibria, reaction kinetics, acids/bases, colloids, air/water exchange; laboratories demonstrate standard environmental engineering techniques. Prerequisites: CHEM 032, CE 132, STAT 141 or 143. *Credits: 4*

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, 154, or permission of instructor. *Credits: 3*

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: CE 151, MATH 271. *Credits: 3*

259 Msmt of Airborne Contaminants Quantifying airborne contaminants from processes and ambient levels. Laboratories demonstrate calibration and measurement, stack sampling and ambient air monitoring, and specific contaminant generation and measurement. Prerequisite: 252 or 253. *Credits: 3*

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. Prerequisite: CE 160. *Credits: 3*

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*

265 Ground Water Hydrology Principles of ground water hydraulics, well characteristics, aquifers, and use of numerical methods to solve ground water flow problems. Prerequisite: CE 160. *Credits: 3*

271 Advanced Structural Analysis Virtual work, energy theorems, analysis of structures by the displacement method, finite element analysis of structural systems, non-linear structural analysis, structural optimization, probabilistic structural analysis. Prerequisite: CE 170. *Credits: 3*

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*

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: 180. *Credits: 3*

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-requisites: CE 180. *Credits: 3*

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. Prerequisites: 180 or equivalent. *Credits: 3*

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: 180. *Credits: 3*

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*

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 or graduate standing. *Credits: 1-18*

Classics CLAS

015 From Letters to Literature Topics in script, literacy, books, libraries, cultural expression, preservation and access from ancient Mesopotamia to the age of printing and the era of electronic information. *Credits: 3*

021 Classical Greek Civilization (Same as History 21.) A study of the "Golden Age of Pericles," the course covers the whole of Athenian society from art to war, culminating in the trial of Socrates. *Credits: 3*

022 Etymology The study of English vocabulary derived from Greek and Latin. Topics include analysis of word formation, historical and comparative linguistics, and international scientific terminology. *Credits: 3*

023 Classical Roman Civilization (Same as History 22.) Growth of the Roman Empire; political and social disruption in the Roman world from the second century B.C.E., through the first century C.E. *Credits: 3*

024 Myths/Legends Trojan War Homeric epics, Virgil's Aeneid, selections from tragedy dealing with the Trojan War and Greco-Roman cultural identity. Examples from art and archaeology supplement the literary theme. *Credits: 3*

035 The End of the Roman Republic Participants describe the Republic's end: Caesar justifies conquest and civil war; Catullus and Sallust reveal a society in turmoil; Cicero documents first-century politics: political gangs, bribery, and violence. *Credits: 3*

037 Early Roman Empire: Lit Trans Poetry and prose in the first century C.E. (the age of Augustus, Nero, Trajan), emphasizing varieties and limitations of political and literary freedom. *Credits: 3*

042 Mythology (same as WLIT 42.) Greek myth in literature, art, and music from antiquity to modern times. No prerequisites. Spring semester. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

121 History of Greece (Same as History 121.) Political and social developments of ancient Greece: birth of democracy, conflict of autonomy and hegemony, federal states, invention of "otherness," spatial and cultural restraints on citizenship. Prerequisites: History 9 or Classics 21 (History 21) or appropriate work in Classics. *Credits: 3*

122 History of Rome Expansion of Rome in Italy and conquest of the Mediterranean world: cultural conflict, development of a unifying national identity, and the foundation of European states. Prerequisites: History 9 or Classics 23 (History 22) or appropriate work in Classics. *Credits: 3*

145 D2:Comparative Epic (Same as WLIT 145.) Interdisciplinary introduction to epic poetry and performance, from Gilgamesh and the Homeric poems to the Kalevala traditions of Finland to the griot poetry and music of West Africa. Prerequisite: Sophomore standing. *Credits: 3*

149 D2:Hist of Ancient Near East Survey of primary civilizations of Egypt and Mesopotamia and the secondary cultures of Anatolia, Syria-Palestine, Assyria, and Persia. Prerequisites: History 9 or Classics 21 (History 21) or appropriate work in Classics. Cross-listing HST 149 *Credits: 3*

153 Greek Drama Plays of Aeschylus, Sophocles, Euripides, and Aristophanes in their historical and cultural setting. Prerequisite: Sophomore standing. *Credits: 3*

154 Stories and Histories (Same as WLIT 154.) Creation and development of genres which the Greeks and Romans used to represent true narratives about people or events, especially the development of historical writing. Prerequisites: Sophomore *Credits: 3*

155 Ancient Epic Homer, Apollonius, and Vergil, as well as readings selected from other Greek and Latin epic (including epyllia) and didactic poetry. Prerequisite: Sophomore standing. *Credits: 3*

156 Satiric Spirit Comedy, satire, epigram and prose fantasy as vehicles for political, social, and literary criticism in the Greco-Roman world. Prerequisite: Sophomore standing. *Credits: 3*

157 Greek Feminism (Same as History 157, Women's Studies 157.) The construction of the status of women in ancient Greek society. Readings include lyric, tragic, and comic poetry, philosophy, oratory, novel, and nonliterary documents. Prerequisites: Sophomore standing, three hours in literature, history, anthropology, or sociology. *Credits: 3*

158 Greco-Roman Political Thought History of Greco-Roman political thought and political reality, as revealed by lawgivers, philosophers, politicians, and historians. Prerequisite: Sophomore standing. *Credits: 3*

161 Plato (Same as Philosophy 108.) A survey of Plato's works, including the "early," "middle," and parts of the "late" dialogues. Emphasis will be laid on reading the dialogues themselves. Prerequisites: One course in Philosophy or one course in Classics (Greek Culture), or Greek. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research *Credits: 1-6*

198 Readings & Research *Credits: 1-6*

201 Senior Seminar In Classics Research methods and contemporary issues in the study of classical antiquity; preparation of individual senior projects. Prerequisites: Twelve hours of CLAS, GRK, or LAT; senior standing. *Credits: 3*

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, or graduate standing, 12 hours of history. *Credits: 3*

222 Seminar in Ancient History Selected aspects of Near Eastern, Greek, or Roman History (e.g. trade and colonization, imperialism, social and political institutions, cultural and intellectual developments). Prerequisites: Junior, senior, or graduate standing, 12 hours of history. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Clinical&Translational Science CTS

200 Introduction to CTS I Teaches the principles of human subjects research for those pursuing a path as research assistants or coordinators. *Credits: 3*

201 Introduction to CTS II Teaches the principles of human subjects research for those pursuing a path as research assistants or coordinators. Prerequisite: CTS 200. *Credits: 3*

271 Intro Biomedical Informatics This survey course provides an overview of the field of biomedical informatics covering relevant topics in computer science, healthcare, biology, and social science. *Credits: 3*

272 Applied Biomedical Informatics Pragmatic coverage of topics/resources relevant to biomedical informatics. Computing skills include Unix, programming, and databases; examples will involve clinical, biomedical, and public health data. *Credits: 3*

275 Informatics Practicum Practicum experience with an informatics research or service project. Prerequisite: At least one of CTS 271, CTS 272, MMG 231, MMG 232, CS 231 or CS 232. *Credits: 3-12*

295 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Cmty Dev & Apld Econ CDAE

001 Drafting and Design Drawing Basic drafting methods and procedures of architectural, three-view, oblique, isometric, and perspective drawings. Creating freehand pictorial presentation drawings. *Credits: 3*

002 D2:World Food,Pop & Develop Agricultural development emphasizing natural and economic phenomena and the effect of food supplies on population trends and policies. *Credits: 3*

006 Energy Alternatives Concepts of energy, work, and power. Energy conversion, utilization, and conservation. Alternatives to fossil fuels including solar, wind, biomass, etc. Energy systems for rural areas. *Credits: 3*

014 Visual Design Studio A computer based portfolio development class focused on learning the fundamentals of composition and standard graphic software to create a range of visual communication solutions. Prerequisite: PCOM majors only. *Credits: 1*

015 Visual Communication Introduction and analysis of aesthetics and function of design in the context of communications and marketing, the built environment and community development. *Credits: 3*

016 Digital Illustration Digital illustration introduces methods of conceptualizing and executing illustrations to solve communication problems, using a range of techniques within vector and raster-based software applications. Prerequisite: CDAE 15 or equiv. *Credits: 3*

024 Fund of Public Communication This course provides students with the foundation for understanding communication components, processes, contexts, and applications and introduces research and theory through critique and case study. *Credits: 3*

030 Applied Design Studio: Wood Common methods, processes, materials, and equipment employed in transforming wood into useful products. Includes green building principles. *Credits: 3*

061 Principles of Comm Development Introduction to principles of microeconomics and their application to food and agricultural markets, resource management, and community development. *Credits: 3*

091 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

101 Computer Aided Drafting&Design Using a computer to create, manipulate, and record drafting and design concepts, symbols, and conventions to prepare technical and/or presentation drawings. Prerequisite: 1 or instructor's permission. *Credits: 1-3*

102 Sustainable Community Dev Introduction to perspectives and methods used to develop healthy communities that are economically, socially, and environmentally sustainable with rural and urban, U.S. and international examples. Prerequisites: CDAE 61 or equivalent, CDAE majors/minors only; or instructor's permission *Credits: 3*

106 Renewable Energy Workshop Students learn principles of small-scale renewable energy including solar, wind, hydro, biofuels, and efficiency, then engage in installation workshops in a developing country or Vermont. Pre/co-requisites: CDAE 006 or permission. *Credits: 4*

117 History of Costume (See Theatre 041.) Prerequisite: ARTH 006 or Theatre 001. Fall. *Credits: 3*

118 Visual Presentation Techniques Development of sketching, perspective drawing, graphic techniques, color rendering, and observation skills for community, landscape, and ecological design students. Final portfolio required. Pre/co-requisites: Sophomore standing. *Credits: 3*

120 Strategic Writing for PCOM Students learn to write standard messages and documents including e-mail, memos, letters to the editor, fundraising letters, news releases, brochures, and feature stories. Pre/co-requisites: CDAE 024, ENGS 001, PCOM majors and minors only. *Credits: 3*

121 News Writing Across Media Students learn to report and write news for print, online, and broadcast formats through practical application of media literacy skills and study of current events. Prerequisites: CDAE 024 and any writing composition course. *Credits: 3*

124 Public Communication Media Students gain insight into mass media and contemporary issues, social marketing with local Service Learning agency partners, social polling, and the interaction of media, governance, law, and ethics. Pre/co-requisites: PCOM majors and minors only; Junior standing. *Credits: 3*

127 Consumer, Markets & Public Policy Analysis of consumer choices through the examination of consumer behavior theories, current marketplace issues and public policy. Prerequisites: Sophomore standing. *Credits: 3*

128 The Consumer & Advertising Examination of advertising strategy and how it impacts consumers and the economy. Extensive application of critical analysis to actual advertising campaigns from development through evaluation. Prerequisite: Junior standing. Fall. *Credits: 3*

129 Communication Law Legal issues in mass media, including: freedom of speech; libel; invasion of privacy; obscenity and indecency; copyright and trademark. Prerequisite: PCOM majors only. *Credits: 3*

131 Appl Des Studio: Lt Frame Bldg Site planning, building planning, material selection. Functional and structural considerations including heating, ventilating, and insulation. Consideration of environmental relationships. Prerequisite: 6 or Math. 9 or 10. *Credits: 3*

137 Landscape Design Fundamentals Studio course to learn techniques of landscape design and analysis, develop graphic communication skills for representing the landscape, and apply sustainable design principles to a site. Pre/co-requisites: Junior standing; at least one course in drawing, design, or mapping, or consent of instructor. Cross-listings: PSS 137, ENVS 137, NR 137. *Credits: 4*

157 Consumer Law and Policy Law as an expression of public policy to protect consumers in the marketplace. Emphasis on laws prohibiting deceptive advertising and marketing practices. Prerequisites: Sophomore standing. *Credits: 3*

158 Personal and Family Finance An examination of personal and family financial management concepts and topics within various income levels and stages in the life cycle. Prerequisites: Economics 11 or equivalent. Fall. *Credits: 3*

159 Consumer Assistance Program Jointly sponsored by UVM and Vermont Attorney General. Under supervision of an attorney, students respond to phone and mail requests for consumer information and handle consumer complaints. Prerequisite: Sophomore standing. Three to six hours. *Credits: 3-6*

166 Intro to Comm Entrepreneurship Introduction to the theory and practice of developing and operating an entrepreneurial activity based on specific business. Emphasis on business development, operation, financing, marketing, and social responsibility. Prerequisite: Sophomore standing. *Credits: 3*

167 Fin Mgmt: Comm Entrepreneurs Understanding and creating business and personal financial records for entrepreneurs including applications common to entrepreneurial business practices using contemporary financial software. Prerequisites: CDAE 166 or permission. *Credits: 4*

168 Marketing: Comm Entrepreneurs Marketing concepts and methods and their applications for community entrepreneurs. Focus on development of marketing plan and its use in guiding business operations. Prerequisites: CDAE 61, 166. *Credits: 3*

169 Data Management & Analysis Using technology to accomplish tasks specific to entrepreneurs. May include spreadsheets, databases, presentations, mapping, markets, WWW, and project management. Prerequisites: CDAE 085 or equivalent. *Credits: 3*

170 Solar Strategies Bldg Constrct Passive, active, and hybrid heating; photovoltaic electric systems. Physical principles, site evaluation, component and system analysis, materials selection, and design of low-cost systems. Prerequisite: Math 10, and CDAE 001, CDAE 101 or equivalent. *Credits: 3*

171 Community & Int'l Econ Transform Models of economic development, including constraints to economic transformation and policy approaches and strategies for promoting social welfare and sustainable development. Prerequisites: 2, 61 or equivalent. *Credits: 3*

175 Farm Credit Fellowship Prac/Sem Acquaints students who have a strong interest in farm management and farm finance with financial intermediaries serving agriculture. Prerequisites: 167. *Credits: 1*

186 Sustain Dev Sm Island States This course is a general introduction to problems of sustainable development on small island developing states utilizing a case study of St. Lucia, West Indies. Prerequisite: CDAE 002 or permission. *Credits: 4*

191 Special Problems Independent projects under direction of a faculty member. Includes undergraduate teaching assistance. Prerequisite: Permission. One to six hours (maximum). *Credits: 1-12*

195 Special Topics Lectures or readings on contemporary issues in Community Development and Applied Economics. Enrollment may be more than once, up to 12 hours. *Credits: 1-18*

196 Field Experience/Practicum Professionally-oriented field experience under joint supervision by faculty and business or community representative. Total credit toward graduation in 196 and 296 cannot exceed 15 hours. Prerequisites: Permission. *Credits: 1-15*

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. *Credits: 3*

207 Markets, Food & Consumers Learn how producers, processors, wholesalers, cooperatives, retailers, consumers, and governments affect the movement of food and fiber products through the production-marketing chain. Prerequisite: 61 or equivalent. *Credits: 3*

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*

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 102 or permission. *Credits: 3*

224 Public Communication Capstone Students work with non-profit and municipal community partners to develop professional level communications strategies and materials. Students complete their professional public communication portfolios and resumes. Prerequisites: CDAE 014, 015, 024, 120 and 250. *Credits: 3*

231 Applied Computer Graphics Directed research, planning, design, technical experimentation, production and evaluation for computer-generated design application. Prerequisite: 15 or permission. *Credits: 3*

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*

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 or one course in ecology plus one course in design or drawing. Cross-listed with PSS 238, ENVS 238, NR 238. *Credits: 4*

250 Applied Research Methods Methods used in the collection and analysis of qualitative and quantitative data. Critical review of literature, and data collection, analysis, and interpretation for descriptive, inferential, and evaluation research. Prerequisites: Statistics 141 or permission. *Credits: 4*

251 Contemp Policy Iss:Comm Devel In-depth study of sustainable development policy issues, with emphasis on understanding systematic interactions among economic development, biodiversity conservation, climate change, energy, food and watershed planning. Prerequisite: CDAE 102 or equivalent or instructor permission. *Credits: 3*

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*

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*

255 Applied Consumption Economics Analysis and application of micro-economic principles as they relate to consumers, including consumption and saving, investments in human capital, market work, household production, and leisure choices. Prerequisites: ECON 172. *Credits: 3*

258 Consumer Policy:Iss & Analysis Examination and analysis of contemporary issues underlying a variety of consumer policies such as health care, income inequality, and consumer protection. Prerequisites: 254 or permission, Political Science 21 or similar course. Spring. *Credits: 3*

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 019, and CALS 085 or CS 002. *Credits: 3*

267 Strat Plan:Comm Entrepreneurs Applications of marketing, finance, and management strategies. Drafting a real working business plan for community entrepreneurs and economic development. Prerequisites: CENT majors or minors, or permission; senior standing. *Credits: 4*

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. Co-requisite: CDAE 273. *Credits: 3*

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. Pre/co-requisite: CDAE 102 or instructor permission. *Credits: 3*

276 Community Design Studio Problem-based community design studio course with research on existing conditions, needs assessment, sense of place, and development of sustainable and integrative design solutions and processes. Pre/co-requisites: CDAE 101, 118, 171 or 273; or instructor permission. *Credits: 3*

286 Adv Sust Dev Sm Island States This course is an advanced course in problems of sustainable development on small island developing states utilizing a case study of St. Lucia, West Indies. Pre/co-requisites: CDAE 002 and CDAE 186, graduate standing, or permission. *Credits: 4*

287 Spatial Analysis *Credits: 3*

291 Special Problems Independent projects under the direction of a faculty member. Includes undergraduate teaching assistance. Prerequisite: Departmental permission. Students may enroll more than once for a maximum of 12 hours. *Credits: 1-6*

292 Seminar Reports, discussions, and investigations in selected fields. May enroll more than once up to six hours. *Credits: 1-3*

295 Special Topics Lectures or readings on contemporary issues in Community Development and Applied Economics. Enrollment may be more than once, up to 12 hours. *Credits: 1-12*

296 Field Experience/Practicum Professionally-oriented field experience under joint supervision by faculty and business or

community representative. Total credit toward graduation in 196 and 296 cannot exceed 15 credits. *Credits: 1-18*

297 Undergraduate Research Work on a research problem under direction of a staff member. Findings submitted in written form as prescribed by the department. Prerequisite: Senior standing. *Credits: 3*

298 Undergraduate Research Work on a research problem under direction of a staff member. Findings submitted in written form as prescribed by the department. Prerequisite: Senior standing. *Credits: 3*

Comm Sciences & Disorders CSD

020 Intro to Disordered Comm Survey of language, speech, and hearing disorders, emphasizing the importance of understanding such disorders as a part of the fuller understanding of human behavior. *Credits: 3*

022 Introduction to Phonetics Linguistic, acoustic, and articulatory phonetics applied to the description of speech. Stresses use of the International Phonetic Alphabet with English, foreign languages, and disordered speech. *Credits: 3*

023 Beginning Linguistics The basic nature of language, how language is constructed, how language is acquired, social factors affecting language, equality of languages. *Credits: 3*

094 Dev of Spoken Language Speech and language acquisition interpreted in light of current learning and cognitive theory, linguistic theory, and methods of linguistic analysis. *Credits: 3*

095 Introductory Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-6*

096 Introductory Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-6*

101 Speech & Hearing Science Structure and function of the respiratory, phonatory, articulatory, and hearing systems, coupled with models of speech and hearing as part of human communication. *Credits: 4*

125 Becoming an SLPA Understand working with school-aged children. Enroll in practicum for CSD 125/126 not to exceed 100 hours combined. Prerequisites: Six hours in Communication Sciences; enrollment in practicum experience at max of 100 hours between CSD 125 & 126. *Credits: 0-3*

126 Support Chldrn w/Comm Disorder Intervention practices, collaboration and communication skills. Enroll in practicum for CSD 125/126 not to exceed 100 hours combined. Prerequisites: Six hours in Communication Sciences; enrollment in practicum experience at max of 100 hours between CSD 125 & 126. *Credits: 0-3*

195 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-12*

196 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-6*

197 Readings & Research Instructor permission. *Credits: 1-6*

198 Readings & Research Instructor permission. *Credits: 1-6*

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. *Credits: 3*

262 Measurement of Comm Processes Introduction to the scientific method and measurement principles used in group and single-case research on communication and as applied to persons with communication disorders. Prerequisites: CSD (formerly CMSI) 080, 101; Statistics 111 or 141. *Credits: 4*

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: CSD (formerly CMSI) 101. *Credits: 3*

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: CSD (formerly CMSI) 271. *Credits: 3*

273 Internship in Audiology Seniors interested in practical experience can intern at the UVM Audiology Clinic. Exposure to diagnostic and rehabilitative procedures will increase clinical confidence prior to graduate studies. Prerequisites: CSD (formerly CMSI) 271; 272 (or concurrent enrollment), 3.0 or greater GPA and instructor permission. *Credits: 3*

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-listed with EDSP 274. *Credits: 3*

281 Cognitive Neuroscience The structure and organization of the human central nervous system as related to higher cognitive and linguistic behaviors. Pre/corequisites: a college level Human Biology course, such as BIOL 4. *Credits: 3*

287 Mindfulness & Helping Skills This course introduces the students to key elements of mindfulness practice, basic listening and counseling skills, and how to apply them in work and life. Pre-requisite: Instructor permission. *Credits: 3*

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: 1-12*

296 Advanced Special Topics See Schedule of Courses for specific titles. UG only. *Credits: 1-6*

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. Prerequisite: Graduate standing or permission. *Credits: 3*

Complex Systems CSYS

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

205 Software Engineering Treatment of software engineering problems and principles, including documentation, information hiding, and module interface specification syntax and semantics. Requires participation in a team project. Students who receive credit for 205 may not receive credit for 208 or 209. Cross-listing: CS 205. *Credits: 3*

221 Deterministic Modls Oper Rsch The linear programming problem. Simplex algorithm, dual problem, sensitivity analysis, goal programming. Dynamic programming and network problems. Prerequisites: 124; 121 desirable. Cross-listing: MATH 221. *Credits: 3*

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. Pre/co-requisites: Senior or graduate

standing in CEE or instructor permission. Cross-listing: CE 226. *Credits: 3*

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-listing: CE 245. *Credits: 3*

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 123, CS 104 or 124, STAT 153 or equivalent. Cross-listing: CS 251. *Credits: 3*

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. Prerequisite: 211 or 225; or 141 or 143 with instructor's permission. Cross-listing: STAT 253. *Credits: 3*

256 Neural Computation Introduction to artificial neural networks, their computational capabilities and limitations, and the algorithms used to train them. Statistical capacity, convergence theorems, backpropagation, reinforcement learning, generalization. Prerequisites: Math 124 (or 271), Stat 153 or equivalent, computer programming. Cross-listed: STAT 256/CS 256. *Credits: 3*

266 Chaos,Fractals&Dynamical Syst Discrete and continuous dynamical systems, Julia sets, the Mandelbrot set, period doubling, renormalization, Henon map, phase plane analysis and Lorenz equations. Corequisite: 271 or 230 or instructor's permission. Cross-listing: MATH 266. *Credits: 3*

268 Mathematical Biology&Ecology Mathematical modeling in the life sciences. Topics include population modeling, dynamics of infectious diseases, reaction kinetics, wave phenomena in biology, and biological pattern formation. Prerequisites: 124, 230; or instructor's permission. Cross-listing: MATH 268. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Computer Science CS

002 MS Office: Beyond the Basics Word documents looking dull? Excel charts lacking something? PowerPoint slides fizzling? All this and more is covered. Learn more than just the basics. *Credits: 3*

003 Concepts of Computer Systems Introduction to computer systems, components, system software, editors, utilities and language processors, programming, problem solving, applications. May not be taken for credit concurrently with, or following receipt of credit for, any CS course numbered higher than 3. Prerequisite: Two years high school algebra. *Credits: 3*

005 Introductory Special Topics Prerequisite: Instructor permission. Hours variable. May not be taken for credit after any CS course numbered 16 or higher. *Credits: 0-3*

008 Introduction: WWW Design (2-2) Provides a strong foundation in HTML, working with images, beginning JavaScript programming, and web design so that the student can create a functional website. *Credits: 3*

014 Visual Basic Programming Introduction to Microsoft's rapid development environment. Create playful and relevant Windows applications. *Credits: 3*

016 Prog MATLAB Engineers&Science Problem solving, computer programming, and the use of standard numerical methods, visualization and systems thinking in the context of engineering and scientific applications using MATLAB. Credit not given for both CS 016 and 020. Prerequisite: Concurrent enrollment in Math 20 or 22. *Credits: 4*

019 Introduction to Programming A gentle, graphical introduction to computer programming. Pre/co-requisites: No credit after CS 21 or higher. *Credits: 3*

020 Programming for Engineers Introduction to computer programming principles using MATLAB, with applications chosen from civil, electrical, environmental, and mechanical engineering. Credit not given for both CS 016 and CS/ENGR 020. Co-requisite: MATH 021. Cross-listed with ENGR 020. *Credits: 3*

021 Computer Programming I Introduction to algorithmic problem solving. Designed to provide a foundation for further studies in computer science. Prerequisite: MATH 010 or a strong background in secondary school algebra and trigonometry. *Credits: 3*

031 C Programming Introduction to C programming for those already familiar with another programming language. Variable types, pointers, memory allocation, input/output, math, time, and other library calls. Prerequisite: One of CS 016, 020, 021 or equivalent. *Credits: 1-3*

032 Puzzles, Games & Algorithms Introductory computer science through exploration and analysis of mathematical puzzles and games, and the algorithms that handle them. *Credits: 3*

042 Dynamic Data on the Web Data is everywhere; Learn to collect, organize, and classify it. Students will design and create tables, queries and reports on the web using introductory programming. *Credits: 3*

064 Discrete Structures Introduction to analytic and formal methods of computer science with practical examples, including analysis or data structures, recursion relations, proof methods, and logic programming. (Credit not given for more than one of CS 64, MATH 52 or 54.) Co-requisites: One semester of programming, MATH 20 or 22. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. Prerequisite: Instructor's permission. *Credits: 1-4*

100 Object-Oriented Programming Object-oriented software analysis, design, and programming using a modern object-oriented programming environment. Topics include encapsulation, information hiding, inheritance, and polymorphism. Prerequisite: 26 or 110. *Credits: 3*

110 Intermediate Programming Intermediate programming concepts including common data structures, algorithms, style, design, documentation, testing and debugging techniques, and an introduction to object-oriented programming. Prerequisites: One of CS 016, 020, 021 or equivalent. *Credits: 4*

121 Computer Organization Introduction to computer system organization including performance, assembly language, machine-level data representation, arithmetic for computers, processor datapath control, memory, and input/output. Prerequisites: CS 26 or 110. No credit for both 101 and 121. *Credits: 3*

123 Programming Languages Systematic treatment of principles underlying the features and implementation of programming languages. Contrast of traditional procedural languages and at least one nontraditional language. Prerequisites: CS 26 or 110, CS 64 or Math 52 or 54. No credit for both 103 and 123. *Credits: 3*

124 Data Structures & Algorithms Design and implementation of linear structures, trees and graphs. Examples of common algorithmic paradigms. Theoretical and empirical complexity analysis. Sorting, searching, and basic graph algorithms. Prerequisites: CS 26 or 110, CS 64 or Math 52 or 54. No credit for both CS 104 and 124. *Credits: 3*

125 Computability and Complexity Formal languages and expressiveness. Turing completeness and Church's Thesis. Decidability and tractability. Complexity classes and theory of NP completeness. Prerequisites: CS 064 or MATH 052. Recommended co-requisite: CS 124. *Credits: 3*

142 Advanced Web Design Advanced website design, including structure, architecture, compliance, CSS, usability, etc., to help create a pleasing user experience. Prerequisite: CS 008. *Credits: 3*

148 Database Design for the Web Design and implementation of a relational database model using SQL and PHP. Typical project includes creation of ecommerce shopping site. Prerequisites: CS 008 or above. *Credits: 3*

189 CS for Geospatial Technologies Introductory course providing hands-on experience with activities involving programming languages, platforms, and technologies in use by the GIS programmer/developer. Prerequisite: One course in GIS (CE 010, GEOG 081, or NR 143) or one in computer programming. *Credits: 3*

192 Independent Service & Teaching Independently designed project or pedagogical experience that benefits the University or the Community under the direction of a CS faculty member. Requires final presentation. Pre/co-requisites: Departmental permission. *Credits: 1-3*

195 Special Topics See Schedule of Courses for specific titles. Prerequisite: Instructor's permission. *Credits: 1-9*

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 121, CS 104 or 124. *Credits: 3*

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 123, CS 243. *Credits: 3*

204 Database Systems Techniques for processing very large collections of data. Secondary storage. Database design and management. Query languages and optimization. Database recovery. Prerequisites: CS 104 or 124. *Credits: 3*

205 Software Engineering Treatment of software engineering problems and principles, including documentation, information hiding, and module interface specification syntax and semantics. Requires participation in a team project. Students who receive credit for 205 may not receive credit for 208 or 209. Prerequisites: CS 104 or 124. Cross-listing: CSYS 205. *Credits: 3*

206 Evolutionary Robotics Exploration of the automated design of autonomous machines using evolutionary algorithms. Course work involves reading of research papers, programming assignments and a final project. Prerequisites: Junior standing and programming experience, or instructor permission. *Credits: 3*

208 Software Requirements&Design Project management, requirements for software products, design methodologies and formal and informal notations describing designs. Includes developing requirements and design for a substantial software product. Credit not awarded for more than one of 205 and 208. Prerequisites: CS 104 or 124. *Credits: 3*

209 Software Implement&Verificat'n Covers advanced program development methodologies, software performance measuring and tuning and the verification and validation of software. Includes a significant implementation and evaluation project. Credit not awarded for more than one of 205 and 209. Prerequisites: CS 104 or 124. *Credits: 3*

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 121. *Credits: 3*

224 Algorithm Design & Analysis Comprehensive analysis of common algorithmic paradigms including greedy algorithms, divide and conquer, dynamic programming, graph algorithms, and approximation algorithms. Complexity hierarchies. Prerequisites: CS 104 or 124, MATH 173 recommended *Credits: 3*

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*

231 Programming for Bioinformatics Introductory course on computing (including scripting, database, and statistical analysis) for developing bioinformatics applications. Particular emphasis is given to comparative genomics and systems biology scenarios. Prerequisites: STAT 151, STAT 153 or permission. Cross-listed with MMG 231. *Credits: 3*

232 Methods in Bioinformatics This course provides a methodological survey of bioinformatics. Particular emphasis is given to algorithms associated with sequence analysis, comparative genomics, structural biology, and systems biology. Prerequisite: STAT 151, STAT 153, or permission. Cross-listed with MMG 232. *Credits: 3*

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*

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 123, CS 104 or 124, STAT 153 or equivalent. Cross-listing: CSYS 251. *Credits: 3*

256 Neural Computation Introduction to artificial neural networks, their computational capabilities and limitations, and the algorithms used to train them. Statistical capacity, convergence theorems, backpropagation, reinforcement learning, generalization. Prerequisites: Math 124 (or 271), Stat 153 or equivalent, computer programming. Cross-listed: STAT 256/CSYS 256. *Credits: 3*

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. Prerequisites: CS 104 or 124, or instructor permission. *Credits: 3*

265 Computer Networks Introduction to the theoretical and pragmatic principles and practices of computer networking. Topics include: local area networks; the Internet; network and world-wide-web application programming. Prerequisites: CS 026 or 110, CS 101 or 121, and STAT 153 or equivalent. *Credits: 3*

266 Network Security&Cryptography Security and secrecy in a networked environment. Cryptography: public and private key. Authentication: trusted agents, tickets. Electronic mail and digital signatures. Privacy and national security. Prerequisites: CS 104 or 124. *Credits: 3*

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. Prerequisites: CS 104 or 124, MATH 124 or 271, recommended. *Credits: 3*

276 Integrative Computing Integrative computing principles and practices: Abstraction via APIs, distributed systems orchestration, security, application design and implementation. Team projects for mobile and other networked, embedded devices. Prerequisite: Senior standing in computer science or instructor permission. *Credits: 3*

283 Undergraduate Honors Thesis See description of Honors Thesis Program in the College of EM section of this catalog. *Credits: 3*

284 Undergraduate Honors Thesis See description of Honors Thesis Program in the College of EM section of this catalog. *Credits: 3*

292 Senior Seminar Oral presentations that pertain to the ethical practice of computer science in government, industry, and academia. Topics may include computer security, copyright, and

patent law. Prerequisite: Senior standing in computer science. *Credits: 1*

294 Independent Readings&Research Independent readings and investigation under the direction of faculty member. Prerequisite: Department's permission. *Credits: 1-6*

295 Special Topic:Computer Science See Schedule of Courses for specific titles. Subject will vary from year to year. May be repeated for credit. *Credits: 1-18*

296 Special Topic:Computer Science See Schedule of Courses for specific titles. Subject will vary from year to year. May be repeated for credit. *Credits: 1-12*

Counseling EDCO

220 Developmental Persp in Counsel Survey of major and emerging theories of human development and application of theoretical concepts to self and others from a counseling perspective. Prerequisites: Graduate standing. Others by permission. *Credits: 3*

291 Special Topics in Counseling Special issues in counseling, administration and planning, social work or higher education not appropriate to content of existing courses. Courses reflect the social services orientation of the Department of Integrated Professional Studies. *Credits: 1-3*

Curriculum & Instruction 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-requisites: 12 hours in Education and related areas. *Credits: 0-6*

207 Univ and Third World Devel Examination of the role of educational policies on urbanization vs. ruralization in the human capital formation process of third world countries. Pre/co-requisites: 6 hours of political science, history, geography or economics, or instructor's permission. *Credits: 3*

211 Educational Measurements The essential principles of measurement in education. Topics include validity, reliability, principles of test construction, item analysis, and analysis of standardized tests as they apply to the classroom. Pre/co-requisites: 12 hours in education and related areas. *Credits: 3*

215 The Gifted Child *Credits: 3*

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*

241 Science for the Elem School Examines a number of elementary school science programs. Emphasis on methods and materials relating to construction and use of science units for children in grades K-6. Pre/co-requisites: 12 hours in education and related areas and instructor's permission. *Credits: 3*

245 Computer Apps in Elem&Sec Curr For elementary, secondary educators with experience in simple programming. Design of instructional procedures, integrating computers into school curriculum. Use of computer software to teach basic skills, reasoning, thinking skills. Prerequisites: Computer Science 3 or equivalent, permission. *Credits: 3*

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*

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: 1-6*

296 Laboratory Experience in Educ Supervised fieldwork designed to give students experience in specialized areas for their professional development. Prerequisites: Permission of the Coordinator of Professional Laboratory Experiences. *Credits: 1-6*

Dance DNCE

005 D2:Intro to World Dance Cult Survey of global dance traditions, including a variety of dance forms from Africa, South America, the Caribbean, South and East Asia, and the Middle East. *Credits: 3*

011 Modern Dance I Introduction to the movement techniques of modern dance, with emphasis on fundamental movement mechanics, as well as aesthetic and expressive qualities. *Credits: 3*

012 Modern Dance II Beginning/Intermediate level. Continued development of technical skills in modern dance, including rhythmic perception and spatial awareness, with emphasis on expressive qualities that lead to performance. *Credits: 3*

031 D2:African Forms A detailed study of the practice, history, and cultural significance of African and/or African-derived dance forms. Major emphasis on physical training. *Credits: 3*

050 Dance History & Legends A survey of dance history in Western civilization from the Renaissance to the present. Emphasis on the dance idioms of ballet and modern dance. *Credits: 3*

060 Movement & Improvisation Guided exploration in dance elements for the creative development of personal movement vocabulary, spontaneous group interaction, as well as overall individual and environmental awareness. *Credits: 3*

095 Introductory Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

111 Modern Dance III Intermediate/Advanced level. Intensive work in body awareness, increased movement capabilities, sequencing and performance training. Pre/co-requisites: DNCE 12 or permission. *Credits: 3*

112 Modern Dance IV Advanced level. Intensive work in conditioning, body awareness, increased movement capabilities, sequencing and performance training. Pre/co-requisites: DNCE 111 or permission. *Credits: 3*

150 D1:Jazz in American Dance An in-depth study of the influence of African-derived dance forms on American social/vernacular dance, as well as American Theatre Jazz, Modern Dance, and Ballet. Pre/co-requisites: DNCE 50, or permission. *Credits: 3*

160 Choreography A study of time, space, force, and design as they relate to dance composition. Focus on developing original movement in the creation of choreographic studies/projects. Pre/co-requisites: DNCE 60 or permission. *Credits: 3*

175 Dance Repertory Participation in the preparation, rehearsal and performance of dance choreography. Admission by audition. Pre/co-requisite: Audition. *Credits: 1*

195 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research Supervised independent study in dance. Inter-disciplinary topics are encouraged. Prerequisite: Departmental permission. *Credits: 1-6*

198 Readings & Research Supervised independent study in dance. Inter-disciplinary topics are encouraged. Prerequisite: Departmental permission. *Credits: 1-6*

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: 1-18*

296 Advanced Special Topics Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

Early Childhood Pre K-3 EDEC

001 Intro to Early Education Introduction to a social-constructivist approach to early childhood curriculum development and strategies for observing and documenting young children's development and learning. Offered spring only. *Credits: 4*

055 Special Topics I *Credits: 2-6*

063 Child Development The biological, psychological, and social growth and development of children and their relationships with family, peers, and institutions. *Credits: 3*

100 Inquiry & Pedagogy in Early Edu Strategies for the observation, documentation and development of curriculum in early education from a social-constructivist perspective through seminar participation and an internship experience in an early childhood setting. Offered fall only. Pre/co-requisites: EDEC 1. *Credits: 10*

101 Early Education Internship Internship experience in an early childhood setting. Pre/co-requisite: EDEC 001. *Credits: 3*

102 Inquiry & Pedagogy in Early Ed Strategies for the observation, documentation and development of curriculum in early education from a social-constructivist perspective. Pre/co-requisite: EDEC 001. *Credits: 3*

103 Curric Develop in Early Child Explore the process of curriculum development and documentation in Early Childhood Education and the role of teacher, peer, and classroom on children's development. Pre/co-requisite: EDEC 001. *Credits: 3*

180 Early Literacy in Young Chldrn This seminar/practicum course provides students with the foundations needed to support young children's language and literacy development, in particular how to design, present and evaluate an integrated language arts curriculum. Pre/co-requisites: EDEC 100, 189 or permission. *Credits: 5*

187 Field Practicum Full semester student teaching internship in a primary (K-3) setting. Prerequisite: EDEC 189; permission. *Credits: 15*

189 Early Childhood Practices Supervised planning and conducting the Early Childhood Laboratory Center. Integrated Readings and Research, Early Childhood Seminar, and Curriculum Workshop. Prerequisite: Permission. Variable credit *Credits: 0-15*

195 Special Topics Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once, accumulation up to 12 hours. Prerequisite: Varies with course. *Credits: 1-6*

197 Readings & Research *Credits: 1-4*

200 Contemporary Issues *Credits: 1-6*

291 Special Problems Reading, discussion, and special field and/or laboratory investigations. Prerequisite: Departmental permission. Students may enroll more than once up to 12 hours. *Credits: 1-6*

295 Special Topics Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once. Prerequisite: Department permission. *Credits: 1-6*

296 Field Experience Professionally-oriented field experience under joint supervision by faculty and community representative, credit arranged up to 15 hours. Prerequisite: Departmental permission. *Credits: 1-15*

Early Childhood Special Educ ECSP

187 Student Teaching Practicum Full semester student teaching internship in a setting or combination of settings that includes infants, toddlers, and/or preschoolers with disabilities. Integrated readings, research activity and weekly seminar. Prerequisites: ECSP 210, 211. *Credits: 12*

200 Contemporary Issues *Credits: 1-6*

202 D2:Introduction to EI/ECSE This course serves as an introduction to the profession and the importance of becoming an advocate for children (0 - 6) experiencing diversity of ability, culture and or language. *Credits: 3*

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. 3 credits, 4 with 30-hour field experience. Pre/co-requisites: ECSP 202 and 211. *Credits: 3-4*

211 Assessment in EI/ECSE Overview of the strengths and limitations of traditional and nontraditional assessments; legal responsibilities, eligibility, family, and cultural aspects. 3 credits, 4 with 30-hour field experience. Pre/co-requisites: Completion or co-enrollment in ECSP 202 for undergraduates. *Credits: 3-4*

220 Seminar in EI/ECSE This seminar accompanies the student teaching or internship experiences. Students will create a variety of evidence-based products and complete their portfolios for licensure. Co-requisite: ECSP 187. Cross-listed with ECSP 320 (for Grad students only). *Credits: 3*

295 Lab Experience in Education UG only. *Credits: 1-6*

296 Field Experience *Credits: 1-12*

Economics EC

011 Principles of Macroeconomics Introduction to economic concepts, institutions, and analysis, particularly as related to the economy as a whole. *Credits: 3*

012 Principles of Microeconomics Study of individual economic units with particular emphasis on market interactions among firms and households. Prerequisite: 11. *Credits: 3*

020 Economic Problems Exploration of a current economic issue. Topics vary and may include international trade, debts and deficits, environment, ethnicity, race and gender, and employment and work. *Credits: 3*

040 D2:Economics of Globalization An examination of the dimensions, causes and consequences of the international flows of goods and services (trade), people (migration), and financial capital. *Credits: 3*

045 D2:Latin American Development The course addresses the Latin American development process from a comparative perspective, highlighting the diversity within the region and the role that culture, traditions and political institutions played in shaping the region's path of growth. *Credits: 3*

060 Capitalism & Human Welfare Investigates theories of growth of the capitalist economy and the historical process of the ascendance, domination, and recent relative decline of the U.S. economy. *Credits: 3*

095 Intro Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Intro Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

110 American Economic History Survey of the economic history of the U.S. from colonial origins through early 20th century, emphasizing economic and institutional changes and events promoting economic growth and development. Prerequisite: EC 011, EC 012 or instructor permission. *Credits: 3*

120 Money and Banking Commercial and central banking with special attention given to the Federal Reserve system, monetary

theory, and policy. Prerequisite: 11, 12 or instructor permission. *Credits: 3*

130 Public Policy Revenues and expenditures of federal, state, and local governments and intergovernmental relationships; the effects of expenditures and taxation upon individuals, business institutions, and the national economy. 11, 12 or instructor permission. *Credits: 3*

133 Economics Environmental Policy Investigation of the relationship of markets and government regulation to environmental quality. Alternative public policies to improve efficiency and equity will be evaluated. Prerequisite: 11, 12 or instructor permission. *Credits: 3*

135 Law and Economics Economic analysis of the law, including property, contracts, torts and criminal law. Covers accident and malpractice compensation, product liability, breach of contract, deterrence of crime. Prerequisite: 12. *Credits: 3*

138 Game Theory Formal analysis of strategic interactions, in which decisions are based on the possible reactions of others, with applications to business, politics, and human relationships. Prerequisites: 11 & 12, or permission of instructor. *Credits: 3*

140 Economic Development Theories of economic growth applied to developing countries of the contemporary world including the political and social determinants of economic progress. Prerequisite: EC 011, 012 or instructor permission. *Credits: 3*

143 International Econ I: Trade Trade Theory, policy, and history of international trade patterns, terms of trade, protectionism, competitiveness, structural adjustment, and international aspects of microeconomics. Prerequisite: 11, 12 or instructor permission. *Credits: 3*

146 International Econ II: Finance Finance Theory, policy, and history of foreign-exchange markets, balance of payments, world monetary arrangements, and international aspects of macroeconomics and capital markets. Prerequisite: 11, 12 or instructor permission. *Credits: 3*

150 Labor Economics The economics of work, including wage determination, unemployment, productivity, discrimination, unions, and policy issues. Prerequisite: 11, 12 or instructor permission. *Credits: 3*

153 D1:African Amer in the US Econ An examination of historical and contemporary inequality between whites and blacks, focusing especially on labor, housing, and credit markets. Prerequisites: EC 11 and EC 12. *Credits: 3*

156 Economics of Gender Examines how gender differences produce different economic outcomes for women and men in work, leisure, earnings, poverty. Explores effectiveness of policies to overcome gender gaps. Prerequisite: 11, 12. Cross-listings: WGST 185. *Credits: 3*

160 Industrial Organization The structure, conduct, and performance of U.S. industry and appraisal of its economic efficiency and social impact, including governmental policies. Prerequisite: 11, 12 or instructor permission. *Credits: 3*

170 Economic Methods Introduces statistical and mathematical methods for understanding economic literature including probability distributions, data sources, statistical concepts, and simple regression, taught using economic examples and applications. Prerequisite: Math 19. Credit not given for both 170 and any of following STAT courses: 111, 140, 141, 143. *Credits: 3*

171 Macroeconomic Theory Keynesian and other theories of the macroeconomy. Government policies in relation to the problems of employment, price stability, and growth. Prerequisite: EC 11, 12; MATH 19 or instructor permission. *Credits: 3*

172 Microeconomic Theory Analysis of consumer demand, supply, market price under competitive conditions and monopolistic influences, and the theory of income distribution. Prerequisite: EC 11, 12; MATH 19 or instructor permission. *Credits: 3*

194 ISSP Thesis Design, research, and writing of a thesis on an economic topic for students in the Integrated Social Sciences Program. Prerequisite: 11, 12 or instructor permission. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. Prerequisite: 11, 12 or instructor permission. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. Prerequisite: 11, 12 or instructor permission. *Credits: 1-18*

200 Econometrics & Applications A combination of economic theory, mathematics, and statistics for testing economic hypothesis and developing economic models. Conceptual development and applications. Prerequisites: 170, 171, 172. *Credits: 3*

210 Sem A:Econ Hst, Systems&Ideas Topics on the evolution of economic systems and ideas. Prerequisites: 170, 171, 172. *Credits: 3*

220 Sem B:Macroeconomics&Finance Topics such as national economic policies, income, wealth and welfare, financial markets and the macroeconomy, central banking, and other issues concerning macroeconomics and money. Prerequisites: 170, 171, 172. *Credits: 3*

230 Sem C:Microeconomics & Appl Topics from microeconomics and fields applying it, such as game theory, health economics, environmental economics, the Vermont economy and urban and regional economy, and urban and regional economics. Prerequisites: EC 170, 171, 172. *Credits: 3*

240 Sem D:Intern'l & Dev Economics Topics such as the economies of countries or regions, international trade agreements, international debts, deficits and structural adjustment, and aspects of development economics. Prerequisites: 170, 171, 172. *Credits: 3*

250 Sem E:Labor, Race & Gender Topics such as labor-management relations, aspects of contemporary labor markets, discrimination, economics of education, and other aspects of the economics of gender and race. Prerequisites: 170, 171, 172. *Credits: 3*

260 Sem F:Firms, Inst, & Growth Topics such as antitrust and regulation, decision making and the firm, technological change and industrial policies, and the economics of growth. Prerequisites: 170, 171, 172. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisites: 170, 171, 172. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisites: 170, 171, 172. *Credits: 1-18*

297 Readings & Research Independent study with permission of supervising professor prior to registration. Prerequisites: 170, 171, 172. *Credits: 1-3*

298 Readings & Research Independent study with permission of supervising professor prior to registration. Prerequisites: 170, 171, 172. *Credits: 1-6*

Education EDSS

001 Schooling, Learning & Society Introduction to issues and problems in American education: schools and learning, professional careers, individuals in systems, characteristics of learners. Required readings and papers. *Credits: 3*

010 ACCESS Education Create a safe community to discuss disability related issues. Introduce students to organizational systems, goal setting, learning styles, self-advocacy, disabilities, and study skills. *Credits: 1*

011 Race and Culture Introduction to issues of diversity, multiculturalism and cultural pluralism in our different communities and in our country as a whole. *Credits: 1*

012 Race&Culture Contemp Issues Gives an expanded introduction to US social justice issues. Forms of discrimination that shape US culture explored and skills in self-reflection and critical analysis developed. *Credits: 1*

055 Special Topics Credits: 1-6

195 Intermediate Special Topics Topics vary. See Schedule of Courses for specific titles. *Credits: 1-6*

196 Intermediate Special Topics Topics vary. See Schedule of Courses for specific titles. *Credits: 1-6*

197 Readings & Research Credits: 1-4

200 Contemporary Issues Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisites: Twelve hours in education and related areas. *Credits: 0-6*

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*

239 S.L.I.P. Seminar Professional education course designed to facilitate student's integration of academic, social, personal, and career objectives through seminar or project syllabus method of support for internship experience in the community. Prerequisite: Instructor's permission, junior standing. *Credits: 1-12*

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*

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: 1-12*

Electrical Engineering EE

001 First-year Design Experience Introduction to the engineering profession and design. Hands-on experiences that emphasize interdisciplinary teamwork, technical communications, and project design methodologies. Cross-listing: ME 1. *Credits: 2*

003 Linear Circuit Analysis I Circuit elements, laws, and analysis. Network principles and theorems. Energy- storage elements. Magnetically coupled circuits. Transient analysis and time constants. Prerequisite: MATH 22. *Credits: 3*

004 Linear Circuit Analysis II Sinusoids and phasors. Sinusoidal steady-state response and power. Complex frequency and network functions. Resonance. Laplace transform techniques. Fourier series and Fourier transforms. Prerequisite: EE 3; Corequisite: MATH 271. *Credits: 3*

081 Linear Circuits Laboratory I Electrical instruments; oscilloscope measurements; resistive, capacitive, and inductive components; applications of operational amplifiers; digital-to-analog converters; transient response of RL and RC circuits. Corequisite: EE 3 *Credits: 2*

082 Linear Circuits Laboratory II Transients in RLC circuits; steady state sinusoidal response in RLC circuits; real and reactive power in RLC circuits; operational amplifier active filters. Prerequisite: EE 81; Corequisite: EE 4. *Credits: 2*

095 Special Topics See Schedule of Courses for specific titles. Prerequisite: Departmental permission. *Credits: 1-3*

100 Electrical Engr Concepts Fundamentals of electrical engineering; DC and AC linear circuit analysis; laboratory component. No credit for EE majors. Co-requisite: Physics 125. *Credits: 4*

101 Digital Control w/Embedded Sys Applications of single-chip microcomputers as embedded systems for data acquisition/real time control. Assembly language; parallel and serial ports; timers; counters; A/D and D/A. Laboratory. Prerequisite: EE 100. *Credits: 4*

113 Electric Energy Systems Energy sources, including renewables; generation, delivery, consumption of electricity; power plants, emissions, policy; three-phase power, transformers, motors/generators, power electronics; 0 credit laboratory included. Pre/co-requisites: EE 004(co-req) or EE 100 (pre-req). *Credits: 0-4*

120 Electronics I Theory of operation of diodes and MOS transistors. DC and transient analysis using diodes and transistors. NMOS and CMOS logic circuits and memory cells. Circuit simulation software. Prerequisite: EE 4 *Credits: 3*

121 Electronics II Bipolar transistor circuits. DC and high frequency amplifier design using MOS and bipolar transistors. Feedback, oscillators, and stability criteria. Operational amplifiers and switched capacitor filters. Prerequisite: EE 120. *Credits: 3*

131 Fundamentals of Digital Design Combinational logic simplification and design, MSI and PLD components, synchronous and asynchronous sequential design, algorithmic state machines, registers, counters, memory units, introduction to hardware design languages. Prerequisite: Sophomore standing. *Credits: 3*

134 Fund of Microcomp Based Syst In-depth study and applications of a modern microprocessor in embedded digital systems for real-time control and data acquisition. Assembly language and the design of interfaces. Prerequisites: 3 or 100, and Computer Science 16 or 21; EE 131 and Computer Science 101 desirable. *Credits: 4*

141 Electromagnetic Field Theory Fundamentals of electromagnetic fields; vector analysis; Maxwell-Lorentz theory, conservative laws, Poynting's theorem, energy flow and dissipation, potential theory and boundary value problems, material properties. Prerequisites: Physics 125, Math 271, EE 4. 271, Physics 42. *Credits: 4*

163 Solid State Phys Electronics I Physical principles required to understand the operation of common semiconductor devices. Physical models of p-n junctions, Schottky barriers, and MOS field-effect transistors. Prerequisites: Physics 42 with 22, Math 271. *Credits: 4*

164 Solid St Phys Electronics II Theory of operation of bipolar junction transistors. Heterojunction transistors. Compound and alloy semiconductor materials and devices. Dielectric and magnetic materials and devices. Prerequisite: EE 163. *Credits: 3*

171 Signals & Systems Discrete and continuous-time signals and systems. Input/output descriptions and analysis. Convolution, Fourier analysis and Laplace transforms, Sampling and z-transforms. Application to electrical engineering design problems. Prerequisite: EE 4. *Credits: 4*

174 Communication Systems Signal analysis. Fundamentals of digital communications including PCM, channel coding, pulse shaping and modulation. Wireless communications, modulation, antennas and link budgets. Related laboratory experience. Prerequisite: EE 004. *Credits: 4*

183 Electronics Laboratory I Characteristics and applications of diodes and MOSFETs; CMOS inverters and logic characterization; applications of operational amplifiers. Corequisite: EE 120. *Credits: 2*

184 Electronics Laboratory II Characteristics and applications of bipolar junction transistors; medium frequency and differential amplifiers; operational amplifier output stages; analog and digital filters. Prerequisite: EE 183; Corequisite: EE 121. *Credits: 2*

187 Capstone Design I Project management, professional ethics, social/ economic impact, and contemporary issues that arise in engineering practice. Interdisciplinary project development including project selection, design requirements, prototyping and communications. Pre/co-requisites: Senior standing. *Credits: 2*

188 Capstone Design II Cumulative, team-based interdisciplinary design experience. Subsystem design, implementation and test. System integration and test. Project demonstration, report, and presentation. Pre/co-requisites: EE 187. *Credits: 2*

193 College Honors Credits: 3-6

194 College Honors Credits: 3-6

195 Special Topics See Schedule of Courses for specific titles. Prerequisite: Departmental permission. *Credits: 1-18*

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. Cross Listing: ME 207. *Credits: 3*

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: MATH 271. *Credits: 3*

210 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: EE 171 or ME 111. Cross-listed with ME 210. *Credits: 3*

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 271 and CS 26 or instructor's permission. Cross-listing: CS 212. *Credits: 3*

215 Electric Energy Systems Analys Transmission line, generator, transformer modeling and control, per-unit conversion, power flow calculations and software, symmetric components and fault analysis, protection/relaying, stability analysis, smart grid. Prerequisite: EE 113, Co-requisite: MATH 124. *Credits: 3*

221 Prin VLSI Digital Circuit Des Design of VLSI circuits using a modular approach with industrial grade software: schematic capture; circuit design languages (HDL); full-custom layouts; mixed signals; synthesis. Laboratory. Pre/corequisites: EE 131, 163, 121. *Credits: 3*

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: 163, 121, instructor's permission. *Credits: 3*

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. Prerequisite: 221 or instructor's permission. *Credits: 3*

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. Corequisites: 121, ANPS 20, instructor's permission. Alternate years. *Credits: 3*

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. Prerequisite: Senior standing in engineering or physics. *Credits: 3*

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: 131; either 134 or Computer Science 101. *Credits: 3*

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. Prerequisite: 231. *Credits: 3*

233 Microprocessor Systems & Appl Basic principles of mini/microcomputers; A/D; D/A; channels, magnetic devices, display devices, mechanical devices; interface designs of analog systems to mini/microcomputers; principles of microprogramming; bit-slice-based microcomputers. Prerequisites: Departmental permission, Computer Science 101 desirable. *Credits: 4*

241 Electromagnetic Wave Theory Electromagnetic radiation and wave propagation in complex media and systems: angular spectrum of plane waves, dispersive pulse propagation, applications to communications, imaging and remote sensing. Prerequisites: EE 141 or equivalent. *Credits: 3*

245 Quantum Electronics A theoretical description of light-matter interactions in photon emitting resonant cavities. A practical understanding of laser design and operation. Prerequisite: EE 141. *Credits: 3*

247 Physical Optics Fundamental properties of the optical field. Molecular optics and the Ewald-Oseen extinction theorem. Foundations of geometrical optics. Diffraction and aberration theory. Prerequisites: EE 141. *Credits: 3*

250 Test Engineering Parametric, structural, functional, characterization and stress testing of components and subsystems. Test methods, strategies, planning, and economics. Test equipment hardware and software. Prerequisites: 121, 131. *Credits: 3*

251 Digital Syst Testing & Design Circuit failures, fault models, testing and test pattern generation, logic and fault simulation, design for testability, scan design, test interfaces, design for built-in self-test. Prerequisite: 131. *Credits: 3*

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: 163. *Credits: 3*

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: 261. *Credits: 3*

266 Science & Tech Integrated Cir Science and technology of integrated circuit fabrication. Interaction of processing with material properties, electrical performance, economy, and manufacturability. Prerequisites: 163 or 261, concurrent registration in 164 or 262. *Credits: 3*

272 Information Theory Introduction to probability concepts of information theory; entropy of probability models; theoretical derivations of channel capacity; coding methods and theorems, sampling theorems. Prerequisite: STAT 143/151/153. *Credits: 3*

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 STAT 151. *Credits: 3*

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*

275 Digital Signal Processing Sampling and reconstruction of signals. DFT, FFT and the z-transform. FIR and IIR filter design. Speech coding. Accompanying lab: 289. Pre/co-requisites: 171, permission. *Credits: 3*

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. Prerequisite: EE 275. *Credits: 3*

277 Image Anyl&Pattern Recognition Image, shape, and texture analysis. Statistical pattern recognition methods. Pattern recog-

nition and computer vision techniques for machine parts recognition and automatic visual inspection. Prerequisite: 276. *Credits: 3*

278 Wireless Communication Modern wireless systems, including cellular design, propagation modeling, multiple access and equalization techniques. Pre/co-requisites: EE 174 and STAT 151. *Credits: 3*

281 Materials Science Seminar Presentation and discussion of advanced electrical engineering problems and current developments. Prerequisite: Senior or graduate engineering enrollment. *Credits: 1*

282 Seminar *Credits: 1*

283 Seminar *Credits: 1*

284 Seminar *Credits: 1*

289 Digital Signal Processing Lab Design and microprocessor implementation of real-time digital signal processing systems. PC-based evaluation module and development tools. Experiments include sampling, digital filtering, and the FFT. Pre/co-requisites: 171. *Credits: 1-3*

295 Special Topics Special topics in developing areas of electrical engineering. Prerequisite: Senior standing or permission. *Credits: 1-18*

Elementary Education EDEL

010 Intro to Teaching & Learning Orientation to professional program. Introduction to research base for meaningful teaching and learning. Analysis of teaching autobiographies by successful teachers. One credit each semester for two consecutive semesters. *Credits: 1-3*

011 Computers in El Ed Classroom Students use the University's network and internet, exchange e-mail, construct electronic portfolios, and examine software to help them in their studies and future classrooms. *Credits: 3*

024 Learners and Learning Process Distinctions among dominant theories of learning and development. Learning theories applied to selected issues derived from context of schools. Students work with individual learner in appropriate setting. *Credits: 3*

055 Special Topics *Credits: 2-6*

056 Teachers&the Teaching Process Students examine lives of teachers, demands of the profession, and selected models of teaching. Student observation of teachers in appropriate settings and knowledge of learning and development. Prerequisites: 10, 24; concurrent with EDEL 177, EDSP 5. *Credits: 3*

155 Lab Experience in Inquiry Supervised practicum in field sites. Implementation of teaching methods from Inquiry Block. Documentation of classroom work, child study, and development of portfolio. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 157, 158, 159. *Credits: 3*

156 Teaching Math for Meaning Methods of teaching mathematics in elementary school. Research base for how children learn mathematics and how math curriculum is organized. Special focus on teaching diverse groupings of learners. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 175, 176, 178. *Credits: 3*

157 Social Educ and Social Studies Methods of social education for elementary-aged school children. Promoting children's efficacy by nurturing personal interests. Development of folio of developmentally-sound examples of social studies learning. Pre/co-requisites: Admission to Elementary Education Program; EDEL 155, 158. *Credits: 3*

158 Teaching Science for Meaning Teaching K-6 science through inquiry. Use of constructivist pedagogy to develop lessons and activities that develop concepts from physical, earth and life sciences. Pre/co-requisites: Admission to the Elementary Education Program; concurrent with EDEL 155 & 157. *Credits: 3*

159 Integrating the Arts Incorporate visual and performing arts (music, movement, theatre) as a way of learning and teaching by focusing on artistic expression. Emphasis on multi-cultural arts. Pre/co-requisites: EDEL 10 fall semester or permission of the instructor. *Credits: 3*

175 Lab Experience in Literacy Supervised practicum in a field site. Implementation of teaching methods from Literacy Block. Documentation of classroom work, child study, and development of portfolio. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 156, 176, 178. *Credits: 3*

176 Language Arts&Literacy Skills Cognitive research base for the social context of children's learning. Methods of language arts as literate activity. Emphasis on emergence of literacy in the child of special need. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 156, 175, 178. *Credits: 3*

177 Children's Lit & Literacy Learning about the breadth of literature available for use in elementary school. Developing the ability to evaluate and use literature in reading and writing activities. Emphasis on bias-free methods. Pre/co-requisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 156, 175 and 176. *Credits: 3*

178 Mtg Indiv Needs:Assmt&Instruct Methods of responding to individual differences within a heterogeneous classroom. Sources of student variability, developing settings of least restriction, and appropriate assessment strategies. Pre/co-requisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 56, EDSP 5. *Credits: 3*

181 Student Teaching *Credits: 3-12*

185 Student Teaching Internship Supervised student teaching internship in field site. Fifteen-week total immersion as a beginning teacher. Responsibilities specified in internship handbook. Documentation of activities for professional portfolio. Concurrent with EDEL 187 and 188. Prerequisite: Method Blocks in Inquiry and Literacy. Variable credit *Credits: 3-12*

186 Seminar in Student Teaching *Credits: 3*

187 Plan,Adapt,Deliv Rdg Instruct Methods of diagnostic teaching in reading and writing. Identifying components of effective programs and use of research findings to deliver instruction in meaningful contexts. Documentation of personal model of literacy for professional portfolio. Prerequisite: Method Block in Literacy; EDEL 156, 176, 177. *Credits: 3*

188 Principles of Classroom Mgmt Application of basic learning principles to classroom management. Creation of behavior management plans with emphasis on social and academic behavior of diverse groupings of children. Concurrent with 185 and 187. Prerequisite: Method Blocks in Inquiry and Literacy. *Credits: 3*

189 Portfolio Dev&Reflective Pract This course develops candidates' critical reflectivity on their knowledge and expertise of classroom teaching through the construction of a professional portfolio. Prerequisites: Concurrent with EDEL 185 and 188. *Credits: 1*

197 Readings & Research *Credits: 1-4*

200 Contemporary Issues Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisites: Twelve hours in education and related areas. *Credits: 0-3*

270 Kindergarten Methods & Org Objectives, organization, curriculum, methods and materials, and relationships of kindergarten preschool experiences. Prerequisite: Twelve hours in education and related areas. *Credits: 3*

271 Kindergarten Educ W/Lab Designed to acquaint the prospective kindergarten teacher with educational research conducted by Piaget, Bruner, Montessori, and others with experiences provided for working with children of kindergarten age. Prerequisite: Twelve hours in education and related areas. *Credits: 3*

295 Lab Experience in Education Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences. *Credits: 1-12*

Engineering ENGR

001 First-Year Design Experience Introduction to the engineering profession and design. Hands-on experiences that emphasize interdisciplinary teamwork, technical communications, and project design methodologies. *Credits: 2*

002 Graphical Communication Principles of computer-aided drafting/design; production of engineering drawings including: orthographic, auxiliary, section, pictorials and dimensioning, graphics and charts; applications in specific engineering disciplines. *Credits: 2*

010 D1:Dvrsty Issues:Math/Sci/Egr Diversity in CEMS: under-representation, environmental justice, gender/race participation, ethical considerations, urban planning, equal opportunity, Title IX. Landscape of race/gender in STEM. *Credits: 3*

020 Programming for Engineers Introduction to computer programming principles using MATLAB, with applications chosen from civil, electrical, environmental, and mechanical engineering. Credit not given for both CS 016 and CS/ENGR 020. Co-requisite: MATH 021. Cross-listed with CS 020. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 0-18*

195 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

295 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Engineering Management EMGT

175 The Management of Technology (Same as Business Administration 175.) Role of technology in industry, the nature of technological change, strategies, management, research and development, forecasting, product service/project selection, development, management, transition to market, and evaluation. Prerequisite: Senior standing in engineering or business administration. *Credits: 3*

176 Plant Planning and Design Analysis of facilities and services requirements, material handling, office and clean room layout, mathematical and computer techniques, safety and plant conservation. Prerequisites: Junior standing in engineering or business administration, or instructor's permission. *Credits: 4*

185 Senior Project Individual management engineering study designed to the particular interest of the student, utilizing and synthesizing the student's engineering management education experience. Prerequisite: Senior standing in EMBA. *Credits: 3*

195 Special Topics Specialized or experimental course offered as resources permit. *Credits: 1-6*

English ENGS

001 Written Expression A foundational composition course featuring sequenced writing assignments. Students learn to write and revise for different rhetorical situations while increasing their mastery of academic conventions. *Credits: 3*

004 Engl for International Stdnts Review of English grammar, practice in expository writing, vocabulary building, and improvement of speaking and listening skills. Prerequisite: Instructor's permission. *Credits: 3*

005 First Year Seminar Students to write in a variety of forms, styles, and genres in response to selected texts of literary or cultural significance. Themes, texts, and writing assignments to vary by section. Prerequisites: First-year standing in College of Arts and Sciences. *Credits: 3*

006 First Year Seminar Students to write in a variety of forms, styles, and genres in response to selected texts of literary or cultural significance. Themes, texts, and writing assignments to vary by section. Prerequisites: First-year standing in College of Arts and Sciences. *Credits: 3*

011 Types of Literature Introduction to fiction, poetry, and drama - past and present, British and American. *Credits: 3*

012 Introduction to Drama Study of the play as a work of literature and as a dramatic experience. Continental, British, and American drama from all ages. *Credits: 3*

013 Introduction to Fiction Exploration of a variety of fictional forms, including the short story, the novella, and the novel. *Credits: 3*

014 Introduction to Poetry Examination of the forms of poetry, past and present, British and American. Provides a wide variety of perspectives on the poem. *Credits: 3*

021 British Literature Survey of major figures in British literature such as Chaucer, Milton, Swift, Wordsworth, and Woolf. *Credits: 3*

022 British Literature Survey of major figures in British literature such as Chaucer, Milton, Swift, Wordsworth, and Woolf. *Credits: 3*

023 American Literature Survey of American literary history from the beginnings to the Civil War. *Credits: 3*

024 American Literature Survey of American literary history following the Civil War. *Credits: 3*

025 World Literature Survey in comparative literature dealing with the great writers of the world, to include Virgil, Dante, Goethe, and similar major figures. Students may not take for credit both English 25 and 27; or both English 26 and 28. *Credits: 3*

026 World Literature Survey in comparative literature dealing with the great writers of the world, to include Virgil, Dante, Goethe, and similar major figures. Students may not take for credit both English 25 and 27; or both English 26 and 28. *Credits: 3*

027 Lit of Western Trad:Int Humn Study of primary authors in the Western cultural tradition from Homer to the modern period with particular reference to history, religion, and philosophy. Students may not take for credit both English 025 and 027; or both English 026 and 028. Prerequisites: Concurrent enrollment in Religion 027, 028. *Credits: 3*

028 Lit of Western Trad:Int Humn Study of primary authors in the Western cultural tradition from Homer to the modern period with particular reference to history, religion, and philosophy. Students may not take for credit both English 25 and 27; or both English 26 and 28. Prerequisites: Concurrent enrollment in Religion 27, 28; History 13, 14; Integrated Humanities Program. *Credits: 3*

030 Topics in Amer Lit & Culture Subjects vary by semester. Representative topic: Reading the American Wilderness. May be repeated for credit with different content. *Credits: 3*

031 D1:Topics in Afr-Am Lit & Cult Subjects vary by semester. Representative topic: African- American Women Writers in the 20th/21st Century. May be repeated for credit with different content. *Credits: 3*

040 Topics in Science Fctn&Fantasy Topics in Science Fiction and Fantasy Literature. Subjects vary by semester. Representative topics: Tolkien's Middle Earth; The Hobbit; Survey of Science Fiction and Fantasy. May be repeated for credit with different content. *Credits: 1-3*

041 Crime Story A study of the use of "crime situations" as the central plot device in various types of narrative: novels, short stories, films, and television series. *Credits: 3*

042 Women in Literature Survey of women's literary tradition in English. Focuses on the ways women have written, read, written about, and been represented in 19th and 20th century literature. *Credits: 3*

050 Expository Writing Writing and analysis of expository (nonfiction) essays. Prerequisite: Sophomore standing. *Credits: 3*

053 Intro to Creative Writing Introductory course on techniques of writing poetry, short prose fiction, and creative nonfiction. Classes organized around discussion of student work; weekly writing assignments. Prerequisite: Sophomore standing. *Credits: 3*

057 D1:Race&Ethnic Lit Stds:Intro Introductory courses addressing the representation and construction of "race" in literature and/or the contributions of ethnically diverse writers to the American culture. Focus and readings vary by instructor. May be repeated for credit with different content. *Credits: 3*

061 Intro to African Literature Readings in African literature, concentrating on major human and political themes and literary techniques. *Credits: 3*

065 Survey of Folklore Basic concepts of folklore; development of the discipline; defining the major genres; role of folklore in modern society. *Credits: 3*

085 Text&Context:1st Yr Prosp Mjrs Introduction to the critical work of close reading and close writing. Readings vary by section. Recommended for first-year students planning to major in English. *Credits: 3*

086 Critical Approaches to Lit Several theoretical approaches to literary study applied to specific texts. No prerequisite, but recommended only for students with sophomore standing or first-year students with Advanced Placement. Required of all English majors. *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. May be repeated for credit with different content. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. May be repeated for credit with different content. *Credits: 1-18*

101 Structure of English Language Using descriptive linguistic theory, this course examines basics of English grammar with emphasis on hands-on examples. Also includes exploration of politicization of English grammar. Prerequisites: 3 hours ENGS, CSD or LING. Cross-listed with CSD (formerly CMSI) 164 and LING 164. *Credits: 3*

102 Hist of English Language Principles of historic linguistics and their application to English. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

103 American English Dialects Class will examine dialects of American English and the methodology of dialectology with focus on Vermont speech and the social meaning of dialect variation. Prerequisites: 3 hrs ENGS, CSD or LING. Cross-listed with CSD (formerly CMSI) 162 and LING 162. *Credits: 3*

104 Tutoring Writing This course, for students who will be tutoring at the Writing Center, explores ways of responding to writers one-on-one. Permission required. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

105 Exploring Writing Centers A continuation of English 104, this course explores theoretical frameworks for writing centers and how they can shape ways tutors respond to writers. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

107 Topics in Comp & Rhetoric Topics vary by semester and by professor. Representative topics: U.S. Literacy Politics; Feminist Rhetorics. May repeat for credit with different content. Pre/co-requisites : 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

109 Topics in Critical Theory Topics vary by semester and by professor. Representative topics: Psychoanalytic Criticism; Narrative Theory. May repeat for credit with different content. Pre/co-requisites : 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

110 Gender & Sex in Lit Studies Courses address writing by women and LGBT authors and/or literary representations of gender and society. May be repeated for credit with different content. Pre/co-requisites: 3 hrs English numbered 005-096; soph standing. *Credits: 3*

111 D1:Race & Ethnic in Lit Studies Topics address "race" and/or the contributions of ethnically diverse writers to American culture. Focus and readings vary. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

112 Topics in Cultural Studies Topics focus on theoretical problems and practices of the interdisciplinary study of culture. Representative topic: Comparative identities. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

113 Topics in Genre Topics focus on the theoretical problems of various kinds of writing. Representative topics: Narrative; Gothic; Sentimentality. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

114 Topics in Writing Topics vary by semester and professor. Representative topics: Writing Literary Criticism; Reading and Writing Autobiography; Literary Journalism. May repeat for credit with different content. Prerequisites: ENGS 050 or 053; sophomore standing. *Credits: 3*

117 Advanced Writing Non-Fiction In this workshop for experienced writers, students pursue projects of their own design, sometimes in accordance with a particular course theme such as "nature writing". Prerequisites: ENGS 050 or 053; sophomore standing. *Credits: 3*

118 Advanced Writing: Fiction This upper-level course for fiction writers of proven ability employs a seminar/workshop format, with most classroom time devoted to manuscript discussion. Permission required. Prerequisites: Sophomore standing and ENGS 053 *Credits: 3*

119 Advanced Writing: Poetry This upper-level course for poets of proven ability employs a seminar/workshop format, with most classroom time devoted to manuscript discussion. Permission required. Prerequisites: Sophomore standing and ENGS 053. *Credits: 3*

120 Writer's Workshop This workshop for serious writers of all levels of ability emphasizes autobiographical aspects of the writing of fiction, poetry, and personal essays. Prerequisites: ENGS 053; sophomore standing. *Credits: 3*

131 Topics in Bible & Lit Examines literary, historical approaches to Bible and its influences. Topics include: Bible as Literature; Bible and Literary Imagination. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

133 Chaucer Study of the principle works of Chaucer, emphasizing Chaucer's literary scope, talents, and position in medieval literature. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

134 Topics in Medieval Literature Topics examining Medieval literature in various intellectual, historical, aesthetic contexts. Topics: Medieval Drama; Daughters of Mary/Daughters of Eve. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

135 Shakespeare Survey of Shakespeare's plays covering a range of genres (comedy, history, tragedy, romance, problem plays) drawn from the entire arc of Shakespeare's career. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

136 Topics in Shakespeare Examines Shakespeare's works in intellectual, historical, aesthetic contexts. Topics: Shakespeare and Philosophy; Engendering Shakespeare; Shakespeare and Renais-

sance Drama. May be repeated for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

137 Topics in Ren Lit & Culture Examines poetry, drama, and/or prose of English Renaissance in context of various movements of the Tudor-Stuart period. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

138 Milton Milton's major works in various intellectual, historical, and aesthetic contexts, with special attention to "Paradise Lost." Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

140 Survey Brit Lit to 1700 Works by major authors (including Chaucer, Shakespeare, and Milton) from the Anglo-Saxon period to early Enlightenment. Recommended for students considering graduate-level work in English. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

141 Restoration & 18thC Literature Significant writers and dramatists from Behn and Dryden to Sheridan and Johnson. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

142 18th Century British Novel Fiction from its origin through the 18th century. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

143 Topics:18C,19C Brit Lit & Cul Topics examining issues in 18th- and 19th-century British literature and culture. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

144 Topics in Romanticism Late 18th- and early 19th-century English literature, for example, works by Wordsworth, the Shelleys, Keats. Occasional special topics. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

145 Topics in Victorian Literature Primarily poetry, drama, non-fiction prose from 1832 to 1900, for example, Tennyson, the Brownings, the Rossettis, Wilde. Occasional special topics. May repeat with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

146 19th Century British Novel British fiction of the 19th century. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

150 Topics: Early American Studies Topics in literature and cultures of Americas from European conquest to 1800. Topics: Imagining America; Dissent in America. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

151 19th Century American Poetry American verse of various genres and modes by such authors as Whitman, Poe, Dickinson, Longfellow, and Sigourney. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

152 19th Century American Fiction Short stories, novellas, and novels by such writers as Cooper, Sedgwick, Poe, Hawthorne, Wilson, Melville, Stowe, James, Harper, Chesnutt, Chopin, and Jewett. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

153 19th Century American Prose American non-fictional genres including essays, histories, slave narratives, speeches, and sermons. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

156 Topics:19C American Studies Interdisciplinary topics examining issues in 19th-century American culture. Representative topics include: Dissent in America, American Literary Cultures. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

158 Topics:19C Women's Writing Various genres by 19th-century women. Topics: The Petticoat Empire; Women's Regionalist Fiction; 19th-century British and American Women's Writing. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. Cross-listings: WGST 122. *Credits: 3*

159 D1:Afr Am Lit to Harlem Ren A survey of African American writings from the Colonial period to WW1. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

160 D1:Afr Am Lit & Cul Before 1900 Topics in literature and culture of African Americans before 1900. Topics: Slavery and American Literature; Slavery's Shadows. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

161 20th-Century British Novel British novelists since 1900, including Forster, Conrad, Lawrence, Woolf, and other more recent writers. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

162 20th-Century Irish Literature Irish literature from 1890 to the present, emphasizing Joyce and Yeats. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

163 Topics:20C American Studies Interdisciplinary topics examining issues in 20th-century American culture. Representative topics include: Poe's Children; The Literary Vampire; Jazz. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

164 Modern Poetry Poetry from beginning of modern period to end of WWII, emphasizing Yeats, Eliot, Stevens, Auden, Frost, Williams. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

165 Modern Drama 20-century drama by writers such as Ibsen, Shaw, Beckett, Brecht, Miller, Pinter, and Churchill. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

166 Modern American Novel The tradition of the American novel through the mid-twentieth century. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

167 Topics in Modernism Topics vary by semester and by professor. Representative topics: Joyce. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

168 Topics in Post-Modernism Interdisciplinary topics examining literature and cultures of the Post-Modern condition. Representative topics include: Magical Realism, Realism and Hyper-realism. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

169 Queer Topics in 20C Lit & Cul Examines representations of non-normative sexuality and gender through theory, film, literature, and/or cultural studies. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

171 Contemporary American Poetry American poetry since 1950 by writers such as Lowell, Bishop, Levine, Olds, Hayden, Harper. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

172 Contemporary American Novel The American novel from the mid-twentieth century. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

173 Contemporary Short Fiction Among considerations of this discussion-oriented class will be strengths and weaknesses of short stories and story collections published from 1990 to present.

Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

176 D1:Afr Am Lit since Harlem Ren Survey of the various literary traditions of African Americans during the 20th century. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

177 D1:Topics 20C Afr Am Lit & Cul Interdisciplinary topics in African American literature and culture. Representative topics include: The Harlem Renaissance and Negritude; Publishing Blackness. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

178 Literature of Vermont An exploration of Vermont writing from the narratives of the Allen brothers to poetry and fiction of today. Occasional special topics. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. (See Vermont Studies 160) *Credits: 3*

179 D2:Topics in African Lit Examines trends in contemporary African literature and relationship to other traditions. Topics: African Drama; African Fiction; African Poetry. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

180 Topics in Canadian Literature Topics vary by semester and by professor. Representative topics: The Development of a National Literature. May repeat for credit with different content. Pre/co-requisites : 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

181 Topics in Caribbean Literature Topics vary by semester. Topics: Introduction to Anglophone Caribbean Literature; Contemporary Caribbean Women Writers; History of Caribbean Novel. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

182 D2:Colonial/Post-Col World Lit Topics vary by semester. Representative topics: Contemporary Writing from the Non-Western World; Literature and Imperialism. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

188 Topics in 20C Comparative Lit Compares literary works from different countries, cultures, languages. Topics: 20th-Century Poetry of Witness; Magical Realism in Post-Colonial Literature. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

189 Topics in 20C Women's Writing Works in various genres by 20-century women. Representative topics include: African Women's Writing; Gender and Modernism. May repeat for credit with different content. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. *Credits: 3*

190 Buckham Honors Seminar Each seminar includes participation of a distinguished visiting scholar or writer, such as Stephen Greenblatt, Barbara Johnson, Houston Baker, Sacven Bercovitch, William Kennedy, Stephen King. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. May be repeated for credit with different content. *Credits: 3*

191 Internship Pre-co-requisites: Departmental permission, junior or senior standing. *Credits: 3-6*

192 Internship Pre/co-requisites: Departmental permission, junior or senior standing. *Credits: 3-6*

193 Travel Study Courses that involve extended travel-time away from UVM campus and that link course content to travel destinations. Representative topic: Literary London. Prerequisites: 3 hours in English courses numbered 5-96 and sophomore standing, or instructor permission. *Credits: 1-6*

195 Intermediate Special Topics See schedule of courses for specific titles. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. May be repeated for credit with different content. *Credits: 1-18*

196 Intermediate Special Topics See schedule of topics for specific titles. Pre/co-requisites: 3 hours in English courses numbered 5-96 and sophomore standing. May be repeated for credit with different content. *Credits: 1-18*

197 Readings and Research Departmental permission required. Not to exceed three hours per semester. See schedule of courses for specific titles. Pre/co-requisites: Departmental permission. *Credits: 1-6*

198 Readings and Research Departmental permission required. Not to exceed three hours per semester. See schedule of courses for specific titles. Pre/co-requisites: Departmental permission. *Credits: 1-6*

201 Sem Engl Lang or Critical Thry Recent topics: "Origins and Development of the English Language;" "Re-disciplining the History of Literature and the Literature of History." Prerequisites: 086, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

202 Sem Engl Lang or Critical Thry Recent topics: "Origins and Development of the English Language;" "Re-disciplining the History of Literature and the Literature of History;" "Women's Texts." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

211 Sem in Composition & Rhetoric Recent topics: "Writing the New Yorker;" "Writing Vermont Life;" "Editing and Publishing." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

212 Sem in Composition & Rhetoric Recent topics: "Writing the New Yorker;" "Writing Vermont Life;" "Editing and Publishing." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

221 Seminar in Literature to 1800 Recent topics: "Women in 17th Century English Poetry;" "Dante and the Experience of Reading;" "Orality and Textuality in Middle English Literature." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

222 Seminar in Literature to 1800 Recent topics: "Women in 17th Century English Poetry;" "Dante and the Experience of Reading;" "Orality and Textuality in Middle English Literature." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

241 Seminar in 19th Century Lit Recent topics: "Dickens;" "Reader, I Married Him: The Brontes;" "Love, Marriage, and Literary Criticism: Jane Austen;" "Reading Serially: The Victorian Novel;" "Invisible Man and 19th Century American Literature," "The Gothic." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

242 Seminar in 19th Century Lit Recent topics: "Dickens;" "Reader, I Married Him: The Brontes;" "Love, Marriage, and Literary Criticism: Jane Austen;" "Reading Serially: The Victorian Novel;" "Invisible Man and 19th Century American Literature," "The Gothic." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

251 Seminar in 20th Century Lit Recent topics: "The Beat Generation;" "Literature and Society in Modern Ireland;" "Dostoevsky's Influence on 20th Century American Literature." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

252 Seminar in 20th Century Lit Recent topics: "The Beat Generation;" "Literature and Society in Modern Ireland;" "Dostoevsky's Influence on 20th Century American Literature." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

281 Sem Lit Themes,Genres,Folklore Recent topics: "Spiritual Journeys;" "Murder, He Said: Detective Fiction;" "Chekhov to Cheever: The Short Story." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

282 Sem Lit Themes,Genres,Folklore Recent topics: "Spiritual Journeys;" "Murder, He Said: Detective Fiction;" "Chekhov to Cheever: The Short Story." Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

290 Sem Prospective Tchrs of Engl Approaches to teaching composition, literature, and the English language in secondary school. Prerequisites: 086, 6 hours at the intermediate level, and instructor permission. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisites: 86, 6 hours at the intermediate level, and instructor permission. *Credits: 1-18*

297 Readings and Research Departmental permission required. Not to exceed three hours per semester. *Credits: 1-3*

298 Readings and Research Departmental permission required. Not to exceed three hours per semester. *Credits: 1-3*

Engr & Math Sciences CEMS

095 Introductory Special Topics See Schedule of Topics for specific titles. *Credits: 1-18*

Environmental Sciences ENSC

001 Intro Environmental Sciences Emphasizes the impacts of human activity on the environment. Attention to resources at risk and pollutant fate and effects on ecosystems. *Credits: 3*

130 Global Environmental Assessmnt Assessment of human impacts on the global environment. Hands-on application of satellite remote sensing and geographic information systems to address key environmental issues. Prerequisites: Biology 1 or Botany 4; Chemistry 23 (or equivalent); Math. 19. *Credits: 3*

160 Pollutant Mvmt/Air,Land&Water Physical, chemical, and biological aspects of pollutant behavior from source to ultimate fate. Laboratory methodologies for measuring pollutants and predicting their transport, behavior, and fate. Prerequisites: 1; BioCore 11, 12; Chemistry 31, 32; Math 19, 20. *Credits: 4*

185 Special Topics See Schedule of Courses for specific titles. Variable credit. *Credits: 1-12*

195 Internship Professionally-oriented field experience under joint supervision of faculty and business or community representative. Prerequisites: Proposal and permission of ENSC Director; junior standing; good academic standing. Maximum of six hours; three can be applied to elected concentration with Director's permission. *Credits: 1-6*

196 Independent Research Special study and research activity under the directory of a faculty member. Prerequisite: Proposal and permission of ENSC Director; junior standing; good academic standing. Up to six hours; three can be applied to elected concentration with Director's permission. *Credits: 1-6*

201 Recovery&Restor Altered Ecosys Role of stress and disturbance and the natural process of recovery in aquatic and terrestrial ecosystems. Human efforts to modify, restore, and remediate altered ecosystems. Prerequisites: Natural Resources 103 or an intermediate-level ecology course; or instructor's permission. Environmental Sciences 160 strongly recommended. *Credits: 3*

202 Ecological Risk Assessment Approaches used to identify, measure, and manage ecological risk. Problem formulation, characterization, uncertainty analysis, and risk management. Case studies. Prerequisites: 201; Natural Resources 140 or Statistics 141; senior standing or instructor's permission. *Credits: 3*

222 Pollution Ecology Impacts of pollutants on the structure and function of ecosystems. Examination of how air, land, and water influence fate and effects of pollutants. Prerequisites: BioCore 11; Chemistry 23, Natural Resources 103 or equivalent ecology course. *Credits: 3*

285 Adv Special Topics See Schedule of Courses for specific titles. Prerequisites: Senior standing or instructor's permission. Variable credit. *Credits: 1-12*

299 Environmental Sciences Honors Honors project dealing with environmental sciences. Prerequisites: By application only; see program chair. (Not approved for graduate credit.) *Credits: 3-6*

Environmental Studies ENVS

001 Intro to Environmental Studies Survey of environmental studies examining ecological, socioeconomic, aesthetic, and technological influences determining quality of life on earth. Prerequisite: First-year or sophomore standing, or instructor's permission. *Credits: 4*

002 Internat'l Environmental Stds A multidisciplinary analysis of the interaction of global and local variables in understanding and solving pervasive environmental problems. Prerequisite: First-year or sophomore standing. *Credits: 4*

095 Special Topics Introductory courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural areas management. *Credits: 1-18*

096 Special Topics Introductory courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural areas management. *Credits: 1-18*

137 Landscape Design Fundamentals Studio course to learn techniques of landscape design and analysis, develop graphic communication skills for representing the landscape, and apply sustainable design principles to a site. Pre/co-requisites: Junior standing; at least one course in drawing, design, or mapping, or consent of instructor. Cross-listings: CDAE 137, PSS 137, NR 137. *Credits: 4*

141 Intro to Ecological Economics Introduction to the study of economics as dependent on social and environmental systems and to transdisciplinary problem-solving using ecological economics. Prerequisite: ENVS 001 or NR 002. Cross-listed with NR 141. *Credits: 3*

150 Environmental Field Studies Travel study courses examining environmental issues from a local ecological, political, and socioeconomic perspective using experiential learning methods in diverse sites. Prerequisites: ENVS 001 or 002 or NR 001 or 002. *Credits: 3*

151 Intermed Environmental Studies Individual investigation of interdisciplinary areas of environmental studies with emphasis on academic and career choices and preparation for senior thesis/project. Prerequisites: Major in Environmental Studies; 1, 2; permission. *Credits: 3*

153 D2:Ethnobotany Human interactions with plants used for food, medicine, material culture, ritual and symbol, examined from both cultural and biological perspectives, using global and local examples. Prerequisites: ENVS 001 or 002 or NR 001 or 002. *Credits: 3*

154 D2:Trad Ecological Knowledge Examines how specific peoples of the world live in their environments and how their knowledge, practices and beliefs are created, passed on, or lost. Prerequisites: ENVS 001 or 002 or NR 001 or 002. *Credits: 3*

156 Permaculture (Cross-listed with Plant and Soil Science 156.) Design of agriculturally productive environments that have the diversity, stability, and resilience of the natural biosphere to harmoniously integrate landscape and people. Prerequisites: Three hours basic biological or ecological science, or permission. *Credits: 3*

166 Environmental Hst of N America Examination of human-environmental interaction on the North American continent over the past five hundred years. Pre/co-requisites: 3 hours history. Cross-listing: HST 166 *Credits: 3*

167 D2:Global Environmental Hst The role and influence of nature on global human history and how people and cultures have influenced the natural world around them. Pre/co-requisites: ENVS 002 or NR 002. May not be taken concurrently with or following receipt of credit for HST 067 since course requirements partially overlap. *Credits: 3*

170 Environmental Art Practice Explorations in environmental perception and aesthetics, using field and studio methods in the creative process and drawing on interdisciplinary approaches to the environmental humanities. Repeatable up to 4 times with different content. Prerequisites: ENVS 001 or 002 or NR 002; sophomore standing. *Credits: 3*

173 Landscape Natural History This field-based course examines patterns and processes on local landscapes from an interdisciplinary perspective, with an emphasis on geology, soil science, plant ecology, and ecosystem geography. Prerequisites: ENVS 1, sophomore standing. *Credits: 3*

174 Nat Areas Conservation&Steward Examines land protection and stewardship efforts of conservation organizations and public agencies. Builds on principles of conservation biology to understand issues in conserving and managing natural areas. Prerequisites: ENVS 1 or NR 1 or permission. *Credits: 3*

177 Intro to Landscape Restoration Introduction to the history, philosophical foundations, and approaches to restoration of natural landscapes damaged by human activity and neglect. Case studies of selected local sites. Prerequisites: 1, Natural Resources 1, or permission. *Credits: 3*

178 Environmental Ethics Current approaches and problems in environmental ethics drawing on philosophy and case studies in animal rights, land ethics, deep ecology, wilderness protection, and human rights. Prerequisites: One environmental course, junior standing. *Credits: 0-3*

179 D2:Ecofeminism (Cross-listed with Women's Studies 179.) Investigation of the parallel dominations of women and nature, through analysis and reflection on ecofeminist theory, activism, and spirituality. Prerequisites: 1, 2 or Women's Studies 73, sophomore standing. *Credits: 3*

180 Radical Environmentalism Survey of radical environmental philosophy and activism from a liberation ethics perspective. Includes deep ecology, ecofeminism, environmental justice, and ecological resistance movements around the world. Prerequisites: 1, 2, sophomore standing. *Credits: 3*

182 D2:Religion and Ecology Exploration of the greening of major world religious traditions in both practice and philosophy. Includes institutional, activist, and lifestyle initiatives in ecological spirituality. Prerequisites: ENVS 1 or 2; or NR 2, REL 20 or 21 preferred, sophomore standing. *Credits: 3*

183 Env Impacts of Consumerism Ecological footprint assessment for human use of energy, housing, water, waster, food. Review of regulatory strategies, economic options, and consumer awareness to reduce environmental impact. Prerequisite: ENVS 001 or ENSC 001 or NR 002. *Credits: 3*

184 SustTransportation Planning Environmental and social impacts of auto-dependence and future-oriented solutions to reduce auto-dependence and impacts and create sustainable transportation solutions. Prerequisite: one of the following: ENVS 001, ENVS 002, NR 001, NR 002. *Credits: 3*

187 Campus Sustainability Sustainability methods, policies, and frameworks applied in the campus setting using UVM as a case study and field site for the study of campus greening. Prerequisite: One of the following: ENVS 001, ENVS 002, NR 001, NR 002. *Credits: 3*

191 Environmental Practicum Individual readings and research, internship, or field-based learning experience under direction of a faculty member or environmental practitioner. Credit arranged. Prerequisite: Permission of course coordinator. *Credits: 0.5-9*

195 Special Topics Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisites: One environmental course, sophomore standing. *Credits: 1-18*

196 Special Topics Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisites: One environmental course, sophomore standing. *Credits: 1-18*

197 Student Designed Course Student-taught courses beyond the scope of existing formal courses in environmental studies. Developed according to Program guidelines, with sponsorship by interested faculty. Prerequisites: ENV5 001, 002, permission. *Credits: 1-3*

201 Research Methods Planning, design, and methods for the senior capstone thesis or project. Includes literature review and proposal writing. Prerequisites: ENV5 151, junior standing. *Credits: 3*

202 Senior Capstone Senior capstone thesis, project, creative arts project, or internship under faculty direction. Prerequisite: ENV5 201 or appropriate 200-level course by permission. *Credits: 1-9*

203 Honors Thesis UG only. *Credits: 1-9*

204 Seminar Environmental Studies Review and discussion of current environmental research and literature. Prerequisites: 1, 2, junior or senior standing. *Credits: 1-3*

212 Advanced Agroecology An in-depth overview of research and application in the field of agroecology, including 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. Cross-listed with PSS 212. *Credits: 0-4*

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 or one course in ecology plus one course in design or drawing. Cross-listed with CDAE 238, PSS 238, NR 238. *Credits: 4*

250 Adv Environmental Field Stds Advanced travel study courses examining environmental issues from local ecological, political, and socioeconomic perspectives using experiential learning methods in diverse sites. Prerequisites: one 100-level ENV5 or NR course, or permission; junior standing or higher. *Credits: 3*

267 Environmental History Seminar Advanced reading and research on the role and influence of nature on human history and how people and cultures have influenced the natural world. Prerequisite: ENV5 151; 6 credits in HST. Cross-listed with HST 267. *Credits: 3*

284 Teaching Assistantship Students gain practical teaching experience through assisting with instruction, evaluation, and reflection. Tasks may include: leading discussion sessions, grading, and developing course materials. Prerequisites: Senior standing or permission of instructor, concurrent teaching assistant in ENV5 course. Variable credit. May be repeated. *Credits: 1-2*

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: 1, 2; senior or graduate standing. *Credits: 1-12*

292 Env Conflict Resolution Explores the causes of conflicts involving environmental concerns and the role of environment as a

factor in conflict development and mediation. Pre/co-requisites: 100-level course in ENV5 or NR; junior, senior, or graduate standing. *Credits: 3*

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*

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*

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. Prerequisites: One environmental course at 100 level, junior standing. *Credits: 1-18*

296 Advanced Special Topics Advanced courses of current areas of interest which may vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisites: One environmental course at 100 level, junior standing. *Credits: 1-18*

Exercise & Movement Science EXMS

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

240 Motor Skill Learning & Control Examines theoretical perspectives and current principles associated with the control and learning of movement skills. Practical application of concepts to instructional and clinical settings emphasized. Pre/co-requisites: EMS or PE majors with Junior standing; ANPS 019 and 020. *Credits: 3*

242 Exercise and Sport Psychology Emphasis on personality and behavioral dynamics of sport, psychological changes associated with exercise, assessment, performance enhancement, motivation, anxiety, group processes, and exercise adoption and maintenance. Pre/co-requisites: PSYC 001. *Credits: 3*

245 Evaluation & Prescription This course will deliver in-depth applied and clinical functional measurement and evaluation techniques with subsequent exercise prescription for a variety of populations and conditions. Pre/co-requisites: EXMS 250, EXMS 254; senior EMS majors. *Credits: 3*

254 Neural Control of Movement An exploration of the neural systems involved in movement, how their functions relate to motor control theories, and changes associated with exercise or physical therapy. Prerequisites: ANPS 019/020, EXMS 240; EMS majors only or permission. *Credits: 3*

260 Adapted Physical Activity Examines current issues surrounding physical activity programming for individuals with disabilities. Emphasizes instructional strategies and modifications for effectively including individuals with diverse abilities into physical activity. Pre/co-requisites: EMS or PE majors with Junior standing. *Credits: 3*

262 Human Perf & Ergogenic Aids The purpose of this course is to evaluate the role and effectiveness of performance enhancing substances in sports: including supplements, diets, banned substances, prescription and social drugs, and others. Pre/co-requisites: ANPS 19, 20; NFS 163 *Credits: 3*

263 Fitness for Spec Populations Advanced course in exercise testing and prescription for a variety of unique populations. Techniques and modifications that support fitness programming for these groups will be reviewed. Pre/co-requisites: RMS 250, EXMS 260; senior EMS majors. *Credits: 3*

264 Health Fitness Specialist Designed to prepare students for the ACSM Health Fitness Specialist exam and includes a high level review of exercise physiology, risk stratification, and fitness assessments. Pre/co-requisites: RMS 250; EXMS 245; Senior standing. *Credits: 3*

272 Senior Internship Supervised fieldwork designed to provide students with in-depth knowledge and competency in the exercise testing and programming within community-based, school or rehabilitative settings. Pre/co-requisites: Senior standing in EXMS. *Credits: 6*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

Family&Consumer Sciences EDFC

055 Special Topics I *Credits: 2-6*

123 Methods In Nutrition Education Planning and presenting of appropriate methods, media, and materials for audiences in community, school, and institutional settings emphasizing interpersonal communication and group process skills. *Credits: 3*

197 Readings and Research *Credits: 1-4*

200 Contemporary Issues *Credits: 1-6*

220 Fam&Consumer Sci/Contemp Schl Required for licensure. Exploration of education options in a variety of family and Consumer Sciences related areas and in different types of schools and programs. *Credits: 3*

221 Mgmt School Youth Organization The role of youth organization advisor, particularly FCCLA. Emphasis on service learning and use of advisory councils. Includes observation and participation in school related activities. *Credits: 2*

222 Curriculum Dev Human Sciences Basic principles of curriculum development applied to human sciences education. Unique characteristics and contributions of human science education as related to educational, economic, and sociological trends. Spring (odd number years). *Credits: 3*

224 Evaluation In Human Sciences Test, questionnaire, interview schedule construction, and other non-testing means of evaluation. Usability, objectivity, validity, reliability, and discrimination of evaluation instruments. Selected sociometric techniques and evaluation in affective domain. Spring. *Credits: 3*

225 Teaching Pract: Human Sciences Teaching in middle or secondary schools under guidance of cooperating teachers and college supervisor. Credits variable up to 15 hours per semester. *Credits: 1-15*

295 Lab Experience in Education *Credits: 1-15*

296 Special Topics See Schedule of Courses for specific titles. *Credits: 1-15*

Film & Television Studies FTS

007 Dev Motion Pct I:Origin-1930 Introduction to basic film history, theory, and analytical skills. An historical overview of international cinema from its origins until 1930. *Credits: 3*

008 Dev Motion Pct II:1930-1960 Introduction to basic film history, theory, and analytical skills. An historical overview of international cinema from the onset of sound to 1960. *Credits: 3*

009 History of Television Introduction to basic television history, theory and analysis. An historical overview of television from its invention to the present. *Credits: 3*

095 Intro Spec Topics in Film/TV See Schedule of Courses for specific titles. *Credits: 1-18*

096 Intro Spec Topics in Film/TV See Schedule of Courses for specific titles. *Credits: 1-18*

121 Film/Television Theory Intensive study of developments in film and/or television theory, such as realism, formalism, psychoanalysis, critical race theory, and feminism. May be repeated for credit. Pre/co-requisites: FTS 7, 8, or 9. *Credits: 3*

122 Film/TV Genre and Auteur An investigation into the theoretical and historical circumstances surrounding the production of film and/or television genres, or the work of a particular auteur. May be repeated for credit. Pre/co-requisites: FTS 7, 8, or 9. *Credits: 3*

123 Global Studies in Film/TV Investigations of nation and identity in film and/or television approached in their specific cultural, historical, and theoretical terms. May be repeated for credit. Pre/co-requisites: FTS 7, 8, or 9. *Credits: 3*

131 Advanced Film/TV Theory Advanced study of an area of film and/or television theory, such as psychoanalysis, feminism, historicism, or formalism. Pre/co-requisites: FTS 121. *Credits: 3*

132 Stdies Adv Film/TV History Intensive focus on various historical movements within film and/or television. Pre/co-requisites: FTS 121. *Credits: 3*

133 Stds Docmntry/Avant-garde Cinm Explorations into various issues, ideas, and movements within documentary and avant-garde cinema. Pre/co-requisites: FTS 7,8, or 9. *Credits: 3*

134 Cntmpty Topics in Film/TV Explorations into various issues, ideas, and movements within contemporary film and/or television. Pre/co-requisites: FTS 7,8, or 9. *Credits: 3*

135 D1:Race & Ethnicity in Film/TV This course explores the historical/social/political forces that have shaped the representations of race and ethnicity in film and/or television. Prerequisite: FTS 007, 008, or 009. *Credits: 3*

141 Film & Video Production I An introduction to techniques and theories of video production. Pre/co-requisites: FTS 7,8, or 9, and FTS 121. *Credits: 3*

142 Film & Video Production II Intermediate topics in film and video production. Topics vary with instructor, and may include editing, lighting, use of sound, etc. Pre/co-requisites: FTS 141. *Credits: 3*

143 Film Theory and Practice An advanced study of media theory and video production. Pre/co-requisites: FTS 7,8, or 9, and FTS 121. *Credits: 3*

144 Screenwriting I An investigation of screenwriting practice and a screenwriting workshop. Pre/co-requisites: FTS 7,8, or 9, and FTS 121. *Credits: 3*

145 Screenwriting II Intermediate topics in screenwriting. Topics vary with instructor, and may include writing the thriller, the romantic comedy, etc. Pre/co-requisite: FTS 144. *Credits: 3*

191 Internship Work in some area of media production or study with the support of a faculty advisor. May be repeated for credit up to 6 credits, but only 3 credits can be applied to the FTS major. Pre/co-requisites: FTS 7,8, or 9. *Credits: 1-6*

192 Internship Work in some area of media production or study with the support of a faculty advisor. May be repeated for credit up to 6 credits, but only 3 credits can be applied to the FTS major. Pre/co-requisites: FTS 7,8, or 9. *Credits: 1-6*

195 Intermediate Special Topics See Schedule of Courses for specific Titles. Pre/co-requisites: FTS 7, 8, or 9. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific Titles. Pre/co-requisites: FTS 7, 8, or 9. *Credits: 1-18*

197 Readings & Research Independent study arranged in conjunction with a faculty member. The project must be approved by the FTS director. May be repeated for credit up to 6 credits. Pre/co-requisites: FTS 7,8, or 9. *Credits: 1-6*

198 Readings & Research Independent study arranged in conjunction with a faculty member. The project must be approved by the FTS director. May be repeated for credit up to 6 credits. Pre/co-requisites: FTS 7,8, or 9. *Credits: 1-6*

271 Seminar in Film/Television Advanced level investigations into the critical study of film and/or television. The topic will be the professor's choice. May be repeated for credit. Pre/co-requisites: FTS 7, 8, or 9, and 121. *Credits: 3*

272 Seminar in Film/Television Advanced level investigations into the critical study of film and/or television. The topic will be the professor's choice. May be repeated for credit. Pre/co-requisites: FTS 7, 8, or 9, and 121. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Foreign Language LANG

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Forestry FOR

001 Forest Conservation Introduction to the ecology and management of American forests: forest distribution, ownership, and ecological factors, species interactions, multi-resource management goals, and silvicultural practices. Cannot be taken by junior- or senior-level RSEN students. *Credits: 3*

013 Intro to Wildlife Tracking This outdoor course is designed to introduce the student to wildlife track identification and analysis at the UVM Jericho Research Forest. Cross-listed with WFB 013. *Credits: 1*

014 Wildlife Trail Analysis This outdoor course is designed to introduce the student to analysis and interpretation of wildlife trails at the UVM Jericho Research Forest. Cross-listed with WFB 014. *Credits: 1*

015 Wildlife Track Analysis This course introduces students to the details and clues left inside animal tracks including major body movements including speed, changes of direction and head position. Cross-listed with WFB 015. *Credits: 1*

021 Dendrology Classification, silvical characteristics, and identification features of native and introduced trees and shrubs. *Credits: 4*

073 Small Woodland Management Concepts of forest ecology, resource inventory, cultural practices, and multiple use management for small woodland areas. *Credits: 3*

081 Forestry Seminar Readings and discussions introducing current issues in forestry. Prerequisite: First or second year standing in Natural Resources. *Credits: 1*

121 Forest Ecology Laboratory Application of ecological principles in the analysis of forest communities. Prerequisite: Natural Resources 25, a course in tree identification, and previous or concurrent enrollment in Natural Resources 103. *Credits: 2*

122 Forest Ecosystem Analysis An integrated field course to investigate, through quantification and interpretation, the flora,

fauna, and abiotic components (soils, physiography, water, and microclimate) of a selected forest ecosystem. Prerequisites: FOR 121, NR 140. *Credits: 4*

146 Remote Sensing of Natural Res (Cross-listed with Natural Resources 146, Geography 185.) Identification, interpretation, measurement, and mapping of natural resources from aerial photographs and satellite imagery. Labs include air photo interpretation and digital image analysis. Prerequisites: Junior standing. Alternate years. *Credits: 3*

152 Forest Resources Values History, methods, and current issues associated with the nonmarket and market values of forest-based resources, including aesthetics, wildlife, recreation, water, and timber. Prerequisites: Economics 12 or CDAE 61. (Same as PRT 152). *Credits: 3*

182 Advanced Forestry Seminar In-depth examination of contemporary issues in forestry. Prerequisite: Junior or senior standing in Forestry. Credit arranged. *Credits: 1*

185 Undergrad Special Topics Readings, investigations, and lectures in selected forest resource subjects. Prerequisite: Instructor's permission. Credit arranged. *Credits: 0-6*

191 Forestry Work Practicum Supervised work experience in forest resource area. Prerequisite: Instructor's permission. Credit arranged. *Credits: 1-9*

222 Advanced Silviculture Scientific basis and contemporary status of silviculture practices. Prerequisites: 223, permission. Alternate years, 2000-01. *Credits: 3*

223 Multi-Resource Silviculture Theory and application of forest stand maintenance/manipulation for forest ecosystem sustainability. Topics: Silvics, regeneration, tree improvement, protection, stand structure/dynamics/tending, and multi-resource perspectives. Prerequisites: NR 25, 103, FOR 121 (FOR 122-Forestry majors). *Credits: 4*

225 Tree Structure & Function Basic anatomy and physiology of trees and other woody plants, emphasizing their unique structural and physiological adaptations to the environment. Prerequisites: Permission. *Credits: 3*

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*

235 Forest Ecosystem Health Forest health is a broadly defined, emerging discipline in forestry and ecology that examines the agents and processes affecting tree and forest decline. Pre/co-requisites: NR 103, BIOL 001 and 002 or PBIO 004, MATH 009, FOR 021, preferred FOR 121. *Credits: 4*

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. Prerequisites: FOR 122, NR 205, concurrent or prior enrollment in 223; or graduate standing. *Credits: 4*

275 Forest Watershed Management Concepts of forest hydrology and forest watershed management; emphasis on natural processes and impacts of quantity, quality, and seasonal distribution of flow from watersheds. Prerequisite: Natural Resources 102, junior standing or permission. *Credits: 3*

285 Advanced Special Topics Advanced special topics courses or seminars in forestry beyond the scope of existing formal courses. Prerequisites: Graduate or advanced undergraduate standing, instructor's permission. Credit as arranged. *Credits: 0-6*

291 Senior Research Work on research problem under direction of a staff member. Findings submitted in written form as prescribed by department. Prerequisites: Senior standing, permission. *Credits: 3*

292 Senior Research Work on research problem under direction of a staff member. Findings submitted in written form as prescribed by department. Prerequisites: Senior standing, permission. *Credits: 3*

299 Honors Honors project dealing with the biology and/or management of forest ecosystems. Prerequisite: By application only; see program chair. *Credits: 3-6*

Foundations EDFS

001 D1:Race and Racism in the U.S. Students will investigate the multi-faceted concepts of identity, racism, and the dynamics of power, privilege and oppression in the United States. *Credits: 3*

002 School and Society *Credits: 3*

055 Special Topics *Credits: 1-6*

197 Readings and Research *Credits: 1-4*

200 Contemporary Issues Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisites: Twelve hours in education and related areas. *Credits: 3*

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*

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 permission. *Credits: 3*

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 permission. *Credits: 3*

206 D2: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*

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*

209 Intro to Research Methods Seminars and research projects. Methods of historical, descriptive, experimental, quasi-experimental, field studies, and survey research. *Credits: 3*

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*

295 Lab Experience in Education Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences. *Credits: 1-6*

French FREN

001 Elementary I Fundamentals of French composition, comprehension, pronunciation, speaking, reading, writing. Structure of the basic French sentence. No prior knowledge expected. *Credits: 4*

002 Elementary II Continuation of 1. Prerequisite: 1 or equivalent. *Credits: 4*

009 Basic French Grammar Review Thorough review of French grammar in preparation for intermediate level. Considerable emphasis on written exercises. *Credits: 3*

051 Intermed Rdg & Conversation I Designed to help students move from a basic knowledge of French to the ability to read, speak, and understand French better. Some grammar review and short compositions. Prerequisite: 2 or 9 or equivalent. *Credits: 3*

052 Intermed Rdg & Conversation II Continues building on skills developed in 51. Less stress on grammar review. Reading selections and compositions are longer and more sophisticated than in 51. Prerequisite: 51 or equivalent. *Credits: 0-3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

101 Writing Workshop Improvement of functional skills: writing, listening, and speaking. Development of techniques to explain, elaborate, support opinions, convince, and persuade in both writing and speaking. Prerequisite: French 52 or equivalent. *Credits: 3*

107 Focus on Oral Expression Guided practice of oral-aural skills through vocabulary and pronunciation exercises, readings, and oral presentations. Writing exercises reinforce oral work. Prerequisite: French 52 or equivalent. *Credits: 3*

109 French Grammar in Review Grammar review and practice using a communicative approach to reinforce oral expression skills. Prerequisite: FREN 052. *Credits: 3*

113 English/French Translation Introduction to English-French translation strategies as basis for improving French writing skills. Prerequisite: FREN 052. *Credits: 3*

131 French Civilization Study of the fundamentals of French culture from historical and structural perspectives, including a review of sociopolitical institutions. Prerequisite: FREN 101. *Credits: 3*

132 Contemporary France Study of selected aspects of France today. Improvement of language skills; emphasis on reading, writing, and analysis of a variety of materials (literature, journalism, images). Pre/co-requisite: FREN 101. *Credits: 3*

141 French Lit in Context I A study of significant texts in the history of French literature from the Middle Ages through the 18th century, in their historical and cultural contexts. Pre/co-requisite: FREN 101. *Credits: 3*

142 French Lit in Context II A study of significant texts in the history of French literature from the French Revolution to the present, in their historical and cultural contexts. Pre/co-requisite: FREN 101. *Credits: 3*

195 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research Permission of chair required. *Credits: 1-6*

198 Readings & Research Permission of chair required. *Credits: 1-6*

201 Adv Composition & Conversation Course activities (discussions, exposes, written work, etc.) designed to lead to mastery of French oral and written expression. Prerequisite: 101. *Credits: 3*

205 Topics in Adv Lang Study Varied topics devoted to a special area such as translation, creative writing, French for the professions (medicine, business, journalism, law), etc. Pre-requisites: 101. *Credits: 3*

209 Advanced Grammar Comparative grammatical study centered on the specific problems encountered by Anglophones in written and spoken French. Prerequisite: 101. *Credits: 3*

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: 141 or 142. *Credits: 3*

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: 141 or 142. *Credits: 3*

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: 141 or 142. *Credits: 3*

256 EnlightenmentSocietyReimagined 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: 141 or 142. *Credits: 3*

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: 141 or 142. *Credits: 3*

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: 141 or 142. *Credits: 3*

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: 141 or 142. *Credits: 3*

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. Prerequisite: 141 or 142. *Credits: 3*

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. Prerequisite: 141 or 142. *Credits: 3*

276 Topics in Modern French Lit Selected topics dealing with poetry and/or narrative related either to an historical period or a literary movement. Prerequisite: 141 or 142. *Credits: 3*

279 Women's Autobiographies Study of several autobiographies written by contemporary French/Francophone women. Representative authors include Colette, de Beauvoir, Sarraute, Duras, Ernaux, Martin. Prerequisite: 141 or 142. *Credits: 3*

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. Prerequisite: 141 or 142. *Credits: 3*

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 141 or 142 or both. *Credits: 3*

289 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. Prerequisite: 141 or 142. *Credits: 3*

292 Topics in French Culture In-depth study of a major aspect of French culture. See Schedule of Courses for specific offering. Prerequisite: 131 or 132 or permission. *Credits: 3*

293 Quebec Culture Sociocultural study of the Francophone culture of Canada. Prerequisite: One 100-level French course. *Credits: 3*

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. Prerequisite: 141 or 142. *Credits: 3*

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: 1-18*

296 Advanced Special Topics Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

297 Advanced Readings & Research Permission of chair required. *Credits: 1-6*

298 Advanced Readings & Research Permission of chair required. *Credits: 1-6*

Geography GEOG

040 Weather, Climate & Landscapes Introduction to the fundamentals of weather, climate, landform evolution and plant distribution using a systems approach. Focus on variation in processes over space and time. *Credits: 3*

050 D2:World Regional Geography Basic introduction to Geography by way of a regional approach to human and environmental topics. *Credits: 3*

060 D1:Geography/Race&Ethnic in US Examination of the ways in which spatial and locational processes shape and are shaped by ethnic and racial identities, struggles, and relationships. *Credits: 3*

061 Geography of Vermont Introduction to physical, social, historical, and economic geographies of Vermont. Focus on landscape change and environmental issues from a global perspective. *Credits: 3*

070 Space, Place and Society An introduction to human geography; the study of space and spatial arrangement, the construction of place and experience, and struggles for spatial justice. *Credits: 3*

081 Geotechniques Introduction to cartography, geographic information systems (GIS), and remote sensing. Map design and analysis using topographic/satellite data, air photo interpretation, digitizing, and Internet resources. *Credits: 3*

085 Introduction to Remote Sensing Geographic analysis and evaluation of aerial imagery produced by remote sensors and its relationship to environmental problems in the social and physical sciences. *Credits: 3*

090 International Field Studies Field course abroad (e.g. South Africa or England). Intensive study of the geography of a country or region, with attention to related issues. *Credits: 3*

092 Vermont Field Studies (Same as Vermont Studies 92.) Field course on a geographical theme (e.g. physical or regional geography) in the Burlington area or surrounding region. *Credits: 3*

095 Special Topics in Geography See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics in Geography See Schedule of Courses for specific titles. *Credits: 1-18*

099 First-Year Seminar *Credits: 3*

140 Biogeography Examines geographic distribution of organisms, emphasizing the biotic and abiotic factors that explain temporal and spatial patterns of species, population and community distributions. Pre/co-requisites: GEOG 40. *Credits: 3*

143 Climatology Analysis of regional and local climatic data with special reference to climatic controls; special laboratory projects. Prerequisite: GEOG 40 or instructor permission. *Credits: 3*

144 Geomorphology Examines, using lectures, labs, and field-based independent study research projects, processes which change Earth's surface and the history of landscape development. Considers fundamental geologic constraints on environmental problems. Pre/co-requisites: GEOL 1 or 55. *Credits: 4*

145 Geography of Water Examination of the spatial dimensions of water distribution from local to global scales, and the social, political, and economic dimensions of its use. (same as NR 102). *Credits: 3*

150 D2:Geography of Africa The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base. Pre/co-requisites: GEOG 50 or 70. *Credits: 3*

151 D2:Geography of India Survey of India's physical diversity, historical evolution, colonial and postcolonial legacies, and geopolitical situations, especially as they relate to globalization, migration, environment, and security. Prerequisite: GEOG 050 or 070 or instructor permission. *Credits: 3*

152 Canada The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base. Pre/co-requisites: GEOG 50 or 70. *Credits: 3*

153 Arctic Canada Examines both the physical and human geography of the Canadian Arctic. Pre/co-requisite: GEOG 040 or 050. *Credits: 3*

154 D2:Geography of Development Issues of global inequality, modernization and environmental degradation with a focus on colonialism, postcolonialism, and displacement of people, livelihoods and cultures by development processes. Prerequisite: GEOG 050 or 070 or instructor permission. *Credits: 3*

156 D2:Latin America The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base. Pre/co-requisites: GEOG 50 or 70. *Credits: 3*

157 Geography of the Pacific Physical and human environments of Polynesia, Micronesia and Melanesia. Focus on the impacts of colonialism, warfare, weapons testing, poverty, the tourism industry, and environmental change. Pre/co-requisites: GEOG 70. *Credits: 3*

158 Geography of the Middle East Political, cultural, and physical geography of the Middle East, with an emphasis on the relationship between the Middle East and the West. Pre/co-requisite: GEOG 050 or 070. *Credits: 3*

159 Europe The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base. Pre/co-requisites: GEOG 50 or 70. *Credits: 3*

160 The United States The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base. Pre/co-requisites: GEOG 50 or 70. *Credits: 3*

170 Historical Geography (Same as History 170.) Examination of the tools, techniques, and perspectives used in studying the historic development of places and landscapes. Vermont and other North American case studies. Prerequisites: GEOG 50 or 70 recommended or History 11 or 12 or instructor permission. *Credits: 3*

171 Cultural Geography Distribution of race, ethnicity, language, and religion at different geographical scales and how these factors contribute to world and regional events. Pre/co-requisites: GEOG 050 or 070 or instructor permission. *Credits: 3*

173 Political Ecology Human-environment interactions under globalization. Social and economic causes of global and local environmental problems. Environmental movements and sustainable livelihoods in First and Third Worlds. Pre/co-requisites: GEOG 050 or 070 or instructor permission. *Credits: 3*

174 Rural Geography Global, national and local scale study of rural landscapes, cultures, social issues, and environmental concerns. Pre/co-requisites: GEOG 050 or 070 or instructor permission. *Credits: 3*

175 Urban Geography Analysis of the morphology, function and social structure of cities. Consideration of the nature, history and

theories of urban growth and development. Pre/co-requisites: GEOG 050 or 070 or instructor permission. *Credits: 3*

176 Geography of Global Economy Distribution of global economic activity and power. Processes of uneven development and globalization including industrialization, the "global assembly line", trade, investment and migration. Pre/co-requisites: GEOG 070. *Credits: 3*

177 Political Geography (Same as Political Science 161.) Examines the relationships between nation states and political identity. Other political-spatial constructs are also examined, including the private and public dichotomy, cyberspace, and borders. Pre/co-requisites: GEOG 050 or 070 or Political Science 051 or 071 or instructor permission. Cross-listing: POLS 161. *Credits: 3*

178 Gender, Space & Environment (Same as Women's & Gender Studies 170.) Examination of the ways in which human relationships to both the built and the natural environment are mediated by gender. Prerequisites: Six hours in geography or women's and gender studies, or instructor's permission. *Credits: 3*

179 Cultural Ecology (Same as Anthropology 179.) Inter-relationships of social groups and their natural environments and resource bases, with primary emphasis on nonindustrial cultures, examined from the perspectives of anthropology and geography. Pre/co-requisites: GEOG 050 or 070 or instructor permission. *Credits: 3*

184 Geog Info:Cncpts & Applic Systematic approach to important geographical concepts (including distance, shape, scale dispersion) structured around the use of Geographical Information Systems (GIS) as an analytical tool. Pre/co-requisites: GEOG 81 or NR 25 or equivalent. *Credits: 3*

185 Remote Sensing Examinations of the earth's surface from aerial photographs and satellite imagery. Emphasis is on image interpretation, classification, change detection, multivariate analysis (e.g. principal components analysis). Prerequisite: GEOG 81 recommended. Cross-listed with FOR 146, NR 146. *Credits: 3*

186 Qualitative Research in Geog Students will learn data collection, analysis, and representation techniques for qualitative data with emphasis on geographic practices, such as participatory mapping and mixed-methods approaches. Prerequisite: GEOG 081 or instructor permission. *Credits: 3*

190 International Field Studies Field course abroad (e.g. South Africa or England.) Intensive study of the geography of a country or region, with attention to related issues. Prerequisite: Three hours in geography. *Credits: 3*

191 Geography Internship Supervised internship in applied geography working with a local public agency or private firm. Individually arranged. Prerequisites: Junior or senior standing, departmental permission. *Credits: 1-6*

192 Vermont Field Studies (same as Vermont Studies 192.) Field course on a geographical theme (e.g. physical or regional geography) in the Burlington area or surrounding region. Prerequisite: Three hours in geography. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research *Credits: 1-6*

198 Readings & Research *Credits: 1-6*

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 or senior standing; nine hours in geography. *Credits: 3*

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. Prerequisites: Nine hours in geography or permission of instructor. *Credits: 3*

244 Adv Top: Global Change Advanced offerings on topics related to past, present and future changes in the environment, including natural and human-induced changes in the atmosphere, hydrosphere and biosphere. Prerequisites: GEOG 040, GEOG 140 or GEOG 143, or instructor permission *Credits: 3*

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. Prerequisites: Senior or graduate standing with nine hours in Geography; or instructor permission. *Credits: 3*

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: GEOG 143 or 144 and senior or graduate standing with nine hours in geography. *Credits: 3*

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. Prerequisites: Senior or graduate standing with nine hours in geography, or instructor permission. *Credits: 3*

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. Prerequisites: Senior or graduate standing with nine hours in geography, or instructor permission. *Credits: 3*

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. Prerequisites: Senior or graduate standing with nine hours in geography, or instructor permission. *Credits: 3*

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 9 hours in Geography; or instructor's permission. *Credits: 3*

287 Spatial Analysis Analysis of spatial pattern and interaction through quantitative models; introduction to measurement, sampling, and covariation in a spatial framework. Prerequisite: Senior or graduate standing with at least nine hours in geography or instructor permission. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

297 Readings & Research *Credits: 1-6*

298 Readings & Research *Credits: 1-6*

Geology GEOL

001 Earth System Science An introduction to the earth as a closed system, the cycling of materials and energy within it, and how it interacts with the hydrosphere and atmosphere. May not be taken for credit concurrently with, or following receipt of, credit for GEOL 002. *Credits: 4*

002 Earth System Science An introduction to earth as a closed system, the cycling of materials and energy within it, and how it interacts with hydrosphere and atmosphere. No Lab. May not be taken for credit concurrently with, or following receipt of, credit for GEOL 001. *Credits: 3*

003 Fire & Ice Introduction to volcanoes/plate tectonics ("fire") and glaciers/climate change ("ice") using lectures, slides, discussion, and field trips. Considers Vermont and world-wide geological examples. *Credits: 3*

005 Mt - Lake: Geol Lake Champlain Bsn Scientific principles applied to the geology and geologic history of the Lake Champlain Basin. *Credits: 4*

007 Earth Hazards Understand geological and societal causes of death and destruction by earthquakes, landslides, floods, volcanoes, storms, and avalanches around the world. *Credits: 3*

008 The Dynamic Earth Exploration of Earth from a systems perspective, the exchange of mass and energy with the atmosphere, hydrosphere and lithosphere. How geologists use the scientific method. Credit not given for both GEOL 008 and either 005 or 001. *Credits: 3*

010 Geological Oceanography Characteristics and development of the oceans, their basins and shorelines, including plate tectonic history and basic physical, chemical, and biological processes. Prerequisite: 1 or introductory science course. *Credits: 3*

025 Environmental Geology Survey Environmental Geology is the study of the interactive relationship between humans and their geologic environment. No lab. *Credits: 3*

053 Planetary Geology Characterizes the differences and similarities between the Terrestrial and Jovian Planets, the dynamic processes that shape our home planet and compares the geologic processes active in our Solar System. Prerequisites: Introductory science course or ASTR 5. *Credits: 3*

055 Environmental Geology Introduction to geologic processes and materials pertinent to environmental problems: ground water movement, supply, and contamination, waste disposal, flooding, subsidence, and landslides. Local field trips. Designed for intended natural science majors. *Credits: 4*

062 Earth Env & Life Through Time This course presents an overview of how the Earth has changed over time and how this has influenced the history of life. Prerequisites: GEOL 001, 003, 005, or 055. *Credits: 4*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

101 Field Geology Geological evolution of western Vermont as seen through actual field mapping in the Burlington area. Specifically designed for sophomores majoring or minoring in geology or related sciences. Prerequisite: 1, 55 or instructor permission. *Credits: 4*

110 Earth Materials Introduction to the major rocks and rock-forming minerals and their relationship to formation/depositional environments. Pre/co-requisites: Introductory Geology course (1, 55 or 95). *Credits: 4*

112 Mineralogy & Optic Crystalligraphy *Credits: 4*

116 Glacial Geology Examines the Dynamics of glacier flow and landforms glaciers produce. Lectures, labs, and field trips emphasize processes in both modern and ancient glaciers. Prerequisite: GEOL 001, 005, or 055. *Credits: 4*

135 Geochemistry Application of many basic principles of chemistry, e.g. thermodynamic, kinetic, and transport calculations involving abiotic and biotic processes, to selected problems in the geosciences. Field trips. Pre/co-requisites: GEOL 110, CHEM 31, 32. *Credits: 4*

151 Geomorphology (Same as Geography 144.) Examines, using lectures, labs, and field-based independent study research projects, processes which change Earth's surface and the history of landscape development. Considers fundamental geologic constraints on environmental problems. Prerequisite: 1 or 55. *Credits: 4*

153 Stratigraphy & Sedimentology Properties of physical sedimentation, principles of stratigraphy and basin analysis, and comparison of modern and ancient environments. Lab includes field trips. Prerequisite: GEOL 062. *Credits: 4*

161 Field Methods in Geophysics This course is an introduction to field geophysical methods with an emphasis on ground-penetrating radar, seismic refraction, electromagnetic profiling, and applications to geologic problems. Prerequisite: GEOL 101. *Credits: 0-4*

172 Regional Geology Field study of a selected region including multi-week summer trip to the area in question. Not more than four credits allowed toward major. Prerequisites: one other Geology course or permission. *Credits: 0-4*

195 Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

196 Special Topics See Schedule of Courses for specific titles. *Credits: 1-15*

197 Research in Geology Supervised research and readings in a selected field of geology. Students from allied sciences, mathematics, and engineering may elect a research problem that combines their major field of study and geology. Prerequisite: Departmental permission. *Credits: 1-6*

198 Research in Geology Supervised research and readings in a selected field of geology. Students from allied sciences, mathematics, and engineering may elect a research problem that combines their major field of study and geology. Prerequisite: Departmental permission. *Credits: 1-6*

201 Advanced Field Geology Advanced field mapping techniques, analysis of field data, preparation of geological maps and reports. Prerequisite: 260. *Credits: 3*

210 Systems Dynamics & Earth Sci Analysis of generic systems with examples from physical and natural sciences. Geological systems emphasized. Laboratories involve computer analysis of system structure and behavior over time. Prerequisites: A major or minor in science, mathematics, natural resources, engineering, or permission of instructor. *Credits: 3*

217 Vermont Field Geology Field observations of rocks and surficial materials across northern Vermont are utilized to decipher the region's geologic history. Readings complement field work. Pre/co-requisites: Graduate student standing. *Credits: 4*

231 Petrology The course covers the scope and methods of igneous, sedimentary and metamorphic petrology, and the geologic environments and processes relevant to the major rock types. Pre/co-requisites: GEOL 110 Earth Materials. *Credits: 4*

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*

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*

235 Geochemistry of Natural Waters Basic concepts of chemical equilibria applied to natural waters, including thermodynamics, pH, oxidation-reduction, weathering, and solution equilibria. Prerequisites: Chemistry 31, 32. *Credits: 3*

240 Tectonics Applications of igneous and metamorphic petrology to problems in tectonophysics, including petrochemistry of the earth's crust and upper mantle and the internal structure of orogenic belts. Prerequisite: 101, 110. *Credits: 3*

242 Basin Analysis This course examines the formation and evolution of sedimentary basins, including tectonic setting, sediment supply, and subsidence history. Prerequisite: GEOL 153. *Credits: 3*

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*

260 Structural Geology Examines processes and problems concerning the mechanical behavior of the Earth's crust and surface. Includes rock deformation stress, strain, and the interpretation of geological structures. Prerequisites: 101, 110, Physics 11 or permission. *Credits: 4*

261 Geodynamics Examines physical evolution of the Earth on regional to global scale. Project oriented, focusing on analysis and interpretation of geologic and geophysical data. Prerequisites: GEOL 101 and 110 or permission. *Credits: 4*

263 Geochronology This course will survey the basic concepts of radioactive decay, mass spectrometry, and isotopic systems commonly used to quantify the timing of geologic events. Prerequisite: GEOL 110. *Credits: 3*

265 Geomicrobiology An introduction to microbial control of redox chemistry on Earth's surface, including field techniques and a detailed look at how microbes affect element cycling. Prerequisite: GEOL 135. *Credits: 3*

266 Microstructures This course will focus on deformation of rocks and minerals at the microscopic scale and the practical use of photographic analyses to unravel tectonic histories. Pre/co-requisite: GEOL 260. *Credits: 3*

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. Prerequisites: 101, 110, 272a for 272b or equivalent. *Credits: 4*

273 Geology of the Appalachians Origin of mountain belts; the Appalachian mountain system discussed in terms of tectonics and geologic processes active in modern continental margins. Prerequisites: 101, 110, or permission. *Credits: 3*

278 Principles of Aquatic Systems (See Natural Resources 278.) *Credits: 3*

291 Seminar in Geology Seminar on current topics in the geosciences, including attendance at weekly departmental visiting speaker series, reading and analysis of related scholarly publications, oral/written reports. Prerequisite: permission. *Credits: 1*

292 Senior Seminar Seminar on current topics in the geosciences, including attendance at weekly departmental visiting speaker series, reading and analysis of related scholarly publications, oral/written reports. Prerequisite: permission. *Credits: 1*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

German GERM

001 Elementary An introduction to all aspects of contemporary standard German: Speaking, listening, reading, writing. Cultural components include topics such as: music, art, literature, and current events. *Credits: 4*

002 Elementary An introduction to all aspects of contemporary standard German: Speaking, listening, reading, writing. Cultural components include topics such as: music, art, literature, and current events. Prerequisite: GERM 1 or equivalent. *Credits: 4*

051 Intermediate Comprehensive review of German grammar, vocabulary-building skills, development of reading strategies and compositional abilities, study of contemporary German culture through literary texts. Prerequisite: GERM 001, 002 or equivalent. *Credits: 3*

052 Intermediate Comprehensive review of German grammar, vocabulary-building skills, development of reading strategies and compositional abilities, study of contemporary German culture through literary texts. Prerequisite: GERM 001, 002 or equivalent. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

103 Composition & Conversation An intensive language course concentrating on more advanced syntax, vocabulary building, and idiomatic expression through written compositions, translations, and oral presentations. Prerequisite: 52 or equivalent. *Credits: 3*

104 German News Media Analysis of journalistic style and content in news coverage of contemporary events as reported in newspapers, magazines, radio, and television in German-speaking countries. Prerequisite: 52 or equivalent. *Credits: 3*

121 Culture & Civilization to 1900 Historical, intellectual, and artistic developments of German culture and civilization from Roman times through the 19th century, stressing written and oral work. Prerequisite: 52 or equivalent. *Credits: 3*

122 20th C Culture & Civilization Social, cultural, and political developments in the German-speaking countries since 1900, stressing written and oral components. Prerequisite: 52 or equivalent. *Credits: 3*

155 German Lit in Context I Introduction to German Literature from the Enlightenment through Realism with attention to political, philosophical, musical, and artistic developments. Authors may include Goethe, Schiller, Novalis, Hoffmann, Heine, and Buchner. Prerequisite: GERM 052. *Credits: 3*

156 German Lit in Context II Study of 20th century German literature in historical and cultural contexts. Introduction to important topics and stylistic elements through representative texts from prevalent literary movements. Prerequisite: GERM 052. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research *Credits: 1-6*

198 Readings & Research *Credits: 1-6*

201 Methods Research&Bibliography Introduction to tools and methods of research, including major bibliographical sources, reference works, dictionaries, editions, and journals concerned with German literature, language, and folklore. Prerequisite: Two 100-level courses. *Credits: 3*

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*

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: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

248 Contemporary German Literature Literary movements and their major representatives from 1945 to the present, including relevant sociopolitical, intellectual, and cultural aspects. Prerequisite: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

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: 155 or 156 and one other 100-level course. *Credits: 3*

282 Sem on Particular Author Study of author(s) through close readings of representative texts supplemented by lectures and reports on the works' sociocultural context. May be repeated. Prerequisite: 155 or 156 and one other 100-level course. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Global and Regional Studies GRS

001 D2:Intro to Global Studies An interdisciplinary introduction to the social, political, economic, natural, and cultural dimensions of globalization and transnational interdependencies. *Credits: 3*

005 Glimpses of Chinese Culture Explore and experience important and intriguing aspects of Chinese culture through lectures and activities. Content is distinct from GRS 006. *Credits: 1*

006 Glimpses of Chinese Culture Explore and experience important and intriguing aspects of Chinese culture through lectures and activities. Content is distinct from GRS 005. *Credits: 1*

091 Introduction to Region Region specific introductory courses taught with interdisciplinary perspective. *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

191 Internships Approved programs of learning outside the classroom. Internships must be undertaken in the field and involve activity in which substantive learning about the program area can take place. *Credits: 1-6*

192 Internships Approved programs of learning outside the classroom. Internships must be undertaken in the field and involve activity in which substantive learning about the program area can take place. *Credits: 1-6*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research *Credits: 1-6*

198 Readings & Research *Credits: 1-6*

200 D2:Seminar in Global Studies An advanced interdisciplinary seminar that examines the social, political, economic, natural, and cultural dimensions of globalization and transnational interdependencies. Prerequisites: Global Studies major with second-semester junior or senior status *Credits: 3*

291 Regional Studies Seminar Interdisciplinary seminar with geocultural focus. Regional content/topics vary by instructor. Prerequisites: Instructor permission *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisites: Instructor permission *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisites: Instructor permission *Credits: 1-18*

297 Advanced Readings & Research Independent study of a specific region with an approved instructor. Prerequisites: Junior/Senior standing or Graduate Student, and permission of Program Director *Credits: 1-6*

298 Advanced Readings & Research Independent study of a specific region with an approved instructor. Prerequisites: Junior/Senior standing or Graduate Student, and permission of instructor *Credits: 1-6*

Graduate GRAD

291 Undergrad Research *Credits: 3*

Graduate Nursing GRNU

220 Palliative Care Adv Prctce Nsg A focused assessment with theory and research based interventions for people experiencing chronic/terminal illness will be explored from a family systems perspective. Prerequisite: RN license. *Credits: 3*

296 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: Permission. *Credits: 1-6*

Greek GRK

001 Elementary *Credits: 4*

002 Elementary *Credits: 4*

003 Self-Paced Greek Fundamentals of Classical Greek through tutorial instruction, credit dependent on amount of material learned. May be repeated for credit. No credit with 1 and 2. *Credits: 1-8*

051 Intermediate Review of syntax. Readings from Plato, Herodotus, and Euripides. *Credits: 3*

052 Intermediate Review of syntax. Readings from Homer. *Credits: 3*

095 Introductory Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

195 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research *Credits: 1-6*

198 Readings & Research *Credits: 1-6*

201 Greek Orators Selected speeches of Lysias and Demosthenes. B. Saylor Rodgers. Alternate years, as needed. *Credits: 3*

202 Greek Comedy Two plays of Aristophanes. Alternate years, as needed. *Credits: 3*

203 Greek Historians Thucydides, Books I and II; selections from Herodotus and Xenophon's Hellenica. Alternate years, as needed. *Credits: 3*

204 Greek Tragedy Sophocles' Antigone, and Euripides' Medea, or two equivalent plays. Alternate years, as needed. *Credits: 3*

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*

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*

211 Greek Prose Style Readings in literary prose analyzed stylistically and imitated in composition. Required of Greek majors. *Credits: 3*

212 Greek Prose Style Readings in literary prose analyzed stylistically and imitated in composition. Required of Greek majors. *Credits: 3*

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*

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: 1-18*

296 Advanced Special Topics Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

Greek & Latin GKLT

295 Special Topics See Schedule of Courses for specific titles. UG only. *Credits: 1-3*

HELIX HLX

095 Introductory Special Topics See Schedule of Courses for specific titles. Cross-listings: BIOL 095, 096. *Credits: 1-6*

096 Introductory Special Topics See Schedule of Courses for specific titles. Cross-listings: BIOL 095, 096. *Credits: 1-6*

295 HLX/Epscor HS Summer Outreach Teams of a high school science teacher and two students apprentice with UVM faculty in research in preparation for an academic year of research. Prerequisites: Permission of HELIX/EPSCOR coordinator 656-0706. *Credits: 1-3*

296 HLX/Epscor HS Summer Outreach Teams of a high school science teacher and two students apprentice with UVM faculty in research in preparation for an academic year of research. Prerequisites: Permission of HELIX/EPSCOR coordinator 656-0706. *Credits: 1-3*

Health HLTH

003 Medical Terminology Terminology related to medical and health sciences. Online. *Credits: 2*

010 Health & Wellness This course is for Health & Wellness RLC students only. We explore the six domains of health & wellness (physical, emotional, spiritual, environmental, intellectual, and social) through readings, discussions, and hands-on activities. *Credits: 1*

020 Aging: Change & Adaptation Individual and social meanings of aging and old age; physical, physiological, psychological, and sociological changes accompanying aging; individual family, community, and societal adaptations to aging. Cross-listed with SOC 20 & HDFS 20. *Credits: 3*

025 Patient Care Equipment Tech Introduction to healthcare technology management in acute patient care, anatomy/physiology and technical principles, safety, and troubleshooting techniques. Includes electrocardiographs, physiological monitors, infusion devices, pacemakers and defibrillators. Online. *Credits: 3*

026 Medical Equipment Applications Hands-on laboratory course in the classroom. Includes bedside medical equipment demonstrations, exercises and problem resolution, device simulators, safety and performance testing. *Credits: 3*

030 Trad Chin Med & Asian Bodywork This class introduces the student to Traditional Chinese Medicine. Emphasis is placed on developing assessment skills using TCM theories. The lab will include learning a basic, total bodywork session. Prerequisites: ANPS 19 & 20 or permission of instructor. *Credits: 2*

095 Special Topics Introductory courses on health topics beyond the scope of departmental or college offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics Introductory courses on health topics beyond the scope of departmental or college offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

100 Biology of Aging Human aging examined emphasizing biological and nonpathological physiological changes and their effects on the functioning of elders. Prerequisites: BIOL 4 or ANPS 19-20 or permission. *Credits: 3*

103 D2: Intro to Global Health An intermediate level lecture/discussion course that explores global health and global health challenges affecting people primarily in developing or resource-constrained countries. Pre/co-requisite: Sophomore standing. *Credits: 3*

105 D2: Cultural Health Care Examines the principles and theories of culture in health care with an overall goal to understand how health care is contextualized by and through culture. *Credits: 3*

107 Human Health & the Environment Interdisciplinary understanding of the effects of anthropogenic factors including pollution, reduced biodiversity, climate change, overpopulation, and resource depletion on the health of natural systems and human populations. Pre/co-requisites: a college level science course and sophomore standing. Cross-listed with NR 107. *Credits: 3*

108 Explorations in Public Health From various disciplines, theoretical perspectives, and narrative experiences, the class will build and apply to contemporary issues and populations an ideal public health service model. *Credits: 3*

109 Energy Medicine Energy medicine is an integrative, complementary and preventative energy therapy course. The impact of specific concepts, beliefs, patterns, and interventions on the energy system are explored. Pre/co-requisites: HLTH 141. *Credits: 3*

115 Women's Health & Advocacy Aims to demystify women's health care issues through understanding options/choices concerning sexuality, contraception, reproductive health, sexually transmitted diseases, relationships, addictive disorders, anxiety/depression and more. *Credits: 3*

124 Mental Health and Aging Course will cover the main theories of older adult development and aging as well as the latest research on psychological and emotional changes with aging. *Credits: 3*

125 Exercise, Fitness and Health An intermediate-level course on fundamentals of exercise physiology, diet and fitness as they relate to health, wellness and human performance. Pre/co-requisites: One semester of BIOL 001, 002, 003, or 004; or ANPS 19-20. *Credits: 3*

135 Adv Medical Equipment Systems Covers imaging systems: x-ray, fluoroscopy. CT scanners, MRI, nuclear medicine, and ultrasound. Also clinical laboratory equipment, surgery devices, healthcare networks/IT, dialysis systems, and physical therapy equipment. Online. *Credits: 3*

140 Issues in Women's Health A holistic exploration of the health care needs of women. This course will consider the stereotypical, theoretical, and clinical approaches of care used in treating women. Prerequisites: PSYC 1, HDFS 5, Sociology course below 100. *Credits: 3*

141 Healing Touch Level 1 Healing Touch is an energy based therapeutic approach to healing which uses touch to influence the energy system thus affecting physical, emotional and spiritual health and healing. *Credits: 0-1*

142 Healing Touch Level 2 The second level of Healing Touch includes an intake interview, back techniques, and a full healing sequence. Emphasis in the experimental learning is on developing sequences for specific client needs. Pre/co-requisites: HLTH 141. *Credits: 1*

143 Healing Touch Level 3 Level 3 is for students who desire more in-depth skills in Healing Touch, an energy-based therapeutic approach to healing, and have successfully completed Levels 1 and 2. Pre/co-requisites: HLTH 141 and 142. *Credits: 1*

145 D2: Women's Hlth & Spirituality Travel course to Belize. Examines women's physical, mental and spiritual health with a cross-cultural perspective. Pre/co-requisite: Instructor's permission. *Credits: 3*

150 Infectious Disease & Hum Hst This course will explore how the changing world has impacted the development and spread of infectious disease. *Credits: 3*

195 Intermediate Special Topics Intermediate courses on health topics beyond the scope of departmental or college offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics Intermediate courses on health topics beyond the scope of departmental or college offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

197 Independent Study Students outside CNHS may develop individual plans specific to their academic interests in health and, if approved, work with a faculty mentor to meet objectives. *Credits: 1-3*

225 Health Technology Management Includes medical devices/systems, information technology and telecommunications. Blending of IT and medical technology. Also planning, life cycle management, and technical services--clinical engineering. Online. *Credits: 3*

250 Community Participatory Rsch Examines the process and development of conducting community-based participatory research projects in collaboration with a community partner. *Credits: 3*

295 Advanced Special Topics Advanced courses on health topics beyond the scope of departmental or college offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics Advanced courses on health topics beyond the scope of departmental or college offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

Health Education EDHE

046 Personal Health Concepts of personal health related to problems of daily living. Mental health, sex education, nutrition and weight control, fatigue and relaxation, chronic and communicable disease, stimulants and depressants. *Credits: 3*

150 Sem: Health Educ Research, discussion, and critical examination of selected topics and special issues in health not currently covered in existing courses. Prerequisite: Six hours in health education or instructor's permission. Variable credit, one to four hours. *Credits: 1-4*

173 Practicum in Field Experience Individually prescribed teaching experience involving work with health agencies, both public and private. Responsibilities approximate those commonly associated with student teaching. Prerequisite: Permission. Variable credit *Credits: 1-4*

182 Health Methods and Materials Fundamental methods of teaching health as applied to school and public health education. Consideration of materials applicable to health education, evaluation techniques, preparation of teaching units and bibliographies. Prerequisite: 46. *Credits: 3*

200 Contemporary Issues Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisites: Twelve hours in education and related areas. *Credits: 1-6*

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: 46 or equivalent. *Credits: 3*

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 46 or equivalent. *Credits: 3*

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. Prerequisites: EDHE 46 or equivalent. *Credits: 3*

295 Lab Experience in Educ Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences. *Credits: 1-6*

Hebrew HEBR

001 Elementary The spoken language of everyday use with oral, aural, and written practice in speaking, reading, and comprehension. *Credits: 4*

002 Elementary The spoken language of everyday use with oral, aural, and written practice in speaking, reading, and comprehension. Prerequisite: HEBR 1 or equivalent. *Credits: 4*

051 Intermediate Reading, translation, and discussion in Hebrew of texts selected to show the development of Hebrew culture from Biblical times to the present. Prerequisites: HEBR 001, 002 or equivalent. *Credits: 3*

052 Intermediate Reading, translation, and discussion in Hebrew of texts selected to show the development of Hebrew culture from Biblical times to the present. Prerequisites: HEBR 001, 002 or equivalent; HEBR 051. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research *Credits: 1-6*

198 Readings & Research *Credits: 1-6*

Higher Education EDHI

055 Special Topics *Credits: 2-6*

200 Contemporary Issues Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisites: Twelve hours in education and related areas. *Credits: 1-6*

202 Human Rel in Univ Res Halls Emphasis on human relations, group dynamics, advising models, student development theory, organizational development, and contemporary student issues in a residential environment. Prerequisite: Residence hall staff. *Credits: 1*

213 Ldr:Theories,Styles&Realities Introductory course in leadership development designed for student leaders. Includes study of planning, time management, organizational theory, communication skills, group process, team building. *Credits: 2*

214 Adv Seminar in Leadership Focuses on student leaders' experiences and how those experiences relate to activities beyond the University setting. *Credits: 2*

230 D2:Training in Intergrp Dialog A training requirement for students aspiring to be intergroup dialogue peer facilitators. Topics include social identity group memberships (race, gender, class) & group facilitation. *Credits: 3*

295 Lab Experience in Education Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences. *Credits: 1-3*

297 Special Topics Learning modules may vary each semester as the need to address topics arises. Learning modules are 5 week classes. *Credits: 1-3*

Historic Preservation 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. Prerequisites: Open to non-HP majors by permission. *Credits: 3*

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 listings: HST 201, ENVS 295. *Credits: 3*

202 Special Topics Courses are offered under this number in specialized areas of historic preservation through Continuing Education. *Credits: 3*

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: 201. *Credits: 3*

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: 201. *Credits: 3*

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*

History HST

009 D2:Global History to 1500 The development and cross-fertilization of civilizations in Eurasia, Africa, and the Americas from about 3500 B.C.E. to A.D. 1500. *Credits: 3*

010 D2:Global History Since 1500 Character, development, and emerging interdependence of the world's major civilizations since 1500. *Credits: 3*

011 US History to 1865 Survey of American history from the pre-Revolutionary period through the Civil War era. *Credits: 3*

012 US History since 1865 Survey of US history from the Civil War era. *Credits: 3*

013 Ideas in the Western Tradition Great books of Western civilization in their historical setting. Greece and Rome. Prerequisites: Concurrent enrollment in English 27, 28; Religion 27, 28; Integrated Humanities Program. *Credits: 3*

014 Ideas in the Western Tradition Great books of Western civilization in their historical setting. Renaissance to Existentialism. Prerequisites: Concurrent enrollment in English 27, 28; Religion 27, 28; Integrated Humanities Program. *Credits: 3*

015 Early Europe Survey of European history, 500-1648. *Credits: 3*

016 Modern Europe Survey of European history, 1648-present. *Credits: 3*

021 Classical Greek Civilization (See Classics 21.) *Credits: 3*

022 Classical Roman Civilization (See Classics 23.) *Credits: 3*

035 D2: History of India to 1750 Introduction to the early history of the Indian subcontinent, focusing on the political, cultural, and religious forces that shaped the region before British colonialism. *Credits: 3*

036 D2:History of India since 1750 Survey of the modern history of South Asia from the advent of British colonialism to the present, focusing on colonialism, nationalism, globalization, and religious conflict. *Credits: 3*

040 D2:African History to C-1870 Introduction to the political, social and economic history of Africa, focusing on the major events and forces that shaped the continent before the colonial period. *Credits: 3*

041 D2:Africa C-1870 to Present Introduction to African history from European conquest to the present, with special attention paid to African resistance, the nature of colonialism, and African independence movements. *Credits: 3*

045 D2:Hst Islam&Middle E to 1258 Introduction to the major institutions evolved in the Middle East from the advent of Islam to the Mongol conquest of Baghdad in 1258. *Credits: 3*

046 D2:Hst Islam&Mid E Since 1258 Introduction to the major institutions evolved in the Islamic Middle East since the Mongol conquest of Baghdad in 1258 to the present. *Credits: 3*

055 D2:History of China and Japan An introductory survey of the history of Chinese and Japanese civilizations from their Neolithic origins until the twentieth century. *Credits: 3*

062 D2:Colonial Latin Amer Hist Comparative survey concentrating on the complex cultural, economic, and political development of Spanish and Portuguese America from pre-Conquest to 1820. *Credits: 3*

063 D2:Modern Latin Amer History Comparative survey concentrating on Latin America from the independence movements to the present with emphasis on cultural, political, and economic development and U.S. intervention. *Credits: 3*

065 History of Canada Survey of Canadian history from aboriginal settlement to the present. Themes include Indian-White relations, colonial societies, national identities, American influence. Field trip to Canada. *Credits: 3*

067 D2: Global Environmental Hst The role and influence of nature on global human history and how people and cultures have influenced the natural world around them. May not be taken concurrently with or following receipt of credit for ENVS 167 since course requirements partially overlap. *Credits: 3*

068 D1:Race & Nation in the U.S. Survey of race relations and the construction of national identity in the United States from colonial origins to the present. *Credits: 3*

072 Graveyards,Tombs&Undertakers This course explores the ways in which American cemeteries, burial practices, and grieving for the dead are studied. *Credits: 1-3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

101 History Methods Students investigate the theory and practice of history by critiquing historians' methods, analyzing primary sources, and developing the necessary research/writing skills to construct historical arguments. Pre/co-requisites: History major and 3 hours in History. Sophomore status recommended. *Credits: 3*

106 D2:Himalayas:1750 to Present Explores the modern history of the Himalayas, examining how the region has participated in global struggles for power, enlightenment, capital, and control over the environment. Prerequisite: 3 hours of history. *Credits: 3*

107 D2:Visual Cultures of India Examines how visual materials (buildings, posters, film, clothing, etc.) have generated meanings in different historical contexts, and their use for social, cultural and political ends. Prerequisite: 3 hours of history. *Credits: 3*

109 The British Isles, 1350-1688 Examines the social, cultural, and political history of the British Isles from 1350 to 1688, focusing on institutions, religious beliefs, literature, art, and everyday life. Prerequisite: 3 hours of history *Credits: 3*

110 Britain Since 1688 Examines the social, cultural, and political history of Britain since 1688, focusing on social movements and relations, gender, industrialization, popular culture, and the world wars. Prerequisite: 3 hours of history *Credits: 3*

112 D2:History of Zionism to 1948 A history of modern Zionism and the Zionist movement from its inception in Europe in the second half of the nineteenth century to the establishment of Israel. Prerequisite: HST 010 or 016. Cross-listed with HS 112. *Credits: 3*

114 East European Nationalism Politics and culture of nationalisms in East-Central and Southeastern Europe since 1772, focusing on the Czech, Hungarian, Polish and Serb nations. Pre/co-requisites: HST 016. *Credits: 3*

115 History of Poland History of the Polish people and Polish state from the 10th century to the present. Strong emphasis on the 20th century. Pre/co-requisites: HST 010 or 015 or 016. Cross-listed with HS 115 *Credits: 3*

116 Medieval Mystics & Heretics This course covers the explosion of new religious ideas that characterized the period 1100-1500, and the Church's response to these challenges. Pre/co-requisites: HST 015 or instructor permission. *Credits: 3*

117 Medieval Urban Legends Examines legends from and about the European Middle Ages, analyzing how and why societies create and cling to intellectually improbable interpretations of the world. Prerequisites: HST 015 or instructor permission. *Credits: 3*

119 D2:Modern Jewish History The history of the Jewish people from the 18th century to the present, focusing on Europe and the United States. Prerequisite: HST 010 or 016. Cross-listed with HS 119. *Credits: 3*

121 History of Greece (See Classics 121.) *Credits: 3*

122 History of Rome (See Classics 122.) *Credits: 3*

125 The Renaissance European society from the 14th to early 16th century, emphasizing the transition from medieval to "modern" society and the roots of Renaissance Italy's cultural and artistic brilliance. Prerequisite: HST 009, 010, 014, 015, or 016. *Credits: 3*

126 The Reformation European society from the Renaissance to mid-17th century. Emphasis on religious struggles growing out of Protestant Reformation and their impact on the social, political, economic, and cultural movements of the era. Prerequisite: HST 009, 010, 014, 015, or 016. *Credits: 3*

127 European Culture&Soc 1914-1945 Survey of European high modernism, focusing on the avant-garde, Stalinism, fascism, and popular culture. Prerequisite: HST 014 or 016. *Credits: 3*

128 Eur Soc & Culture 1880-1920 European society and culture before and during "The Great War." Transitions in the arts, philosophy, science and technology, industry, dance, theatre, attitudes, and diplomacy. Prerequisite: HST 014 or 016. *Credits: 3*

130 European Intellectual History The history of ideas in Europe from the 15th to the 20th centuries. Topics vary according to instructor. Prerequisite: HST 009, 010, 014, 015, or 016. *Credits: 3*

132 Modern Irish History Ireland 1600 to present. English subjugation of Ireland, Anglo-Irish, emergence of Irish nationalism, Irish Literary Renaissance, Irish Free State, and ongoing problem of Northern Ireland. Prerequisite: HST 014 or 016. *Credits: 3*

137 History of Russia to 1917 Russian political, social, and intellectual history from Kievan Rus' to the Revolutions of 1917, focusing on the Imperial period (1700-1917). Prerequisite: HST 016. *Credits: 3*

138 History of Russia since 1917 Soviet political and social history, 1917-1991, centering on the Stalin era and on efforts of post-Stalin regimes to deal with the Stalinist legacy. Prerequisite: HST 016. *Credits: 3*

139 Modern Germany Political, cultural, and social history of Germany from unification in 1871 through the Wilhelmine empire, Weimar Republic, Nazi era, and postwar period. Prerequisite: HST 010 or 016 or work in German. Cross-listed with HS 139. *Credits: 3*

140 D2:W Africa:Holy War-Colonial Lecture survey. Topics include: Sudanic states, Islamic revolution, slavery and the slave trade, European scramble and the African resistance, colonialism and the colonial state, African nationalism. Prerequisite: 40 or 41. *Credits: 3*

141 D2:History of Southern Africa Lecture survey, covering the history of Southern Africa from the Bantu Migrations to the end of Apartheid. Prerequisites: 40 or 41. *Credits: 3*

142 Nigeria:Giant of Africa History of Nigeria from earliest times to the present, concentrating on the impact of colonial conquest, nationalism and the politics and economics of independence. Pre/co-requisites: HST 40 or 41; instructor permission. *Credits: 3*

146 D2:Hist of Modern Middle East This course is designed to offer an historical understanding of social and political change in the Middle East during the 19th and 20th centuries. Prerequisite: 45 or 46 or instructor permission. *Credits: 3*

149 D2:Hist of Ancient Near East (See Classics 149.) *Credits: 3*

150 D2:Modern China China from the late Qing Dynasty to the present, with particular attention to the influence of Western imperialism, the process of revolution, and the Communist era. Prerequisite: 3 hours of history. *Credits: 3*

151 D2:Modern Japan Transition from tradition to modernity in Japan from the Meiji Restoration, 1868 to the present. Prerequisite: 3 hours of history. *Credits: 3*

153 Topics in Diplomatic History Topics examining themes in U.S. diplomatic history. May repeat for credit with different content. Prerequisite: 3 hours of history. *Credits: 3*

154 The Atlantic World 1400-1800 A cross-cultural and comparative study of the Atlantic World, 1400-1800, focusing upon social, cultural, religious and economic topics and themes. Prerequisite: 3 hours of history. *Credits: 3*

155 Colonial North America The political, economic and social history of colonial North America with special attention paid to cross-cultural and comparative history. Prerequisite: 3 hours of history. *Credits: 3*

157 Greek Feminism (See Classics 157.) *Credits: 3*

158 History of New England History of New England as place and idea, exploring the process by which regional identities are formed and changed over time. Pre/co-requisites: History 11 or 12, or instructor permission. Cross-listings: Vermont Studies. *Credits: 3*

160 Sex in Modern History Explores the history of sexuality in Europe and North America since 1700, focusing on medical and scientific theories as well as sexual cultures and practices. Prerequisite: 3 hours of history. *Credits: 3*

165 Canadian-American Relations Canada's relationship with the U.S. from the Revolutionary War to the present, emphasizing diplomatic, economic, social, and environmental relations in the 19th and 20th centuries. Prerequisite: Three hours in U.S. or Canadian history. *Credits: 3*

166 Envirnmntl History of N America Examination of human-environmental interaction on the North American continent over the past five hundred years. Pre/co-requisites: 3 hours history. Crosslisting: ENVS 166. *Credits: 3*

167 London: A Cultural History Explores the cultural, social and political history of London from Roman times to the present, focusing on the city's geography, social structures, populations and institutions. Prerequisite: 3 hours of history. *Credits: 3*

170 Historical Geography (Same as Geography 170.) Pre/co-requisites: Geography 50 or 70 recommended or History 11 or 12 or instructor permission. *Credits: 3*

171 Social History of the U.S. Selected topics in history of American society, including community structures, family life, work patterns, value systems, social class, and mobility. Prerequisites: 11 or 182. *Credits: 3*

172 Social History of the U.S. Selected topics in history of American society, including community structures, family life, work patterns, value systems, social class, and mobility. Prerequisites: 12 or 182. *Credits: 3*

173 Americans & Int'l Affairs I A survey history of Americans and the U.S. in international affairs from the colonial period through U.S. entry into World War I in 1917. Prerequisite: 3 hours of history. *Credits: 3*

174 Americans & Int'l Affairs II A survey history of Americans and the U.S. in international affairs from World War I to the present. Prerequisite: 3 hours of history. *Credits: 3*

177 American Revolution Survey of the Revolutionary Era, 1760-1791. Causes of the Revolution, War for Independence, establishment of the Constitution. Prerequisite: 3 hours of history. *Credits: 3*

179 U.S. History Since 1960 Topical review of U.S. history since 1960, emphasizing problems of interpreting and reconstructing the recent past. Prerequisite: HST 012. *Credits: 3*

181 Film and History Topics in the history of American and European cinema and society, focusing on the filmmaker as historian and the film as historical artifact. Prerequisite: Three hours history or film. *Credits: 3*

182 History of Women in the US (Same as Women's & Gender Studies 161.) Survey of the origins and changes in images, status, and roles of women in American society since the colonial period. Prerequisite: Three hours in history (11 or 12 recommended), or Women's and Gender Studies minor. *Credits: 3*

183 US Military History Development of the U.S. military establishment within the framework of U.S. history from the Colonial era to the present. Prerequisite: 10 or 11 or 12. *Credits: 3*

184 Vermont History Survey of Vermont history from early times to the present. Prerequisite: 11 or 12. *Credits: 3*

187 D1: Afr Amer Hst: 1619-Civil War Economic, social, political, and intellectual developments in U.S. history as they have affected and been affected by African-Americans, 1619 to Civil War. Prerequisite: Three hours history. *Credits: 3*

188 D1: Afr Amer Hst: Civil War-pres Economic, social, political, and intellectual developments in U.S. history as they have affected and been affected by African-Americans, Civil War to present. Prerequisite: Three hours history. *Credits: 3*

190 The Holocaust Study of the background, events, and aftermath of the Holocaust in Nazi Germany and Europe under German control. Prerequisite: HST 010 or 016. Cross-listed with HS 190. *Credits: 3*

191 World War II Causes, conduct, and consequences of global war from 1931-1945, including social, economic, political, and diplomatic as well as military aspects. Prerequisite: HST 010 or 016. Cross-listed with HS 191. *Credits: 3*

192 Sp Meth Sec Ed for Soc Studies Social studies curricula and selected social studies topics. (Not acceptable toward fulfilling Arts and Sciences College major requirements.) Prerequisite: Acceptance in teacher certification program. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. Prerequisite: 3 hours of history. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. Prerequisite: 3 hours of history. *Credits: 1-18*

197 Readings & Research Prerequisites: May be prescribed by an individual instructor; junior or senior standing. *Credits: 3-6*

198 Readings & Research Prerequisites: May be prescribed by an individual instructor; junior or senior standing. *Credits: 3-6*

199 Internship in History Supervised cooperative internship work in history in archives, museums, libraries, etc. To be individually arranged for each student. Prerequisite: Junior or senior standing, department permission. *Credits: 3-6*

201 History on the Land (Cross listed with Historic Preservation 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*

209 Seminar in Global History Selected topics on the nature and results of interactions among the world's peoples. 209: to 1500. 210: since 1500. Prerequisites: Junior, senior, or graduate standing; 12 hours of history including 9 or 10. *Credits: 3*

210 Seminar in Global History Selected topics on the nature and results of interactions among the world's peoples. 209: to 1500. 210: since 1500. Prerequisites: Junior, senior, or graduate standing; 12 hours of history including 9 or 10. *Credits: 3*

211 D2: Cultrs of Colonialism: India Examines cultural expressions of colonial power through the example of British India, exploring colonialism's impact on Indian ideas about gender, family, caste, community, and nation. Prerequisites: Junior, senior, or graduate standing and 12 hours of history. *Credits: 3*

221 Seminar in Ancient History (Cross listed with Classics 221, 222.) Selected aspects of Near Eastern, Greek, or Roman History (e.g. trade and colonization, imperialism, social and political institutions, cultural and intellectual developments). Prerequisites: Junior, senior, or graduate standing, 12 hours of history. *Credits: 3*

222 Seminar in Ancient History (Cross listed with Classics 221, 222.) Selected aspects of Near Eastern, Greek, or Roman History (e.g. trade and colonization, imperialism, social and political institutions, cultural and intellectual developments). Prerequisites: Junior, senior, or graduate standing, 12 hours of history. *Credits: 3*

224 Seminar in Medieval Europe Selected topics on Europe from the Fall of Rome to the Renaissance. Prerequisites: Twelve hours of history including HST 015; junior, senior, or graduate standing. *Credits: 3*

225 Seminar in Early Modern Europe Selected topics on European history from the Renaissance to the French Revolution. Prerequisites: Junior, senior, or graduate standing and 12 hours of history. *Credits: 3*

226 Seminar in Modern Europe Selected topics on European history from 1815 to present. Prerequisites: 12 hours of history including HST 014 or 016; junior, senior, or graduate standing. Cross-listed with HS 226. *Credits: 3*

227 Seminar in Modern Europe Selected topics on European history from 1815 to present. Prerequisites: 12 hours of history, including HST 014 or 016; junior, senior, or graduate standing. Cross-listed with HS 227. *Credits: 3*

228 Seminar in Popular Culture History of the attitudes of ordinary people towards every day life in European society from the Middle Ages to the present. Prerequisites: Junior, senior, or graduate standing, 12 hours of history. *Credits: 3*

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 or Graduate Standing, 12 hours of history including 137. *Credits: 3*

238 Seminar in Soviet History Selected topics in Soviet social and cultural history from the Bolshevik Revolution to the death of Stalin (1917-53). Prerequisites: Junior, senior, or graduate standing, 12 hours of history including 138. *Credits: 3*

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: Junior, Senior, or graduate standing. *Credits: 3*

241 Seminar in African History Topics in African history. Generally, the seminar will focus on one of three themes: Islam, slavery or urbanism. Prerequisite: Junior, senior, or graduate standing; 12 hours history. *Credits: 3*

250 D2: Seminar in East Asian Hst Topics in the history of East Asia. Prerequisites: Junior, senior, or graduate standing, 12 hours of history. *Credits: 3*

252 D2: Seminar on China Selected topics on the history of China. Prerequisites: Junior, senior, or graduate standing; 12 hours of history, including 150 or equivalent. *Credits: 3*

265 Seminar in Canadian History Topics in 19th and 20th century Canadian history; national development, regionalism, multiculturalism, and international relations. Prerequisites: Junior, senior, or graduate standing, 12 hours of history. *Credits: 3*

267 Environmental History Seminar Advanced reading and research on the role and influence of nature on human history and how people and cultures have influenced the natural world. Prerequisites: 12 hours of history; Junior, senior, or graduate standing. Cross-listed with ENV 267. *Credits: 3*

271 Seminar in US Social History Topics in U.S. Social History. 271: to the Civil War; 272: Civil War to the present. Prerequisites: Junior, senior, or graduate standing, 12 hours of history. *Credits: 3*

272 Seminar in US Social History Topics in U.S. Social History. 271: to the Civil War; 272: Civil War to the present. Prerequisites: Junior, senior, or graduate standing, 12 hours of history. *Credits: 3*

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. Prerequisites: Junior, senior, or graduate standing; 12 hours of history. *Credits: 3*

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. Prerequisites: Junior, senior, or graduate standing; 12 hours of history. *Credits: 3*

284 Seminar in Vermont History Topical approach to Vermont history through original research utilizing primary sources available at UVM, the Vermont Historical Society, and the Vermont State Archives. Prerequisites: Junior, senior, or graduate standing; 12 hours history, including 184 or permission. *Credits: 3*

287 Seminar in Historiography Topics and methods in contemporary historical writing. Prerequisites: Junior, senior, or graduate standing, 12 hours of history. *Credits: 3*

295 Special Topics Seminar See Schedule of Courses for specific titles. Prerequisites: Junior, senior, or graduate standing, 12 hours of history. *Credits: 1-18*

296 Special Topics Seminar See Schedule of Courses for specific titles. Prerequisites: Junior, senior, or graduate standing, 12 hours of history. *Credits: 1-18*

Holocaust Studies HS

017 German Literature:Translation See Schedule of Courses for specific titles; Crosslisted with WLIT 17. *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

112 D2: History of Zionism to 1948 A history of modern Zionism and the Zionist movement from its inception in Europe in the second half of the nineteenth century to the establishment of Israel. Prerequisite: HST 010 or 016. Cross-listed with HST 112. *Credits: 3*

115 History of Poland History of the Polish people and Polish state from the 10th century to the present. Strong emphasis on the 20th century. Pre/co-requisites: HST 010 or 015 or 016. Cross-listings: HST 115. *Credits: 3*

117 German Literature:Translation See Schedule of Courses for specific titles; Crosslisted with WLIT 117. *Credits: 3*

119 D2: Modern Jewish History The history of the Jewish people from the 18th century to the present, focusing on Europe and the United States. Prerequisite: HST 010 or 016. Cross-listed with HST 119. *Credits: 3*

139 Modern Germany Political, cultural, and social history of Germany from unification in 1871 through the Wilhelmine Empire, Weimar Republic, Nazi era, and post-war period. Prerequisite: HST 010 or 016 or work in German. Cross-listed with HST 139. *Credits: 3*

180 Moral&Rel Persp on Holocaust A study of the Holocaust in relation to questions of moral responsibility, justice, guilt, and human suffering, focusing on Jewish responses. Crosslisted with REL 180. *Credits: 3*

190 The Holocaust Study of the background, events, and aftermath of the Holocaust in Nazi Germany and Europe under German control. Prerequisite: HST 010 or 016. Cross-listed with HST 190. *Credits: 3*

191 World War II Causes, conduct, and consequences of global war from 1931-1945, including social, economic, political, and diplomatic as well as military aspects. Prerequisite: HST 010 or 016. Cross-listed with HST 191. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings and Research May be prescribed by an individual instructor; Junior or Senior standing. *Credits: 1-6*

198 Readings and Research May be prescribed by an individual instructor; Junior or Senior standing. *Credits: 1-6*

226 Seminar in Modern Europe Selected topics on European history from 1815 to present. Prerequisites: 12 hours of history including HST 014 or 016; junior, senior, or graduate standing. Cross-listed with HST 226. *Credits: 3*

227 Seminar in Modern Europe Selected topics on European history from 1815 to present. Prerequisites: 12 hours of history, including HST 014 or 016; junior, senior, or graduate standing. Cross-listed with HST 227. *Credits: 3*

281 Sem:Lit Genre,Period or Theme Study of a literary genre, period, or theme through close readings of representative texts supplemented by lectures and reports on socio-cultural context. May be repeated. Crosslisted with GERM 281. *Credits: 3*

282 Sem:Lit Genre, Period or Theme Study of a literary genre, period, or theme through close readings of representative texts supplemented by lectures and reports on socio-cultural context. May be repeated. Crosslisted with GERM 282. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

297 Advanced Readings & Research Declared minor in Holocaust Studies and permission of director. *Credits: 1-3*

298 Advanced Readings & Research Declared minor in Holocaust Studies and permission of director. *Credits: 1-3*

Honors HON

095 Introductory Special Topics This seminar accompanies the visit of the Zeltzman Lecturer each spring. Satisfactory/Unsatisfactory. Prerequisite: College of Arts and Sciences/Honors College membership. *Credits: 1*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1*

101 Thesis Proposal Seminar A one-credit course designed to assist students in the production and submission of a College Honors Proposal. Prerequisite: College of Arts and Sciences/Honors College; membership or by permission; junior standing. *Credits: 1*

195 Intermediate Special Topics This seminar is taken by College of Arts and Sciences/ Honors College students, usually in their junior year. See Schedule of Courses for specific titles. Prerequisite: College of Arts and Sciences/Honors College membership. *Credits: 1-18*

196 Honors *Credits: 1-3*

201 Thesis Seminar This seminar brings together students writing their college honors theses in semi-monthly meetings to share their research problems, concerns and findings. Satisfactory/Unsatisfactory. Prerequisite: College of Arts and Sciences/Honors College membership. *Credits: 0*

202 Honors: Anthropology *Credits: 1-6*

203 Honors: Anthropology *Credits: 1-6*

204 Honors: Studio Art *Credits: 1-6*

205 Honors: Studio Art *Credits: 1-6*

206 Honors: Art History *Credits: 1-6*

207 Honors: Art History *Credits: 1-6*

208 Honors: Biology *Credits: 1-6*

209 Honors: Biology *Credits: 1-6*

210 Honors: Plant Biology *Credits: 1-6*

211 Honors: Plant Biology *Credits: 1-6*

212 Honors: Chemistry *Credits: 1-6*

213 Honors: Chemistry *Credits: 3*

214 Honors: Classics *Credits: 1-6*

215 Honors: Classics *Credits: 1-6*

216 Honors:Communication Science *Credits: 1-6*

217 Honors:Communication Science *Credits: 1-6*

218 Honors: Economics *Credits: 1-6*

219 Honors: Economics Credits: 1-6
 220 Honors: English Credits: 1-6
 221 Honors: English Credits: 1-6
 222 Honors: French Credits: 1-6
 223 Honors: French Credits: 1-6
 224 Honors: Geography Credits: 1-6
 225 Honors: Geography Credits: 1-6
 226 Honors: Geology Credits: 1-6
 227 Honors: Geology Credits: 1-6
 228 Honors: German Credits: 1-6
 229 Honors: German Credits: 1-6
 230 Honors: Greek Credits: 1-6
 231 Honors: Greek Credits: 1-6
 232 Honors: History Credits: 1-6
 233 Honors: History Credits: 1-6
 234 Honors: Global&Regional Studies Credits: 1-6
 235 Honors: Global&Regional Studies Credits: 1-6
 236 Honors: Latin Credits: 1-6
 237 Honors: Latin Credits: 1-6
 240 Honors: Music Credits: 1-6
 241 Honors: Music Credits: 1-6
 242 Honors: Philosophy Credits: 1-6
 243 Honors: Philosophy Credits: 1-6
 244 Honors: Physics Credits: 1-6
 245 Honors: Physics Credits: 1-6
 246 Honors: Political Science Credits: 1-6
 247 Honors: Political Science Credits: 1-6
 248 Honors: Psychology Credits: 1-6
 249 Honors: Psychology Credits: 1-6
 250 Honors: Religion Credits: 1-6
 251 Honors: Religion Credits: 1-6
 252 Honors: Russian Credits: 1-6
 253 Honors: Russian Credits: 1-6
 254 Honors: Sociology Credits: 1-6
 255 Honors: Sociology Credits: 1-6
 256 Honors: Spanish Credits: 1-6
 257 Honors: Spanish Credits: 1-6
 258 Honors: Theatre Credits: 1-6
 259 Honors: Theatre Credits: 1-6
 260 Honors: Environmental Studies Credits: 1-6
 261 Honors: Environmental Studies Credits: 1-6
 262 Honors: Women's&Gender Studies Credits: 1-6
 263 Honors: Women's&Gender Studies Credits: 1-6
 264 Honors: Individually Designed Credits: 1-6
 265 Honors: Individually Designed Credits: 1-6
 266 Honors: Computer Science Credits: 1-6
 267 Honors: Computer Science Credits: 1-6
 268 Honors: Italian Studies Credits: 1-6
 269 Honors: Italian Studies Credits: 1-6
 272 Honors: Film/Television Studies Credits: 1-6

273 Honors: Film/Television Studies Contact Department for specific Requirements. Pre/co-requisites: FTS 7, 8, or 9 and 121. Credits: 1-6

274 Honors: Film/Television Studies Contact Department for specific Requirements. Pre/co-requisites: FTS 7, 8, or 9 and 121. Credits: 1-6

275 Honors: Biochemistry Credits: 1-6

276 Honors: Biochemistry Credits: 1-6

277 Honors: Environmental Sciences Credits: 1-6

278 Honors: Environmental Sciences Credits: 1-6

279 Honors: Linguistics Credits: 1-6

280 Honors: Linguistics Credits: 1-6

281 Honors: Neuroscience Credits: 1-6

282 Honors: Neuroscience Credits: 1-6

288 Honors: Mathematics Credits: 1-6

289 Honors: Mathematics Credits: 1-6

Honors College HCOL

031 Music in Live Performance While attending five Lane Series events, students will discuss historical context and will learn to listen and criticize different genres of music and theatre. Credits: 1

032 Critical Looking This course develops strategies for looking critically at original works of art and architecture from the University and Burlington communities. Emphasis upon writing and speaking. Credits: 1

085 Honors College First Year Sem First semester of year-long sequence for Honors College first year students focusing on writing, discussion, group work, and building academic community. Pre/co-requisite: Honors College first year standing. Credits: 3

086 Honors College First Year Sem Follows the fall HCOL seminar, The Pursuit of Knowledge, with sections considering a particular way of knowing, often focusing on race, gender, or culture. Pre-requisite: HCOL 085. Credits: 3

093 Special Topics Credits: 0-12

094 Special Topics Credits: 0-12

101 Honors College Thesis Prep Sem A course designed to assist students in the production and submission of an Honors College Thesis Proposal. Prerequisite: Honors College membership or by permission; junior standing. Credits: 0-1

185 Honors College Sophomore Sem Seminars for Honors College sophomores that are typically discussion based, writing intensive, and multidisciplinary. Course content may vary from year to year. Pre/co-requisite: Honors College sophomore standing. Credits: 3

186 Honors College Sophomore Sem Seminars for Honors College sophomores that are typically discussion based, writing intensive, and multidisciplinary. Course content may vary from year to year. Pre/co-requisite: Honors College sophomore standing. Credits: 3

193 Intermediate Special Topics Credits: 0-12

194 Intermediate Special Topics Credits: 0-12

293 Advanced Special Topics Credits: 0-12

294 Advanced Special Topics Credits: 0-12

Human Development & Fam Studies HDFS

001 Int Hum Dev&Fam Std&Acad Serv Seminar designed to introduce concepts and practices of Human Development and Family Studies through integrating academic service-learning in developmental settings with critical thinking about development. Pre-requisite: Majors only. Credits: 3

005 Human Development A comprehensive survey of life span individual and family development within social and historical context. Credits: 3

020 Aging:Change & Adaptation (Same as Nursing 20 and Sociology 20.) Individual and social meanings of aging and old age; physical, physiological, psychological, and sociological changes accompanying aging; individual, family, community, and societal adaptations to aging. *Credits: 3*

055 Special Topics I See Schedule of Courses for specific titles. *Credits: 1-6*

060 Family Context of Development Developmental ecological approach to analysis of the family as a system in which individuals develop. *Credits: 3*

065 Human Relationships&Sexuality Sexual responsibility and the biological, social, psychological growth, and development of human beings in terms of sex role identity. *Credits: 3*

101 The Helping Relationship Prepares students for the Human Services Profession through the study and practice of professional standards and select helping skills central to effective helping relationships. Prerequisites: HDFS 005 or 060 and sophomore standing. *Credits: 3*

141 D1:Interrogatng White Identity Introductory examination of white identity development and white identity development models from an ecological perspective. Prerequisites: HDFS 005 or 060. *Credits: 3*

152 Biology of Aging (Same as Nursing 100.) *Credits: 3*

161 Social Context of Development Developmental ecological approach to analysis of social institutions as influences on human development. Focus on education, community, health care, and social services. Pre/co-requisite: HDFS 060. *Credits: 3*

167 D2:Sexual & Gender Identities Exploration of diverse lesbian, gay, bisexual, and/or transgender identities, families, and communities, and their current personal, social, and cultural meanings and contexts. Prerequisites: Three hours in Human Development and Family Studies and sophomore standing, or Instructor Permission. *Credits: 3*

189 Theories of Human Development Introduction to the most influential theories of human development where students study, compare, and evaluate select theories and apply them to issues of practical importance. Prerequisites: HDFS 005 and sophomore standing. *Credits: 3*

195 Special Topics Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once, accumulation up to 12 hours. Prerequisite: Varies with course. *Credits: 1-12*

197 Readings & Research *Credits: 1-4*

200 Contemporary Issues UG only. *Credits: 1-6*

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*

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*

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*

265 Teaching Human Development *Credits: 3*

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. Prerequisites: Junior standing, nine hours in Human Development or instructor's permission. *Credits: 3*

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. Prerequisites: Junior standing, nine hours in Human Development or instructor's permission. *Credits: 3*

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. Prerequisites: Junior standing, nine hours in Human Development or instructor's permission. Offered in alternate years. *Credits: 3*

289 Adv Theories of Human Dev 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. Prerequisites: HDFS 161 and 189; Junior standing. *Credits: 3*

291 Special Problems Reading, discussion, and special field and/or laboratory investigations. Prerequisite: Departmental permission. Students may enroll more than once up to 12 hours. *Credits: 1-6*

295 Special Topics Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once, accumulation up to 12 hours. Prerequisite: Departmental permission. *Credits: 1-12*

296 Field Experience Professionally-oriented field experience under joint supervision by faculty and community representative, credit arranged up to 15 hours. Prerequisite: Departmental permission. *Credits: 1-15*

Humanities HUMN

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

195 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing offerings. See Schedule of Courses for specific titles. *Credits: 1-6*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-3*

Individually Designed Majors IDM

264 Honors:Individually Des Majors See pages 61 and 62, and contact program for specific requirements. *Credits: 3*

265 Hon:Individually Des Majors See pages 61 and 62, and contact program for specific requirements. *Credits: 3*

Italian ITAL

001 Elementary I Fundamentals of Italian composition, comprehension, pronunciation, speaking, reading, writing. Structure of the basic Italian sentence. No prior knowledge expected. *Credits: 4*

002 Elementary II Continuation of 1. Prerequisite: 1 or equivalent. *Credits: 4*

051 Intermediate Rdg & Conv I Designed to help students move from a basic knowledge of Italian to the ability to read, speak, and understand Italian better. Some grammar review and short compositions. Prerequisite: 2 or equivalent. *Credits: 3*

052 Intermediate Rdg & Conv II Continues building on the skills developed in 51. Less stress on grammar review. Reading selections and compositions are longer and more sophisticated than in 51. Prerequisite: 51 or equivalent. *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

101 Reading and Writing Workshop Improvement of reading and writing skills through the analysis and discussion of increasingly complex texts -- literary, filmic, cultural. Prerequisite: ITAL 052 or equivalent. *Credits: 3*

121 Issues in Italian Culture An introduction to the cultural realities of Italy, from politics to pop music, food to fashion. Emphasis on improving linguistic fluency. Prerequisites: 52 or equivalent. *Credits: 3*

122 Italian Literature & Film A study of the multiple relationships between literary and cinematic texts and their role as a window on Italian culture. Emphasis on improving linguistic fluency. Prerequisites: 52 or equivalent. *Credits: 3*

157 Modern Italian Fictions An introduction to Italian literature from the 18th century to today, with attention to art, music, cinema, and the Internet. Emphasis on improving linguistic fluency. Prerequisites: 52 or equivalent. *Credits: 3*

158 Early Italian Lit in Context An introduction to Italian literature from its beginnings through the early modern period. Authors may include Dante, Boccaccio, Machiavelli. Emphasis on improving linguistic fluency. Prerequisites: ITAL 052 or equivalent. *Credits: 3*

162 Masters of Italian Renaissance A study of the most representative authors of the 15th and 16th centuries in historical and artistic context. Emphasis on reading and class discussions. Prerequisite: ITAL 052. *Credits: 3*

167 Italian Poetry: Love, Etc. A study of Italian poetry and related literary and cultural issues across the centuries. Emphasis on reading and discussion. Prerequisite: ITAL 052. *Credits: 3*

170 Cultures of Women in Italy A study of Italian women writers, journalists, artists, and film directors. Emphasis on reading and discussion. Prerequisites: 52 or equivalent. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research Permission of department chair required. *Credits: 1-6*

198 Readings & Research Permission of department chair required. *Credits: 1-6*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Japanese JAPN

001 Elementary Japanese I Introduction to spoken and written Japanese through aural-oral drills and grammar presentation. The three writing systems of Japanese (hiragana, katakana, and kanji) are introduced. Prerequisite: No prior knowledge expected. *Credits: 4*

002 Elementary Japanese II Continuation of JAPN 001. Prerequisite: JAPN 1 or equivalent *Credits: 4*

010 Japanese-Daily Communication Introductory level course on speaking everyday Japanese. Emphasis on solid understanding and accurate use of grammar patterns in a culturally appropriate context and conversational situations. *Credits: 3*

051 Intermediate Japanese I Continuation of JAPN 2 designed to enable the students to converse in everyday Japanese and to read and write basic texts. Prerequisites: JAPN 2 or equivalent. *Credits: 4*

052 Intermediate Japanese II Continuation of JAPN 051. Prerequisite: JAPN 51 or equivalent. *Credits: 4*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

101 Advanced Japanese I Further development of oral proficiency and advanced study of grammatical structure of modern Japanese, supplemented by audiovisual materials and authentic written texts of several kinds. Prerequisites: JAPN 052 or equivalent. *Credits: 3*

102 Advanced Japanese II Continuation of JAPN 101. Prerequisites: JAPN 101 or equivalent. *Credits: 3*

121 Japanese Conversation I Development of speaking and listening skills related to concrete topics through total immersion in Japanese. Prerequisites: 52 or equivalent. *Credits: 1-3*

122 Japanese Conversation II Development of functional skills to carry out daily conversation in varied social contexts. Prerequisites: 52 or equivalent. *Credits: 1-3*

195 Intermediate Special Topics See Schedule of Courses for special titles. Prerequisite: 52 or equivalent. *Credits: 1-6*

196 Intermediate Special Topics See Schedule of Courses for special titles. Prerequisite: 52 or equivalent. *Credits: 1-6*

197 Readings and Research Independent study of a specific area, subject, or theme with an approved instructor. *Credits: 1-6*

198 Readings and Research Independent study of a specific area, subject, or theme with an approved instructor. *Credits: 1-6*

201 Studies of Japanese Texts I Introduction to rapid reading skills, directed reading of authentic texts and guided practice of conversational skills in multiple social contexts. Course can be repeated with different content. Prerequisite: JAPN 102 or equivalent *Credits: 3*

202 Studies of Japanese Texts II Continuation of JAPN 201. Application of the rapid reading skills developed in JAPN 201 using higher-level reading materials. Course can be repeated with different content. Prerequisite: JAPN 201 or equivalent. *Credits: 3*

221 Japanese for Communication I Training in skills to communicate on concrete and abstract topics. Repeatable with different content. Prerequisites: 102 or equivalent. *Credits: 1-6*

222 Japanese for Communication II Development of skills to present information and view points in varied social contexts. Repeatable with different content. Prerequisites: 102 or equivalent. *Credits: 1-6*

295 Advanced Special Topics Contact department for details. *Credits: 1-6*

296 Advanced Special Topics Contact department for details. *Credits: 1-6*

297 Adv Readings and Research Advanced independent study of a specific area, subject, or theme with an approved instructor. Prerequisite: 102 or equivalent. *Credits: 1-6*

298 Adv Readings and Research Advanced independent study of a specific area, subject, or theme with an approved instructor. Prerequisite: 102 or equivalent. *Credits: 1-6*

Latin LAT

001 Elementary For students who present less than two years of high school Latin. *Credits: 4*

002 Elementary Latin For students who present less than two years of high school Latin. *Credits: 4*

003 Self-Paced Latin Fundamentals of Classical Latin through tutorial instruction, credit dependent on amount of material learned. May be repeated for credit. No credit with 1 and 2. *Credits: 1-8*

051 Intermediate Selections from Cicero and other prose authors. *Credits: 3*

052 Intermediate Latin Selections from Vergil and Ovid. *Credits: 3*

095 Introductory Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

101 Survey Latin Literature Selections from principal Roman authors. *Credits: 3*

102 Survey Latin Literature Selections from principal Roman authors. *Credits: 3*

195 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research *Credits: 1-6*

198 Readings & Research *Credits: 1-6*

203 Republican Prose Extensive reading in Caesar and Sallust, and in the speeches of Cicero. Alternate years, as needed. *Credits: 3*

204 Epic Poets Extensive reading in Lucretius, Vergil, Ovid, and others. Alternate years, as needed. *Credits: 3*

211 Latin Prose Style Readings in literary prose analyzed stylistically and imitated in composition. Required of Latin majors. *Credits: 3*

212 Latin Prose Style Readings in literary prose analyzed stylistically and imitated in composition. Required of Latin majors. *Credits: 3*

227 Roman Lyric Poets Selections from the works of Catullus, Horace, Propertius, and Tibullus. Alternate years, as needed. *Credits: 3*

251 Roman Letters Letters of Cicero, Horace, and Pliny. Alternate years, as needed. *Credits: 3*

252 Comedy Two plays of Plautus and Terence. Study of the precursors of this literary form. Alternate years, as needed. *Credits: 3*

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*

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*

256 Satire Selections from Horace, Persius, Juvenal, Petronius. Study of the development of this literary form. Alternate years, as needed. *Credits: 3*

271 Silver Latin Extensive reading of post-Augustan authors not included in other advanced courses. Alternate years, as needed. *Credits: 3*

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: 1-18*

296 Advanced Special Topics Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

Leadership and Policy Studies 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. Prerequisites: Twelve hours in education and related areas. *Credits: 0-6*

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 permission. *Credits: 3*

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 permission. *Credits: 2-3*

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 permission. *Credits: 2-3*

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*

291 Spec Tpcs in Org&Hum Res Dev Special issues in counseling, administration and planning, social work, or higher education not appropriate to content of existing courses. Courses will reflect the social services orientation of the Department of Education. *Credits: 1-6*

295 Lab Experience Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences. *Credits: 1-6*

Library Science EDLI

200 Contemporary Issues Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisites: Twelve hours in education and related areas. *Credits: 1-6*

272 Manage Schl Library Media Ctrs Overview of administrative issues, including development of policies and procedures, budget preparation, personnel administration, and public relations. Focus on information technology and literacy. Prerequisite: Twelve hours in education and related areas, or permission. *Credits: 3*

273 Organizing Schl Libr Media Ctr Introduction to cataloging of print and non-print materials, Dewey Decimal Classification, application of microcomputers to catalog and circulation services. Prerequisite: 272 or equivalent. *Credits: 3*

274 Design Instr Sch Libr 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: 272 or equivalent. *Credits: 3*

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: 272 or equivalent. *Credits: 3*

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: 272 or equivalent. *Credits: 3*

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. Prerequisites: 272 or equivalent. *Credits: 3*

295 Lab Experience in Educ Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences. *Credits: 1-6*

Linguistics LING

080 Introduction to Linguistics Introduction to biological, cognitive, and cultural bases of human communication through language, and to modern linguistic theory. Assignments provide opportunities for critical thinking and writing. *Credits: 3*

084 Language & Arabic Culture Theoretical approach to language and society focusing on the functions played by the Arabic language in Arab societies. *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

097 Readings & Research See Schedule of Courses for specific titles. *Credits: 1-6*

098 Readings & Research See Schedule of Courses for specific titles. *Credits: 1-6*

101 Intro Linguistics *Credits: 3*

102 Linguistics *Credits: 3*

135 D1:Language & Ethnicity Explores language patterns of U.S. ethnic minorities, focusing on language and identity construction, and also Whiteness, White privilege, and its relation to standard language ideology. Prerequisite: LING 080. *Credits: 3*

162 American English Dialects Class will examine dialects of American English and the methodology of dialectology with focus on Vermont speech and the social meaning of dialect variation. Prerequisite: LING 080. Cross-listed with ENGS 103. *Credits: 3*

164 Structure of English Language Using descriptive linguistic theory, this course examines basics of English grammar with emphasis on hands-on examples. Also includes exploration of politicization of English grammar. Prerequisites: 3 hours of ENGS, CSD or LING. Cross-listed with ENGS 101. *Credits: 3*

165 Phonetic Theory and Practice Linguistic, acoustic, and articulatory phonetics. Stresses phonetic theory and the analysis of speech variation around the world and across the life-span. Pre/co-requisite: LING 080. *Credits: 3*

166 Introduction to Syntax This course serves as an introduction to the syntax of natural languages and a rigorous approach to the analysis of sentence structure. Pre/co-requisites: ANTH 028 or LING 080. Cross-listed with ANTH 142. *Credits: 3*

168 Introduction to Pragmatics An exploration of the contexts of language--physical, linguistic, and cultural--and their roles in determining the meaning of everyday talk and writing. Pre/co-requisites: LING 080. *Credits: 3*

169 Phonology & Morphology Phonology/Morphology surveys the study of the organization of sounds and internal word structure, covering a range of phenomena: alternations, constraints, allomorphy, clitics, tone, and more. Prerequisite: LING 080. *Credits: 3*

171 Intro to Psycholinguistics Psycholinguistics studies the cognitive processes involved in acquiring, understanding and producing language. Speech perception, word recognition and sentence processing are some of the topics covered. Prerequisite: LING 080 or PSYC 001. *Credits: 3*

176 D1: African American English Overview of African American English from linguistic and cultural perspectives. Topics include: linguistic structure and history/development, discourse genres, hip-hop language, education, and media representations, among others. *Credits: 3*

177 Second Language Acquisition This course explores first language influence, individual cognitive differences and age in second language acquisition. The role of interaction, socialization and identity are also considered. Prerequisite: LING 080. *Credits: 3*

178 Sociolinguistics Exploration of language and nonverbal interactions as cultural activities. Focus on rules and patterns people display appropriate to communication and social interaction.

Prerequisite: ANTH 028 or LING 080. Cross-listed with ANTH 178. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research See Schedule of Courses for specific titles. *Credits: 1-6*

198 Readings & Research See Schedule of Courses for specific titles. *Credits: 1-6*

272 Language, Gender and Sexuality Examines different theoretical approaches to understanding gender and sexuality through the study of language use, emphasizing analysis of crosscultural data from a linguistic anthropological perspective. Prerequisites: ANTH 028 or LING 080 and one 100-level anthropology or linguistics course. Cross-listed with ANTH 272. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

297 Readings & Research See Schedule of Courses for specific titles. *Credits: 1-6*

298 Readings & Research See Schedule of Courses for specific titles. *Credits: 1-6*

Literacy EDLT

200 Contemporary Issues *Credits: 1-6*

222 Cltvate Chil Lit in El/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. Prerequisites: Twelve hours in education and/or related areas including an introductory course in reading or permission. *Credits: 3*

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 permission. *Credits: 3*

228 Lit in Jr/Sr High Schl Curr (Literacy Criticism for Teachers.) *Credits: 3*

234 Lit & Lang for Chil & Youth Characteristics, interests, reading habits of children and youth; selection, evaluation of literature. Organizing book units for teaching literature, for content areas. Emphasis on development of oral, written expression. Prerequisite: Twelve hours in education and related areas or permission. *Credits: 3*

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*

295 Laboratory Experience in Educ *Credits: 1-6*

Mathematics MATH

001 Elementary College Algebra Review of fundamental operations and a more extensive study of fractions, exponents, radicals, linear and quadratic equations, ratio, proportion, variation, progressions, and the binomial theorem. Topics normally included in intermediate algebra in high school. Students who have satisfactorily completed two years of high school algebra, or the equivalent, receive no credit for this course. Offered only in Evening Division and Summer Session. Prerequisite: One year of high school algebra. *Credits: 3*

009 College Algebra Sets, relations, functions with particular attention to properties of algebraic, exponential, logarithmic functions, their graphs and applications in preparation for 19. May not be taken for credit concurrently with, or following receipt of, credit for any mathematics course numbered 19 or above. Pre/co-requisites: Two years of secondary school algebra, one year of secondary school geometry. *Credits: 3*

010 Pre-Calculus Mathematics Skills in working with numerical, algebraic, and trigonometric expressions are developed in preparation for 21. May not be taken for credit concurrently with, or following receipt of, credit for any mathematics course numbered 19 or above. Prerequisites: Two years of secondary school algebra, one of secondary school geometry. *Credits: 3*

015 Elementary School Math Operations with real numbers: decimals, fractions, percents, integers. Set operations, Venn diagrams, algebra, and problem solving provide background for future instruction in elementary/middle school mathematics. Pre-requisite: Three years of secondary school math. *Credits: 3*

016 Fund Concepts Elem School Math Topics include geometry, measurement, probability, statistics, algebra, number theory, and problem solving to provide background for future instruction in elementary and middle school mathematics. Prerequisite: Three years of secondary school math. *Credits: 3*

017 Applications of Finite Math Introduction to mathematics of finite systems with applications, such as probability, statistics, graph theory, fair division and apportionment problems, voting systems. Prerequisite: Two years of secondary school algebra or MATH 009 or 010. *Credits: 3*

018 Basic Mathematics Data, statistics, modeling, algebra, word problems, calculus. Students who do well in the algebra section may continue with MATH 019 or MATH 021. Prerequisite: 3 years high school math. No credit for CEM students. *Credits: 3*

019 Fundamentals of Calculus I Introduction to limits and differential calculus with a wide variety of applications. Students interested in intensive use of mathematics should take MATH 021. Credit not given for more than one of the courses MATH 019, 021 unless followed by MATH 022. See MATH 023. Prerequisite: MATH 009, 010, or sufficiently strong background in secondary school algebra and geometry. *Credits: 3*

020 Fundamentals of Calculus II Introduction to integral calculus with a wide variety of applications. A student who completes 020 may be admitted to 022; however, 019, 023 is preferable to 019, 021, 022 or 019, 020, 022. Prerequisite: MATH 019. *Credits: 3*

021 Calculus I Introduction to calculus of functions of one variable including: limits, continuity, techniques and applications of differentiation and integration. Credit not given for more than one course in the pair 019, 021 unless followed by 022. Prerequisite: MATH 010; or strong background in secondary school algebra and trigonometry. *Credits: 4*

022 Calculus II Techniques and applications of integration. Polar coordinates, Taylor polynomials, sequences and series, power series. Credit will not be given for both 022 and 023. Prerequisite: MATH 021. *Credits: 4*

023 Transitional Calculus (Intended to make the transition from a B or better in 019 to 121). Topics are similar to 022 but recognizing different backgrounds of students in 019 versus 021. Credit will not be given for both 022 and 023. Prerequisite: B or better in MATH 019. *Credits: 5*

052 Fundamentals of Mathematics Emphasizing proofs, fundamental mathematical concepts and techniques are investigated within the context of number theory and other topics. Credit not given for both 052 and 054. Co-requisite: MATH 021. *Credits: 3*

054 Fund of Math of Computation Introduction to mathematical theory and techniques underlying computer science. Corequisite: 19 or 21. *Credits: 3*

095 Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: Instructor's consent. *Credits: 1-12*

121 Calculus III Vectors, vector-valued functions. Calculus of functions of several variables: partial derivatives, gradient, divergence, curl, multiple integrals, line integrals, Stokes' and Green's theorems. Prerequisite: 22. *Credits: 4*

124 Linear Algebra Matrices, linear dependence, vector spaces, linear transformations, characteristic equations and applications. Prerequisites: 22 or instructor's permission. Corequisite: MATH 121 recommended but not required. *Credits: 3*

141 Real Analysis in One Variable Principles of analysis in one variable. Heine-Borel and Bolzano-Weierstrass theorems; rigorous development of differential and integral calculus; infinite sequences and series of functions. May not be taken concurrently with or after 241. Pre/co-requisites: 52. *Credits: 3*

151 Groups and Rings An introduction to the basic concepts of abstract algebra emphasizing examples, including modular arithmetic, symmetric groups, cyclic groups, polynomial rings, homomorphisms, and isomorphisms. May not be taken concurrently with or after 251. Prerequisite: MATH 052. *Credits: 3*

161 Development of Mathematics Historical development of mathematical sciences emphasizing interrelations among them. Individual assignments correspond to background and interests of students. Prerequisite: Nine hours of college mathematics. *Credits: 3*

167 Physical Chemistry Preparation Review of relevant mathematical and physical concepts as applied to physical chemistry. Credit cannot be obtained for both MATH 167 and MATH 121. Not available for credit for E&M students. Prerequisites: 22; CHEM 32 or 36. (Cross-listing: Chem. 167.) *Credits: 1*

168 Mathematics of Biology Discrete biological processes: nonlinear difference equations. Continuous processes: ordinary differential equations, phase plane methods, quantitative solutions. Applications: population dynamics, epidemiology, Michaelis-Menten kinetics, autocatalysis, muscle contraction. Includes a lab. May not be taken concurrently with or after Math 268. Pre/co-requisites: Math 22 or 23, 124. Cross-listing: Biol 168 *Credits: 3*

173 Basic Combinatorial Theory Introduction to basic combinatorial principles emphasizing problem-solving techniques. Enumeration, generating functions, Fibonacci numbers, pigeonhole principle, inclusion-exclusion, and graph theory. Prerequisite: MATH 052 or 054 or CS 064. *Credits: 3*

191 Special Topics An approved project under guidance of a staff member and culminating in a written report. Involvement with off-campus groups permitted. Prerequisites: Junior or senior standing, approval of department chairperson. *Credits: 1-3*

192 Special Topics An approved project under guidance of a staff member and culminating in a written report. Involvement with off-campus groups permitted. Prerequisites: Junior or senior standing, approval of department chairperson. *Credits: 1-3*

193 College Honors *Credits: 1-3*

194 College Honors *Credits: 1-3*

195 Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

207 Probability Theory (Cross listed with Statistics 251.) Distributions of random variables and functions of random variables. Expectations, stochastic independence, sampling and limiting distributions (central limit theorems). Concepts of random number generation. Prerequisite: Math 121; Stat 151 or 153 recommended. *Credits: 3*

221 Deterministic Modls Oper Rsch The linear programming problem. Simplex algorithm, dual problem, sensitivity analysis, goal programming. Dynamic programming and network problems. Prerequisites: 124; 121 desirable. Cross-listing: CSYS 221. *Credits: 3*

222 Stochastic Models in Oper Rsch Development and solution of some typical stochastic models. Markov chains, queueing problems, inventory models, and dynamic programming under uncertainty. Prerequisite: 207 or Statistics 151, or instructor's permission. *Credits: 3*

224 Algorithm Design & Analysis (Cross listed with CS 224.) Comprehensive analysis of common algorithmic paradigms including greedy algorithms, divide and conquer, dynamic programming, graph algorithms, and approximation algorithms. Complexity hierarchies. Prerequisites: CS 124, MATH 173 recommended. *Credits: 3*

230 Ordinary Differential Equation Solutions of linear ordinary differential equations, the Laplace transformation, and series solutions of differential equations. Prerequisite: 121. Corequisite: 124 or instructor's permission. Credit not granted for more than one of the courses Math. 230 or 271. *Credits: 3*

235 Mathematical Models & Analysis Techniques of undergraduate calculus and linear algebra are applied for mathematical analysis of models of natural and human-created phenomena. Students are coached to give presentations. Prerequisites: MATH 121 and any of 124, 230, or 271. *Credits: 3*

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: MATH 230. *Credits: 3*

237 Intro to Numerical Analysis Error analysis, root-finding, interpolation, least squares, quadrature, linear equations, numerical solution of ordinary differential equations. Prerequisites: 121; 124 or 271; knowledge of computer programming. *Credits: 3*

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. Prerequisite: MATH 121, either MATH 124 or 271. *Credits: 3*

240 Fourier Series&Integral Trans Fourier series, orthogonal functions, integral transforms and boundary value problems. Prerequisite: 230 or 271. *Credits: 3*

241 Anyl in Several Real Vars I Properties of the real numbers, basic topology of metric spaces, infinite sequences and series, continuity. Prerequisites: MATH 052, 121, 124 or instructor permission. *Credits: 3*

242 Anyl Several Real Variables II Differentiation and integration in n-space, uniform convergence of functions, fundamental theorem of calculus, inverse and implicit function theorems. Prerequisite: MATH 241. *Credits: 3*

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. (Cross listed with Computer Science 243.) *Credits: 3*

251 Abstract Algebra I Basic theory of groups, rings, fields, homomorphisms, and isomorphisms. Prerequisites: 52, 124 or instructor's permission. *Credits: 3*

252 Abstract Algebra II Modules, vector spaces, linear transformations, rational and Jordan canonical forms. Finite fields, field extensions, and Galois theory leading to the insolubility of quintic equations. Prerequisite: 251. *Credits: 3*

255 Elementary Number Theory Divisibility, prime numbers, Diophantine equations, congruence of numbers, and methods of solving congruences. Prerequisite: 52 or 54. *Credits: 3*

257 Topics in Group Theory Topics may include abstract group theory, representation theory, classical groups, Lie groups. Prerequisite: MATH 251. *Credits: 3*

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: 52 or 54. *Credits: 3*

264 Vector Analysis Gradient, curl and divergence, Green, Gauss, and Stokes Theorems, applications to physics, tensor analysis. Prerequisite: 121, 124 or 271. *Credits: 3*

266 Chaos,Fractals&Dynamical Syst Discrete and continuous dynamical systems, Julia sets, the Mandelbrot set, period doubling, renormalization, Henon map, phase plane analysis and Lorenz equations. Corequisite: 271 or 230 or instructor's permission. Cross-listing: CSYS 266. *Credits: 3*

268 Mathematical Biology&Ecology Mathematical modeling in the life sciences. Topics include population modeling, dynamics of infectious diseases, reaction kinetics, wave phenomena in biology, and biological pattern formation. Prerequisites: 124, 230; or instructor's permission. Cross-listing: CSYS 268. *Credits: 3*

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. No credit for Mathematics majors. Credit not granted for both MATH 230 and MATH 271. Prerequisite: MATH 121. *Credits: 3*

272 Applied Analysis Basics of Fourier series, partial differential equations of mathematical physics, functions of a complex variable, Cauchy's theorem, integral formula. Prerequisite: MATH 230 or 271. *Credits: 3*

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: 52 or 54 or instructor's permission. *Credits: 3*

274 Numerical Linear Algebra Direct and iterative methods for solving linear equations, least square factorization methods, eigenvalue computations, ill-conditioning and stability. Prerequisite: 237. *Credits: 3*

275 Adv Engineering Analysis I Analytical methods for the solution of partial differential equations in engineering mechanics and physics, including: eigenfunction expansions; Fourier series; Sturm-Liouville theory and special functions. Prerequisites: Graduate standing in engineering, mathematics, or physical sciences or permission. Not available for 300-level credit for Mathematics students. Cross-listed with CE 304 and ME 304. *Credits: 3*

276 Adv Engineering Analysis II Advanced analytical techniques for problems in engineering mechanics and physics, including: integral transform methods, Green's functions, perturbation methods, and variational calculus. Prerequisites: ME 304 or equivalent. Not available for 300-level credit for Mathematics students. Cross-listed with CE 305 and ME 305. *Credits: 3*

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: EE 171, or instructor permission. Cross-listing: EE 274. *Credits: 3*

283 Junior-Senior Seminar Students required to give presentations on selected topics. Prerequisite: Instructor's permission. *Credits: 1*

293 Undergraduate Honors Thesis Program of reading and research culminating in written thesis and oral presentation. Honors notation appears on transcript and Commencement Program. Contact department chairperson for procedures. *Credits: 3-4*

294 Undergraduate Honors Thesis Program of reading and research culminating in written thesis and oral presentation. Honors notation appears on transcript and Commencement Program. Contact department chairperson for procedures. *Credits: 3-4*

295 Special Topics For advanced students in the indicated fields. Lectures, reports, and directed readings on advanced topics. Prerequisite: Instructor's permission. Credit as arranged. Offered as occasion warrants. *Credits: 1-18*

Mathematics for Educators MAED

205 Math as a Second Language Deep conceptual understanding of the operations of arithmetic and interrelationships among arithmetic, algebra, and geometry; applications to the K-8 classroom. Pre/co-requisites: Admission to the VMI Program *Credits: 3*

210 Functions/Algebra for Teaching Functions, graphs, inverse functions, linear functions, straight lines, linear equations and inequalities, and applications; applications to the K-8 classroom. Pre/co-requisites: MAED 205, or permission. *Credits: 3*

215 Trig/Algebra for Teachers II Similar triangles, trigonometric functions, applications to measurement, periodic phenomena; quadratic functions; applications to the K-8 classroom. Pre/co-requisites: MAED 205 and 210, or permission. *Credits: 3*

220 Measure/Probabil for Teachers Measurement (length, area and volume), probability, application to problem solving, and the ways in which these concepts develop across the K-12 curriculum. Pre/co-requisites: MAED 205, 201, and 215, or permission. *Credits: 3*

225 Number Theory for Teachers Division algorithm, prime numbers, fundamental theorem of arithmetic, factors and multiples, number bases, arithmetic progressions; emphasis on how number theory is taught in grades K-8. Pre/co-requisites: MAED 205, 210, and 215. *Credits: 3*

230 Alg/Geom for Teachers III Exponents, compound interest, exponential functions, logarithms, the base e, growth and decay, research in mathematics education and K-8 curriculum projects. Pre/co-requisites: MAED 205, 210 and 215, or permission. *Credits: 3*

235 Calculus for Teachers I Limits, instantaneous change, differentiation, optimization, applications to the K-8 classroom, and K-8 curriculum projects. Pre/co-requisites: MAED 205, 210, 215, 220, and 230 or permission. *Credits: 3*

240 Calculus for Teachers II Continued study of calculus and its relationship to the K-8 curriculum. Topics include infinite series, calculating area, the definite integral, Fundamental Theorem of Calculus. Pre/co-requisites: MAED 235, or permission. *Credits: 1 OR 2*

295 Advanced Special Topics See Schedule of Courses for specific title. *Credits: 1-18*

Mechanical Engineering ME

001 First-Year Design Experience Introduction to the engineering profession and design. Hands-on experiences that emphasize interdisciplinary teamwork, technical communications, and project design methodologies. Cross-listings: EE 1. *Credits: 2*

012 Dynamics Kinematics and kinetics of particles and rigid bodies in two and three dimensions. Computer-aided analysis. Prerequisites: Civil Engineering 1, Math. 121. *Credits: 3*

014 Mechanics of Solids (Same as Civil Engineering 100.) Stress, strain, temperature relationships, torsion, bending stresses and deflections. Columns, joints, thin-walled cylinders. Combined stresses and Mohr's circle. Prerequisites: Civil Engineering 1, Math. 121, ME 12 or concurrent enrollment. *Credits: 3*

040 Thermodynamics Principles of engineering thermodynamics; applications of these principles to thermodynamic cycles. Prerequisites: MATH 022, Physics 031 with 021. *Credits: 3*

042 Applied Thermodynamics Analysis of isentropic processes, gas, vapor and combined power cycles; refrigeration/heat pump cycles; relationships for ideal and real gases; gas mixtures and psychrometric applications. Prerequisite: ME 040. *Credits: 3*

044 Heat Transfer Introductory treatment of heat transfer by conduction, convection, and radiation. Corequisite: 40. *Credits: 1*

082 Mech Engineering Lab I Computer methods in mechanical engineering. Introduction to scientific programming; solids modeling and stress analysis. Pre/corequisite: CE 1. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. One to three hours with instructor's approval. *Credits: 0-3*

101 Materials Engineering Atomic structure, crystalline structure, mechanical properties and testing of materials, phase equilibria, processing of metals, polymers, and ceramics. Prerequisite: ME 014. *Credits: 3*

111 System Dynamics Modeling of systems with mechanical, electrical, fluid, and thermal elements. Linear systems analysis. Response of vibratory and feedback systems. Computer simulation. Prerequisite: ME 012; co-requisite: MATH 124. *Credits: 3*

114 Intro Engineering Mechanics Introduction to statics, dynamics, fluid mechanics, strength of materials, thermodynamics. Prerequisite: Junior standing in engineering or physical sciences. *Credits: 3*

123 Mechanical Engineering Lab II Engineering measurements, data analysis and theory of experimentation. Experiments with fluids and material testing machines and instrumentation for dynamic measurements. Corequisite: 143. *Credits: 2*

124 Mechanical Engineering Lab III Engineering measurements, data analysis and theory of experimentation. Experiments with fluids and material testing machines and instrumentation for dynamic measurements. Corequisite: 143. *Credits: 2*

143 Fluid Mechanics Fluid pressure distributions; integral control volume systems; differential relations for a fluid particle; dimensional similarity; viscous flow in ducts; boundary layer flows; inviscid incompressible flows. Prerequisites: ME 012, ME 040. *Credits: 3*

144 Heat Transfer One- and two-dimensional steady and unsteady thermal conduction; natural and forced internal and external convection; thermal radiation; heat exchangers; boiling and condensation heat transfer. Prerequisite: 143. *Credits: 3*

150 The Engineering Profession Professional practice of engineering. Laws, ethics, engineering economy, liability, insurance, and contracts. Prerequisite: Senior standing or instructor's permission. *Credits: 3*

161 Modern Manufacturing Processes Product development, product design, concurrent engineering, rapid prototyping, semiconductor manufacturing, metal and plastic products manufacturing, EDM, ECM, laser, ultrasonic and high energy forming methods, biotechnology. Prerequisite: Senior standing in ME *Credits: 3*

162 Modern Manufacturing Systems Overview of systems used in manufacturing and operations management methods, including: quality systems, material management, lean manufacturing, statistical process control, and sustainable operations. Prerequisite: Senior standing in ME or Engineering Mgmt. *Credits: 3*

170 Mechanical Design I Advanced mechanics of materials, stress strain, bending and torsion of slender members, energy methods, finite element modeling, and CAD topics including parametric and solid modeling. Prerequisite: 101. *Credits: 4*

171 Design of Elements Mechanical fatigue criteria, fatigue analysis and design of springs, bolted/welded joints, gearing, shafts, bearings, power transmission. Computer-aided design and analysis. Prerequisites: Junior standing, 14. *Credits: 3*

172 Design of Systems Design synthesis and optimization; probabilistic aspects in design; expert systems in design. Prerequisite: 171. *Credits: 3*

174 Industrial Design Project Design projects from industry. Prerequisite: 171. *Credits: 1*

185 Capstone Design I Design teams apply their knowledge and skills, mentored by faculty and/or industry partners, to design and build novel devices that meet functional needs. Prerequisite: Senior standing. *Credits: 2*

186 Capstone Design II Design teams apply their knowledge and skills, mentored by faculty and/or industry partners, to design and build novel devices that meet functional needs. Prerequisite: ME 185. *Credits: 2*

191 Senior Thesis Investigation of a research or design project under supervision of assigned staff member culminating in acceptable thesis. Prerequisites: Senior standing, departmental permission. *Credits: 3*

193 College Honors *Credits: 1-3*

194 College Honors *Credits: 1-6*

195 Intermediate Special Topics See Schedule of Courses for specific titles. Prerequisite: Senior standing in Civil or Mechanical Engineering. *Credits: 1-18*

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*

207 Bioengineering Introduction to bioengineering including biomechanics, rehabilitation, instrumentation, imaging, biomaterials, and transport. Pre/co-requisites: Senior or grad standing in engineering; instructor permission. *Credits: 3*

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 or grad standing in engineering; instructor permission. *Credits: 3*

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 or grad standing in engineering; instructor permission. *Credits: 3*

210 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: EE 171 or ME 111. Cross-listed with EE 210. *Credits: 3*

230 Orbital Mechanics Motion of spacecraft in a central gravitational field. Two and restricted three-body problems; Kepler's equation; orbital maneuvers and rendezvous; interplanetary and lunar trajectories. Prerequisite: ME 012; co-requisite: ME 111 or instructor permission. *Credits: 3*

234 Mechanical Vibrations Analysis, measurement, and control of mechanical vibrations; SDOF, MDOF, and rotating systems, forced, free, and random vibrations. Prerequisites: 111, or senior or graduate standing in engineering or physical sciences. *Credits: 3*

235 Turbomach Vibration Anyl/Tstng Vibration in rotating machines; vibration measurement techniques; machinery condition and degradation; condition monitoring and predictive maintenance; industrial vibration techniques including proximity probes, accelerometers, FFT analyzer. Prerequisite: 244. *Credits: 2*

237 Turbulence Description of turbulent flows; statistical and modeling of turbulent flows; Navier Stokes as a dynamical system; experimental and numerical approaches. Prerequisite: ME 143. *Credits: 3*

238 Energy Systems Engineering Engineering assessment of both potentially sustainable and unsustainable practical primary energy systems. Examination of options of meeting demand and impacts on the environment. Prerequisite: ME 042. *Credits: 3*

239 Rocket Propulsion Flight mechanics and propulsion requirements for atmospheric and space flight. Thermochemistry of fuels and propellants. Operating principles of chemical, electrical and nuclear propulsion systems. Pre/co-requisites: ME 143/ME 240 recommended or permission of instructor. *Credits: 3*

240 Compressible Flow 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*

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 or graduate standing. *Credits: 3*

242 Adv Engr Thermodynamics I Foundations of statistical mechanics. Gases and crystals. Chemical equilibrium. Irreversible processes. Prerequisites: Senior or graduate standing or permission. *Credits: 3*

243 Incompressible Flow Intermediate treatment of incompressible fluid flow; Navier- Stokes equations; two-dimensional potential flows; wing theory; vorticity and vortex structures; laminar and turbulent boundary layers. Prerequisites: ME 143 or equivalent. *Credits: 3*

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: 243, Math. 271. *Credits: 2*

245 Advanced Heat Transfer I Analytical methods for multidimensional steady and transient heat conduction; phase change and moving boundaries. Thermal radiation exchange in enclosures; view factors; emitting/absorbing gases. Prerequisites: ME 144 or equivalent, or by permission. *Credits: 3*

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: 244. *Credits: 2*

247 Centrifugal Pumps Centrifugal pump design principles and practice; performance limits; cavitation; design tools and pump design optimization. Prerequisite: 244. *Credits: 2*

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: 244. *Credits: 1 OR 2*

249 Computational Fluids Engr Computational methods for solving the Navier-Stokes equations and combined thermo-fluid flows; finite- differences and finite-volume techniques; use of standard commercial CFD software. Prerequisites: 143 or equivalent. *Credits: 3*

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. *Credits: 3*

253 Corrosion of Materials Corrosion principles: electrochemical, environmental, and metallurgical aspects. Corrosion testing. Corrosion prevention. Seawater corrosion. Biological corrosion. Material selection. Prerequisite: 101. *Credits: 3*

255 Adv Engineering Materials Advanced material processing; physical and mechanical principles of high-temperature alloys, lightweight materials, thin films, nanomaterials, and biomedical materials; elements of computational materials design. Prerequisites: Senior or graduate standing, or instructor's permission. *Credits: 3*

257 Composite Materials Fibers, matrices. Unidirectional and short fiber composites. Experimental characterization. Prerequisite: 101. *Credits: 3*

265 Integrated Product Development (Cross listed with Business Administration 293.) Project-based course focusing on the entire product life cycle. Team dynamics, process and product design, quality, materials, management, and environmentally-conscious manufacturing. Prerequisite: Senior standing. *Credits: 3*

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*

271 Micro and Nano Systems Operating principles, fabrication and design of engineered systems with submillimeter dimensions. Prerequisite: Senior or graduate standing in engineering or physical sciences. *Credits: 3*

281 Seminar Presentation and discussion of advanced mechanical engineering problems and current developments. Prerequisite: Senior or graduate engineering enrollment. *Credits: 1*

282 Seminar Presentation and discussion of advanced mechanical engineering problems and current developments. Prerequisite: Senior or graduate engineering enrollment. *Credits: 1*

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: 244. *Credits: 2*

285 Biomedical Engineering Seminar Presentation and discussion of advanced biomedical engineering problems and current research developments. Prerequisites: Senior or graduate engineering enrollment. *Credits: 1*

295 Advanced 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 or graduate standing. *Credits: 1-18*

Medical Lab & Radiation Sci MLRS

034 Human Blood Cell Biology Lecture and laboratory experiences about cellular structure, function and physiology using cells of the blood as models. *Credits: 3*

054 Principles of Microbiology Lectures dealing with the structure, physiology, and control of microorganisms, in particular those of medical importance. *Credits: 3*

056 Principles of Microbiology Lab Laboratory experiences dealing with the structure, physiology, and control of microorganisms, particularly those of medical importance. Prerequisite: MLRS 054 *Credits: 1*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

110 Phlebotomy Basic techniques in blood collection in outpatient phlebotomy and advanced techniques in inpatient phlebotomy, including choice of anticoagulants, equipment, sterility, and protection from blood-borne pathogens. Prerequisites: MLS and MLS-PBC students only. *Credits: 1*

140 Radiation Science Introduction to ionizing radiation, emphasizing its interaction with matter, its effect on the human body, and methods of radiation protection. *Credits: 3*

141 Advanced Radiation Science Lecture and laboratory experiences to enhance the understanding and application of the principles of radioactive decay, radiation exposure, absorbed dose, shielding and detection of radiation. Prerequisite: MLRS 140. *Credits: 3*

175 Medical Imaging Introduction to the radiographic anatomy and the various imaging modalities presently used to include diagnostic imaging, computed tomography (CT), magnetic

resonance imaging (MRI), and nuclear medicine. Prerequisites: MLRS 141, RADT 152, ANPS 020. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

215 CT Procedures This course provides in-depth study of the concepts, use and practice of CT Procedures related to Nuclear Medicine Technology and Radiation Therapy. Prerequisites: ANPS 019 and 020; MLRS 175. *Credits: 3*

242 Immunology Lecture dealing with cellular and humoral immunity, B cells and T cells, autoimmunity, immunodeficiency. Prerequisites: One Semester of Biochemistry. *Credits: 3*

244 Immunology Lab Laboratory experience dealing with cellular and humoral immunity, B cells and T cells, autoimmunity, immunodeficiency. Laboratory covers immunological techniques and applications. Co-requisites: MLRS 242; One Semester Biochemistry. *Credits: 1*

281 Applied Molecular Biology Lecture course focused on application of molecular biology techniques to diagnostic testing and biotechnology. Prerequisites: CHEM 42 or 141. *Credits: 3*

282 Applied Molecular Biology Lab Laboratory course focused on application of molecular biology techniques to diagnostic testing and biotechnology. Prerequisites: CHEM 42 or 141; co-requisite: MLRS 281. *Credits: 1*

293 Undergraduate Research I Individual research performed under the supervision of a faculty mentor. A written report and seminar is required. Prerequisite: Departmental permission. *Credits: 1-6*

294 Undergraduate Research II Individual research performed under the supervision of a faculty mentor. A written report and seminar is required. Prerequisite: MLRS 293, Departmental permission. *Credits: 1-6*

295 Prin of Education & Management Introduction to educational practices, management strategies, and professionalism. Third year standing, MLS, NMT, RADT majors only. *Credits: 3*

296 Leadership & Mgt in Hlth Care This course will familiarize students with operational aspects of healthcare management, including but not limited to process improvement, budgeting, team building and information management. Prerequisites: NLS, NMT, RADT majors only. 3rd or 4th year cohort standing. *Credits: 3*

299 Advanced Special Topics Courses or seminars beyond scope of existing departmental offerings. Prerequisite: Departmental permission. *Credits: 1-18*

Medical Laboratory Science MLS

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

220 Clinical Internship: Chemistry Experiences in an approved clinical laboratory education site in the area of clinical chemistry. Prerequisite: MLS seniors only. *Credits: 3*

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 31 and 32, CHEM 141 or 42, ANPS 019 & 020 or instructor permission. *Credits: 4*

222 Clinical Chemistry II Advanced instruction in body chemistry and pathophysiology of disease with emphasis on diagnostic lab techniques in chemistry. Prerequisite: MLS 221, PATH 101 or instructor permission. *Credits: 4*

230 Clinical Internship:Hematology Experiences in approved clinical laboratory education site in the area of clinical hematology. Prerequisite: MLS seniors only *Credits: 3*

231 Hematology Advanced theory and analysis of blood cell physiology and related pathology. Concepts of hemostasis and clinical assessment methods. *Credits: 4*

250 Clin Internship:Microbiology Experiences in an approved clinical laboratory education site in the area of clinical microbiology. Prerequisite: MLS seniors only. *Credits: 3*

255 Clinical Microbiology II Comprehensive study of non-bacterial microorganisms and their disease states in humans. Includes medical mycology, parasitology and virology. Laboratory sessions provide experience in identifying these pathogens. Prerequisite: MMG 065 or MMG 101 or equivalent. *Credits: 4*

260 Clin Int:Immunohematology Experiences in an approved clinical laboratory education site in the area of clinical immunohematology. Prerequisite: MLS seniors only. *Credits: 3*

262 Immunohematology Advanced theory and experience related to human blood groups and transfusion practice. Prerequisite: One semester of Immunology. *Credits: 4*

272 MDS Practicum Practical experiences in molecular diagnostic applications at various locations which include FAHC Laboratories, State of Vermont Health Department Laboratory and other UVM affiliate sites. MLS seniors only. *Credits: 16*

282 Public Health Lab Practicum Public health laboratory experiences under the direction of public health scientists, performing methods for screening and diagnostic purposes as well as good public health practice. MLS seniors. *Credits: 12*

292 Topics in Medical Lab Science Seminar on topics in the practice and profession of Medical Laboratory Science. Online course. MLS majors only. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Micr & Molecular Genetics MMG

001 First Year Colloquium Colloquium is designed to enhance faculty-student interactions in Microbiology and Molecular Genetics and to inform first-year majors about the educational and research opportunities in MMG. Instructor's permission for non- majors. Fall. *Credits: 1*

065 Microbiology & Pathogenesis Overview of microbiology, emphasizing the relationships between the structure, metabolism, and genetics of microorganisms and their roles in nature and in pathogenesis. Prerequisite: One semester chemistry. Not intended for students who have completed Biology 1 and 2 or equivalent. Fall. *Credits: 4*

095 Special Topics An approved area of study or project under the guidance of an MMG faculty member and the Academic advisor. *Credits: 1-12*

096 Special Topics An approved area of study or project under the guidance of an MMG faculty member and the Academic advisor. *Credits: 1-12*

101 Microbiol & Infectious Disease An introduction to basic microbiology and microbes that cause infectious diseases, with a focus on microbial structure, function, metabolism, ecology, and pathogenesis. Pre/co-requisites: 1 semester biology and chemistry. Fall. *Credits: 4*

104 Intro Recombinant DNA Tech Introduction to the basic principles and techniques used in recombinant DNA technology. Pre/co-requisites: BCOR 11/12 and a Microbiology or Molecular Genetics major or minor restriction. Spring. *Credits: 2*

195 Intermediate Special Topics An approved area of study or project under the guidance of an MMG faculty member and the Academic advisor. Prerequisite: Instructor's permission. Credits negotiable. *Credits: 1-6*

196 Intermediate Special Topics An approved area of study or project under the guidance of an MMG faculty member and the Academic advisor. Prerequisite: Instructor's permission. Credits negotiable. *Credits: 1-18*

197 Undergrad Research Undergraduate honors students accommodated in individual research projects sponsored by department member. Arrangement with individual department member and Undergraduate Program Director approval. Credits negotiable. *Credits: 1-6*

198 Undergrad Research Undergraduate honors students accommodated in individual research projects sponsored by department member. Arrangement with individual department member and Undergraduate Program Director approval. Credits negotiable. *Credits: 1-6*

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: 3*

203 Mamm Cell Cult:Molecular Biol The basic principles and techniques of mammalian cell culture, as well as cell and mammalian molecular genetics. Prerequisites: BCOR 103 or MMG 104, Permission of Coordinator. Alternate years, Spring. *Credits: 4*

205 Biochemistry I Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems, including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisites: CHEM 142 or 144. Crosslisted with BIOC 205 and CHEM 205. Fall. *Credits: 3*

206 Biochemistry II Continuation of Biochemistry I. Biochemistry of nucleic acids; nucleic acid based processes, such as replication and transcription; cellular information transfer, genomics, and proteomics. Prerequisite: 205. Crosslisted with BIOC 206 and CHEM 206. Spring. *Credits: 3*

207 Biochemistry Lab Introduction to biochemical tools, including spectrometry, chromatography, and electrophoresis; natural and recombinant enzyme isolation; assays of DNA-modifying enzymes; computer-based structure/function exercises. Corequisites: 205 or 206. Crosslisted with BIOC 207 and CHEM 207. *Credits: 2*

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*

220 Environmental Microbiology The activities of microorganisms, primarily bacteria, in air, soil, and water. Prerequisite: A previous course in microbiology. Alternate years. *Credits: 3*

222 Clinical Microbiology I 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. Prerequisite: MMG 65 or 101 or equivalent or instructor's permission. Alternate years, Spring. *Credits: 4*

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, Spring. *Credits: 3*

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*

231 Programming for Bioinformatics Introductory course on computing (including scripting, database, and statistical analysis) for developing bioinformatics applications. Particular emphasis is given to comparative genomics and systems biology scenarios. Prerequisites: STAT 151, STAT 153, or permission. Cross-listed with CS 231. Alternate Years, Spring. *Credits: 3*

232 Methods in Bioinformatics This course provides a methodological survey of bioinformatics. Particular emphasis is given to algorithms associated with sequential analysis, comparative genomics, structural biology, and systems biology. Prerequisite: STAT 151, STAT 153, or permission. Cross-listed with CS 232. Alternate Years, Spring. *Credits: 3*

240 Macromol Struct Prot&Nucl Acid Introduction to structural biology and macromolecular structure with an emphasis on protein-protein and protein-nucleic acids interactions. Prerequisites: Biology 1, 2; Organic Chemistry; Junior standing recommended; concentration in Physics. (Cross-listed with BIOC 240) Alternate years. Spring. *Credits: 3*

284 Biochemistry Senior Seminar Oral and written presentation of a subject of current biochemical interest. Prerequisite: Audit of BIOC 381. Cross-listings: BIOC 284/CHEM 284. *Credits: 1*

295 Advanced Special Topics Supervised investigations in microbiology or molecular genetics. Prerequisite: Instructor's permission. Credit as arranged. *Credits: 1-6*

296 Advanced Special Topics Supervised investigations in microbiology or molecular genetics. Prerequisite: Instructor's permission. Credit as arranged. *Credits: 1-6*

297 Advanced Undergrad Research Undergraduate students are involved in advanced individual research projects sponsored by department member. Arrangement with individual department member and Undergraduate Program Director approval. Fall. Pre/co-requisites: MMG 197 or 198 or Advisor's Permission. *Credits: 1-6*

298 Advanced Undergrad Research Undergraduate students are involved in advanced individual research projects sponsored by department member. Arrangement with individual department member and Undergraduate Program Director approval. Spring. Pre/co-requisites: MMG 197 or 198 or Advisor's Permission. *Credits: 1-6*

299 Senior Seminar This capstone required course for Microbiology and Molecular Genetics majors involves written and oral presentations by graduating seniors on current topics in microbiology/molecular genetics. Prerequisites: MMG 101; second semester Senior standing. Spring. *Credits: 1*

Middle Level Teacher Education EDML

010 Introduction to Teaching Orientation to teaching at middle level. Examination of young adolescent students, teachers' roles, reflective practice, guided inquiry, middle schooling and middle school concept. Prerequisites: Admission to Pre-professional teaching education. *Credits: 3*

024 Learners, Development&Learning Students learn about the interrelated processes of development and learning throughout childhood but with special emphasis on the approximate ages of ten to fourteen. Prerequisites: EDML 10. *Credits: 3*

055 Special Topics I *Credits: 2-6*

056 Teachers & Teaching Process Students examine professional responsibilities of middle level teachers as defined by Vermont and national standards via classroom observations. Prerequisites: EDML 10, 24. *Credits: 3*

171 Teaching Practicum II Second teaching practicum on a middle level team to learn policy, curriculum, exemplary pedagogy, assessment in second of two academic concentrations defined by student's

IDIMC plan. Prerequisites: Admission to Middle Level Professional Program. *Credits: 3*

177 Adolescent Lit and Literacy Course participants examine middle school literature, focusing on research-based instructional practices for teaching and engaging middle schoolers in reading and writing across the subject areas. *Credits: 3*

197 Readings & Research *Credits: 1-4*

200 Contemporary Issues *Credits: 1-6*

207 Adoles Lrng&Beh&Cog Perspect In-depth 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*

260 Teaching Young Adolescents Focus on understanding and reflecting on an integrative developmental approach to the design of middle level curriculum, with an emphasis on literacy and numeracy. *Credits: 3-6*

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-requisites: Admission to Middle Level Professional Program. *Credits: 3*

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-requisites: EDML 260, 261. *Credits: 3-6*

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-requisites: EDML 260, 261, 270 and permission. *Credits: 9-12*

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, 261, 270. *Credits: 3*

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-requisites: Successful completion of EDML 260, 261, 270. *Credits: 3*

295 Laboratory Experience *Credits: 1-6*

Military Studies MS

011 Intro to ROTC & US Army Discussion of the customs, traditions, branches, organization, as well as the many changes in the roles and missions of the Army of the 21st century. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. *Credits: 1*

012 Intro Mil Skills&Followership Development of basic skills of an Army officer, including navigation and communications. Students are exposed to leadership development exercises during leadership laboratories. *Credits: 1*

014 Orienteering Basic practical skills such as maps, compass, and environmental awareness. Classroom participation, written exams, and completion of an orienteering course determine student grades. Open to all first-year and sophomore students. Cross-listed as PEAC 14. Fall/spring. *Credits: 1*

017 Military Fitness Develop individual potential to achieve physical and mental health. Vigorous workout three days a week designed to build both upper body strength and aerobic ability. Classroom participation and a final Army Physical Fitness Test determine student grades. Open to all first-year and sophomore students. Cross-listed as PEAC 17. Fall/spring. *Credits: 1*

019 Backpacking Techniques of planning and organizing a backpacking trip. Basic instruction includes clothing, equipment, and environmental awareness. Includes one overnight backcountry trek. Student grades determined by class participation and participation in the practical exercise. Open to all first-year and sophomore students. Cross-listed as PEAC 19. Fall/spring. *Credits: 1*

021 Leadership&Team Development Learning and application of ethics-based leadership skills that develop individual abilities and contribute to effective team building. Development of oral presentations, writing, and coordination of group efforts. Includes a non-credit laboratory to develop, practice, and refine leadership skills in a variety of positions. *Credits: 2*

022 Individual&Team Leading Techniques for training/ counseling others as an aspect of continued leadership development. Includes safety and risk management assessments, and planning for individual and team safety. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. *Credits: 2*

131 Lead&Train Small Organizations Series of opportunities to lead small groups, receive personal assessments, and lead in complex situations. Plan and conduct training to develop leadership skills. Prerequisite: Completion of basic course program or basic camp. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. Fall. *Credits: 3*

132 Lead&Manage Small Organization Plan for and adapt to the unexpected in organizations under stress. Examine importance of ethical decisions in a positive climate that enhances team performance. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. Prerequisite: 131. Spring. *Credits: 3*

241 Ldrshp Challenges&Goal Setting Plan, conduct, and evaluate activities. Assess organizational cohesion and develop strategies for improvement. Develop confidence in skills to lead people and manage resources. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. Prerequisite: 132. Fall. *Credits: 3*

242 Lead Org Ethically&Competently Identify and resolve ethical dilemmas. Refine counseling and motivating techniques. Examine aspects of tradition and law related to leading as an officer in the Army. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. Prerequisite: 241. Spring. *Credits: 3*

Molecular Physiology & Biophys MPBP

019 UG Human Anatomy & Physiology Two-semester course with credit given only upon completion of both semesters. Structure and function of human body using cadaver prosections, histological material, and physiological experiments. Required of Medical Technology, Nursing, Nutritional Sciences, Dental Hygiene, Radiologic Technology, and Physical Education; others with instructor's permission. Prerequisite: 19 for 20. *Credits: 4*

020 UG Human Anatomy & Physiology Two-semester course with credit given only upon completion of both semesters. Structure and function of human body using cadaver prosections, histological material, and physiological experiments. Required of Medical Technology, Nursing, Nutritional Sciences, Dental Hygiene, Radiologic Technology, and Physical Education; others with instructor's permission. Prerequisite: 19 for 20. *Credits: 4*

191 Undergraduate Research Individual laboratory research under guidance of faculty member. Prerequisite: Departmental permission. *Credits: 3-6*

192 Undergraduate Research Individual laboratory research under guidance of faculty member. Prerequisite: Departmental permission. *Credits: 3-6*

295 Advanced Special Topics Topics of interest to high level Undergraduate and Graduate students beyond the scope of existing courses. *Credits: 0-6*

Music MU

001 Intro to Classical Music A survey of musical styles from Medieval Gregorian chant to the present. No prerequisite. May not be counted toward the major. *Credits: 3*

004 Sound, Sense, and Ideas A writing-intensive course, exploring topics in Western, non-Western, folk, art, or popular repertoires. See Schedule of Courses for specific topics. Usually offered as a TAP course. No prerequisite. May not be counted toward the major. *Credits: 3*

005 D1:Intro to Jazz History Survey of jazz from its roots in ragtime and blues of the late nineteenth century to contemporary styles. Prerequisite: Ability to read music, or permission of instructor. May not be counted toward the major. *Credits: 3*

006 American Music Survey of American music from the Pilgrims to the present. Folk, popular, and classical music. Vernacular and cultivated traditions. No prerequisites. May not be counted toward the major. *Credits: 3*

007 D2:Intro World Music Cultures Survey of selected traditional, popular, and classical music cultures from around the globe (Asia, Sub-Saharan Africa, Middle East, Latin America, etc.) through readings, recordings, demonstrations. No prerequisite. May not be counted toward the major. *Credits: 3*

009 Music Theory Fundamentals Fundamentals of music notation, rhythm, melody, scales, and harmony. A course for non-majors or for students preparing to enter MU 109. Pre/co-requisites: May not be counted toward the major or minor. *Credits: 3*

010 Blues and Related Traditions Traces the development of blues from African origins to modern blues, its rural and urban social contexts, and relation to African-American history and culture. *Credits: 3*

015 History of Rock and Roll Examines rock music as a succession of related musical styles and as a social movement reflecting and influencing the changing American political and social landscape. *Credits: 3*

016 Musical Theatre Performance Singing technique and vocal development with acting/song interpretation. Includes posture, breathing, phonation, registration, resonance, articulation, and voice qualities (classical, Broadway legit, belt voice, belt mix). May not be used as credit by Music majors/minors; may be counted toward Theatre major/minor with prior approval. Crosslisted with THE 016. *Credits: 3*

019 D1:Latin Jazz Immersion Explore the culture and music of Latin Jazz from its roots in Caribbean and Latin American traditions to its "combinacion perfecta" with jazz. *Credits: 3*

021 Beginning Group Lessons Group lessons at the beginning level in voice and various instruments. May not be counted toward the major or minor. May be repeated up to three times for credit. No prerequisites. *Credits: 1*

024 Group Jazz Piano I Introduction to jazz piano techniques, including rootless voicings, soloing, and comping, and covering basic chord progressions, blues, and standard tunes. Prerequisites: MU 041, MU/MUSE majors, minors, or instructor permission *Credits: 1*

025 Group Jazz Piano II Some review of concepts from MU 024. Exploration of topics including stride, modal comping, and chord substitution. Prerequisites: MU 024; MU/MUSE majors, minors or instructor permission *Credits: 1*

033 Applied Lessons Private instruction in an instrument or voice for non-majors and non-minors. Subject to availability of staff. Lab fee required. May be repeated for credit. Not open for credit to music majors/minors. Prerequisite: successful completion of Level I Examination; contact department office for placement. *Credits: 1 OR 2*

034 Required Secondary Lessons Private instruction for music majors involving a required secondary instrument/area. Subject to staff availability. Lab fee required. May be repeated for credit. *Credits: 1 OR 2*

041 Piano Proficiency Fundamentals Basic piano technique and grand staff reading. For students preparing to enter MU 042. Prerequisites: Rudimentary keyboard skills and reading ability. Placement Test. Music majors or permission. *Credits: 1*

042 Piano Proficiency I Functional piano skills for musicians. Scales, technique, harmonizing, sight reading, repertory. Prerequisites: MU 041 or equivalent determined by placement test. *Credits: 1*

043 Piano Proficiency II Preparation for Piano Proficiency Exam. Scales, repertory, sight reading, chordal accompaniment styles, score reading, transposing. Prerequisites: MU 042 or equivalent determined by placement test. *Credits: 1*

044 Elective Secondary Lessons Private instruction for music majors involving an elective, non-required secondary instrument/area. Subject to staff availability. Lab fee required. May be repeated for credit. *Credits: 1 OR 2*

054 Harmony and Form Lab I Intensive study of solfege (music reading), elementary keyboard harmony, dictation. Prerequisite: Basic piano and music reading facility, determined by placement test. *Credits: 1*

056 Harmony and Form Lab II Intensive study of solfege (music reading), intermediate keyboard harmony, dictation. Prerequisite: 054, or instructor's permission; piano skill equivalent to Music 021 (Group Piano). *Credits: 1*

060 Intro to Music Technology Survey of MIDI and digital audio sequencing, notation, accompaniment, and multimedia software for music composition/arranging, performance, and pedagogy, including survey of pedagogical music software. Prerequisite: MU 009, and permission of instructor. *Credits: 3*

061 Creating Music for Video Students will score short films using digital audio software. Emphasis is on 4-5 scoring projects, with additional background reading and written critiques. Prerequisite: MU 009 or basic knowledge of music notation. *Credits: 3*

075 Exploring Songwriting Students develop and refine the ability to express themselves through songwriting as they study current songs, compose and perform original songs, and mentor classmates. No prerequisite. May not be counted toward the major. *Credits: 3*

076 Brass Techniques Class instruction on trumpet, trombone, and horn including materials and procedures for teaching these instruments in elementary and secondary schools. *Credits: 2*

077 String Techniques Develop basic technical proficiency on violin, viola, cello, and double bass. Emphasis on beginning pedagogy, and teaching string instruments in a classroom setting. *Credits: 2*

078 Woodwind Techniques Class instruction on flute, clarinet, saxophone and oboe/bassoon including materials and procedures for teaching these instruments in elementary and secondary schools. *Credits: 2*

079 Percussion Techniques Class instruction of various orchestral pitched and unpitched percussive instruments including materials and procedures for teaching these instruments in the elementary and secondary schools. *Credits: 2*

080 Vocal Techniques Foundation course in applied singing, and in teaching singing. Intended for students in music education, and students intending to teach private singing lessons or lead choirs. *Credits: 2*

085 Intro to Music Education Introduction to the opportunities, challenges, issues, roles, and duties of Pre-K-12 music educators. *Credits: 3*

095 Introductory Special Topics Courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses

for specific titles. No prerequisite. May be counted toward the major/minor with instructor's permission. *Credits: 1-18*

096 Introductory Special Topics Courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. No prerequisite. May be counted toward the major/minor with instructor's permission. *Credits: 1-18*

105 History of Jazz An in-depth survey of jazz from early New Orleans to contemporary styles. Work includes close listening, study of transcriptions, and stylistic analysis. Final projects. Pre/co-requisite: MU 109. *Credits: 3*

106 American Music Survey of American music from the Pilgrims to the present. Folk, popular, and classical music. Vernacular and cultivated traditions. Includes research projects. *Credits: 3*

107 D2: World Music Cultures Through readings, close listening, and hands-on study of percussion instruments, students explore how music communicates in culturally specific contexts from around the globe. Research projects. Prerequisites: Music majors/minors or instructor's permission. *Credits: 3*

109 Harmony and Form I Study through writing and analysis, diatonic melody and harmony, phrase structure, and elaborative techniques. With accompanying lab. Prerequisites: MU 009 or equivalent music theory fundamentals, determined by placement test; basic piano facility. *Credits: 3*

110 Harmony and Form II Study of chromatic harmony (applied chords, modulation), and small forms (binary, ternary, variation). With accompanying lab. Prerequisite: 109 or instructor's permission. *Credits: 3*

111 Music History & Literature I Survey of musical styles through the Baroque. Prerequisite: MU 109 and MU 110. (Music 001 is strongly recommended.) Majors/minors, or instructor's permission. *Credits: 3*

112 Music History & Literature II Survey of musical styles from 1750 to the present. Prerequisite: MU 109 and MU 110. (Music 001 is strongly recommended.) Majors/minors, or instructor's permission. *Credits: 3*

113 Seminar in Ethnomusicology See Schedule of Courses for specific topics. Prerequisite: 7/107, or instructor's permission. *Credits: 3*

117 Swing Band A big band specializing in dance band styles (Latin as well as swing). Occasional performances for dancers. Prerequisite: audition *Credits: 1*

118 Latin Jazz Ensemble A medium-size group (rhythm section and percussionists with horns and sometimes vocalists) where students learn fundamentals of Latin music in a jazz context. Prerequisite: audition *Credits: 1*

119 Jazz Vocal Ensemble Nine to sixteen vocalists (SATB), a cappella or accompanied by piano or rhythm section, perform arrangements of standard songs and jazz tunes. Prerequisite: audition *Credits: 1*

120 Catamount Pep Band This ensemble performs at several home winter athletic events. Open to all students; an opportunity for those with previous band experience to continue playing. Prerequisite: audition *Credits: 0.5*

121 Concert Band Concert Band is open to all students. Repertory is chosen from the standard literature as well as contemporary music. Prerequisite: Audition. *Credits: 1*

122 University Concert Choir Mixed SATB choir. Performing choral masterworks from the baroque period to the present. Open to all students. *Credits: 1*

123 Orchestra Full orchestra comprising strings, woodwinds, brass, and percussion. All university students may audition. Several performances each year. *Credits: 1*

124 University Jazz Ensemble Exploration of classic big band repertoire and works of contemporary composers and arrangers. Performance in one major concert every semester and occasional appearances off campus. Prerequisite: Audition. *Credits: 1*

125 Vermont Wind Ensemble Vermont Wind Ensemble is a select group, open to all students. Repertory is chosen from the standard literature as well as contemporary music. Prerequisite: Concurrent enrollment in 121; audition. *Credits: 1*

126 Accompanying Lessons in piano accompanying for soloists, taught by piano and instrumental/vocal faculty. Juried performance expected. *Credits: 1-6*

127 University Catamount Singers Mixed, select SATB chamber choir. Performing vocal music from the medieval period to the present. Open to all students. Prerequisite: Audition. *Credits: 1-6*

128 Opera Workshop Study and performance of scenes from the operatic and musical theater repertoire for the stage actor/actress. *Credits: 1-6*

129 Percussion Ensemble Percussion ensemble is open to all students. Repertory is chosen from the standard literature as well as improvisatory traditions of percussion music. *Credits: 1-6*

130 Chamber Music Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. *Credits: 1-6*

131 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 repertoire. *Credits: 1-6*

132 Post Bop Ensemble A small jazz group (rhythm section plus two to four horns) specializing in post-1950's repertoire (Wayne Shorter, Chick Corea, etc.) as well as original compositions. Prerequisite: audition *Credits: 1*

133 Applied Lessons Private instruction in an instrument or voice for music minors. Subject to availability of staff. Lab fee required. May be repeated for credit. Prerequisite: successful completion of Level I Examination. *Credits: 1 OR 2*

134 Applied Lessons Private instruction in an instrument or voice for music majors. Lab fee required. Juried examinations generally every semester of study. May be repeated for credit. Prerequisite: successful completion of Level II Examination. *Credits: 1 OR 2*

149 Soph Recital/Performance Sem B.M. Candidates only. *Credits: 1*

150 Junior Recital B.M. Candidates only. *Credits: 1*

154 Harmony and Form Lab III Intensive study of solfege (music reading), chromatic harmony at the keyboard, dictation and open-score reading. Prerequisite: 56, or instructor's permission. *Credits: 1*

156 Harmony and Form Lab IV Intensive study of solfege (music reading), extended tonality and atonality at the keyboard, dictation, and open-score reading. Prerequisite: 154, or instructor's permission. *Credits: 1*

157 Composition Preliminary studies in free composition and the mechanics of score preparation; composition of an extended work for one to five instruments or voices. Prerequisite: MU 109 and MU 110, or instructor's permission. *Credits: 3*

159 Theory/Prac Jazz Improv I Basic repertoire, idiomatic usage, aural skills, theoretical constructs, and strategies for the jazz improviser. Prerequisite: intermediate instrumental skill, ability to read music, previous study of traditional music theory. *Credits: 3*

176 Music for Elem Teachers Development of musical skills, understandings, and attitudes for teaching music in the elementary classroom. Prerequisite: Sophomore standing in elementary education, and early childhood majors only; or acceptance into licensure program. *Credits: 3*

181 Conducting Baton technique, score reading, and laboratory practice. Preparation and performance of selected scores, including rehearsal procedures. Prerequisite: MU 154 and MU 209. *Credits: 3*

195 Intermediate Special Topics Courses on topics beyond the scope of existing departmental offerings. See schedule of courses for specific titles. Prerequisite: MU 109 and MU 110. Majors/minors or instructor's permission. *Credits: 1-18*

196 Intermediate Special Topics Courses on topics beyond the scope of existing departmental offerings. See schedule of courses for specific titles. Prerequisite: MU 109 and MU 110. Majors/minors, or instructor's permission. *Credits: 1-18*

197 Readings and Research Supervised independent study in music. Inter-disciplinary topics are encouraged. Pre/co-requisites: Departmental permission. *Credits: 1-6*

198 Readings and Research Supervised independent study in music. Inter-disciplinary topics are encouraged. *Credits: 1-6*

201 Composer Seminar Survey of the musical style of one or more composers. Context, history, legacy. Past offerings have included Bach, Beethoven, Stravinsky, and Ellington. See Schedule of Courses for specific topics. *Credits: 3*

203 Genre Seminar Survey of the musical style within a genre. Context, history, legacy. Past offerings have included piano literature, choral literature, and bebop. See Schedule of Courses for specific topics. Prerequisite: MU 109 and MU 110, and either MU 111 or MU 112. *Credits: 3*

205 Period Seminar Survey of music from a particular historical era. Context, composers, legacy. Past offerings have included music of the twentieth century, Baroque music, and twentieth century blues traditions. Prerequisite: MU 109 and MU 110, and either MU 111 or MU 112. *Credits: 3*

209 Harmony and Form III Advanced chromatic harmony (altered predominant and dominant functions, modulation to distant keys), large forms (sonata, rondo), art song, and free forms. With accompanying lab. Prerequisite: 110 or instructor's permission. *Credits: 3*

210 Harmony and Form IV Writing and analysis: extended tonality, atonality, and 12-tone techniques. Examples drawn from 20th and 21st century literature. With accompanying lab. Prerequisite: 209 or instructor's permission. *Credits: 3*

211 Senior Music History Project Directed readings and research. Research project. Prerequisite: Senior standing as a music history major, and instructor's permission. *Credits: 1*

217 Swing Band A big band specializing in dance band styles (Latin as well as swing). Occasional performances for dancers. Prerequisite: audition *Credits: 1*

218 Latin Jazz Ensemble A medium-size group (rhythm section and percussionists with horns and sometimes vocalists) where students learn fundamentals of Latin music in a jazz context. Prerequisite: audition *Credits: 1*

219 Jazz Vocal Ensemble Nine to sixteen vocalists (SATB), a cappella or accompanied by piano or rhythm section, perform arrangements of standard songs and jazz tunes. Prerequisite: audition *Credits: 1*

220 Catamount Pep Band This ensemble performs at several home winter athletic events. Open to all students; an opportunity for those with previous band experience to continue playing. Prerequisite: audition *Credits: 0.5*

221 Concert Band Concert Band is open to all students. Repertory is chosen from the standard literature as well as contemporary music. *Credits: 1*

222 University Concert Choir Mixed SATB choir. Performing choral masterworks from the baroque period to the present. Open to all students. *Credits: 1*

223 Orchestra Full orchestra comprising strings, woodwinds, brass, and percussion. All university students may audition. Several performances each year. *Credits: 1*

224 University Jazz Ensemble Exploration of classic big band repertory and works of contemporary composers and arrangers. Performance in one major concert every semester and occasional appearances off campus. Prerequisites: Audition and instructor permission. *Credits: 1*

225 Vermont Wind Ensemble Vermont Wind Ensemble is a select group, open to all students. Repertory is chosen from the standard literature as well as contemporary music. Prerequisite: Concurrent enrollment in 121. *Credits: 1*

226 Accompanying Lessons in piano accompanying for soloists, taught by piano and instrumental/vocal faculty. Juried performance expected. *Credits: 1-6*

227 University Catamount Singers Mixed, select SATB chamber choir. Performing vocal music from the medieval period to the present. Open to all students. *Credits: 1-6*

228 Opera Workshop Study and performance of scenes from the operatic and musical theater repertory for the stage actor/actress. *Credits: 1-6*

229 Percussion Ensemble Percussion ensemble is open to all students. Repertory is chosen from the standard literature as well as improvisatory traditions of percussion music. *Credits: 1-6*

230 Chamber Music Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required. *Credits: 1-6*

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: 1-6*

232 Post Bop Ensemble A small jazz group (rhythm section plus two to four horns) specializing in post-1950's repertory (Wayne Shorter, Chick Corea, etc.) as well as original compositions. Prerequisite: audition *Credits: 1*

234 Applied Lessons Private instruction in an instrument or voice for majors. Lab fee required. Juried examinations generally every semester of study. May be repeated for credit. Prerequisites: MU 134, successful completion of Level III Examination. *Credits: 1 OR 2*

250 Senior Recital *Credits: 1*

251 Advanced Theory:Counterpoint Contrapuntal forms and procedures: analysis and writing. Examples from 17th through 20th centuries. Prerequisite: MU 209, or instructor's permission. *Credits: 3*

253 Orchestration Characteristics of instruments; study of instrumental scores; arranging and transcribing for ensembles. Prerequisite: MU 209, or instructor's permission. *Credits: 3*

256 Advanced Composition Creative work in free composition leading, when possible, to public performance of the completed work on a departmental concert. Prerequisite: 157, or equivalent, with instructor's permission. *Credits: 3*

257 Jazz Composition and Arranging Introduction to concepts and techniques used in jazz arranging and composition through study of historic works. Final project is an arrangement for big band. Prerequisite: MU 054, MU 056, MU 109, and MU 110. *Credits: 3*

258 Advanced Jazz Comp and Arr A workshop course in composing and arranging for small jazz ensembles. This advanced seminar features student-led analysis, discussion, projects, and performances. Prerequisite: MU 257 or instructor permission *Credits: 3*

259 Thry & Prac of Jazz Improv II Chord substitution, re-harmonization, scale alteration, "free" improvisation, and other techniques in written assignments and classroom performance of modern jazz repertory. Prerequisite: 159, or instructor's permission. *Credits: 3*

260 Sr Theory/Composition Project Research paper or composition/analysis; Topic chosen under direction of staff member. Prerequisite: senior standing as theory major. *Credits: 1*

270 General Music Methods Methodologies, lesson planning, assessment, and standards-based curriculum development for general music at the elementary and secondary school levels. Pre/co-requisites: MU 85, acceptance into licensure program in Music Ed, Concurrent enrollment in MU 271. *Credits: 3*

271 General Music Practicum Supervised field experience in general music. Pre/co-requisites: MU 85, acceptance into licensure program in Music Ed, Concurrent enrollment in MU 270. *Credits: 1*

272 Choral Music Methods Standards-based curriculum development, lesson planning, repertoire selection, rehearsal techniques, and assessment strategies for teaching choral music at the elementary and secondary school levels. Pre/co-requisites: MU 85, acceptance into licensure program in Music Ed, Concurrent enrollment in MU 273. *Credits: 2*

273 Choral Music Practicum Supervised field experience in choral music. Pre/co-requisites: MU 85, acceptance into licensure program in Music Ed, Concurrent enrollment in MU 272. *Credits: 1*

274 Instrumental Music Methods Standards-based curriculum development, lesson planning, repertoire selection, rehearsal techniques, and assessment strategies for teaching instrumental music at the elementary and secondary school levels. Pre/co-requisites: MU 85, acceptance into licensure program in Music Ed, Concurrent enrollment in MU 275. *Credits: 2*

275 Instrumental Music Practicum Supervised field experience in instrumental music. Pre/co-requisites: MU 85, acceptance into licensure program in Music Ed, Concurrent enrollment in MU 274. *Credits: 1*

281 Advanced Conducting Focus on advanced conducting techniques and score preparation. Exploration of instrumental and vocal conducting techniques. Prerequisite: 181. *Credits: 3*

290 Teaching Internship Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Senior standing. *Credits: 12*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Music Education EDMU

181 Music for Elementary Teachers Development of musical skills, understandings, and attitudes pertinent to the teaching of music in elementary classroom. Prerequisite: Elementary majors, acceptance into teacher education program. *Credits: 3*

281 Elementary Music Ed Methods Methods and materials for teaching music in elementary schools. Five hours classroom observation per week required. Prerequisite: Junior standing in Music Ed. *Credits: 3*

282 Secondary Music Ed Methods Methods and materials in the teaching of vocal and instrumental music in secondary schools. Five hours classroom observation per week required. Prerequisite: Junior standing in Music Education. *Credits: 3*

Natural Resources NR

001 Natural Hist & Field Ecology Introduction to the dynamics of the natural world. Basic concepts of biological, chemical, physical, and ecological sciences and the application and interpretation of quantitative measurements are presented within a natural history context. *Credits: 4*

002 Nature & Culture Introduction to natural resources and the environment from a social/cultural perspective. Emphasis on environmental history, values, and ethics with application to natural resource and environmental policy. *Credits: 3*

006 D1:Race & Culture in NR Introduces the first-year student to issues of race and culture and their relevance to society, natural resources, and the environment. *Credits: 2*

015 Ecology of Place Opportunities for first-time residents of GreenHouse Residential Learning Community to deepen their sense of place through participation in a diversity of environmental explorations. *Credits: 1*

016 Ecological Citizenship Provides members of the GreenHouse Residential Learning Community with opportunities to pursue ecological interests and community service projects with mentorship from GreenHouse staff members. Prerequisite: NR 015. *Credits: 1*

021 Speaking and Listening Course aids students in learning to speak, listen and critique public speaking. Different delivery styles focus on relevant environmental and natural resource topics. *Credits: 2*

025 Measurements & Mapping Introduction to surveying, mapping, aerial photo measurements, and interpretation for natural resource planning and management. Prerequisites: A course in high school or college trigonometry; permission required of nonmajors. *Credits: 4*

085 Intro Special Topics-Env & NR Introductory topics in environmental and natural resource issues beyond the scope of exiting courses. *Credits: 1-6*

099 Aiken Scholars Seminar Seminar discussions on current environment issues. Guest speakers and field trips. Prerequisites: Open only to first-year Aiken Scholars. *Credits: 1*

102 Water as a Natural Resource Characteristics of water-sheds, lakes, rivers, and wetlands; discussion of the management of these ecosystems; effects of society on the water resource. Prerequisites: Biology 1 or Plant Biology 4 or equivalent; Chemistry 31, 23, 26, or 42 or equivalent. *Credits: 3*

103 Ecology, Ecosystems & Environ Major ecological concepts and their application. Analysis of form, structure, and function of organisms, populations, communities, ecosystems, and landscapes. Prerequisites: 1; concurrent enrollment in 104 and 105 required. *Credits: 3*

104 Social Proc & the Environment Social science theories and their application to environmental issues. Analysis of issues using theories of government, economics, and social movements. Emphasis on integrating frameworks to analyze environmental issues. Prerequisite: 2 and concurrent enrollment in 103 and 105 required. *Credits: 3*

107 Human Health & the Environment Interdisciplinary understanding of the effects of anthropogenic factors including pollution, reduced biodiversity, climate change, overpopulation, and resource depletion on the health of natural systems and human populations. Pre/co-requisites: a college level science course and sophomore standing. (Crosslisted with HLTH 107). *Credits: 3*

125 Ecological Coop Living Engaging students in the Slade Special Interest Program in the development of their residence as a self-sufficient, ecological cooperative on campus through the design, implementation, and maintenance of an ecologically-minded infrastructure of technology and day-to-day living arrangements. Pre/co-requisites: Current resident in Slade Hall. *Credits: 2*

137 Landscape Design Fundamentals Studio course to learn techniques of landscape design and analysis, develop graphic communication skills for representing the landscape, and apply sustainable design principles to a site. Pre/co-requisites: Junior standing; at least one course in drawing, design, or mapping, or consent of instructor. Cross-listings: CDAE 137, ENVS 137, PSS 137. *Credits: 4*

140 Applied Environ Statistics Introduction to the design, application, interpretation and critical assessment of biostatistical analyses for natural resource applications. Concepts are applied through service learning partnerships. Prerequisites: Sophomore standing, two years of high school algebra. *Credits: 4*

141 Intro to Ecological Economics Introduction to the study of economics as dependent on social and environmental systems and to transdisciplinary problem-solving using ecological economics. Prerequisite: ENVS 001 or NR 002. Cross-listed with ENVS 141. *Credits: 3*

143 Intro to Geog Info Systems Understanding and application of computer-based, geographically-referenced information systems. Prerequisite: Junior standing. *Credits: 3*

146 Remote Sensing of Natural Res (Cross-listed with Forestry 146, Geography 185.) *Credits: 3*

153 Intro Environmental Policy Introduction to policy aspects of environment and natural resources including policy processes, public governance, and citizen participation with applications to environmental issues. Pre/co-requisites: NR 104 or POLS 21 *Credits: 3*

170 Intro Dynamic Simulation Mdlg Elementary principles of dynamic simulation modeling and use of the STELLA II dynamic simulation software. Example simulations of natural environmental systems. Prerequisite: Sophomore standing. *Credits: 1*

176 Water Quality Analysis Selected aspects of elementary water chemistry and bioassay as related to surface and ground waters. Five laboratory experiences. (2.5 hours lecture per week and 20 hours lab per semester.) *Credits: 3*

185 Special Topics Special topics in natural resources beyond the scope of existing formal courses. Variable credit. *Credits: 1-6*

189 Student-Designed Course Work Student-taught course work beyond the scope of formal courses in natural resources. Developed according to RSENR guidelines with sponsorship by interested faculty. Variable credit. *Credits: 1-3*

199 Honors Seminar A discussion and readings seminar that features guest speakers, and is part of the SNR Spring Seminar Series. Focus of the seminars change annually. Can be repeated. Prerequisites: Sophomore standing; open only to SNR Honors Students. *Credits: 1*

205 Ecosys Mgt:Integ Sci,Soc & Pol Integration of natural and social science into ecosystem management and policy. Consideration of ecosystem integrity, ecosystem degradation, human needs and values, and the application of management principles within a holistic context. Prerequisites: 1, 2, 103, 104. *Credits: 3*

206 Env Prob Sol & Impact Assessmt Group dynamics, impact assessment, risk assessment, and decision making. Emphasis on the process of solving complex environmental problems, interdisciplinary team work, and the National Environmental Policy Act. Prerequisites: 1, 2, 103, 104, 205, and statistics. *Credits: 4*

207 D1:Power, Privilege & Envrnmt This course provides seniors with the opportunity to understand aspects of power, privilege, and injustice and its implications for the natural resource and environmental fields. Prerequisites: NR 001, 002, 006, 103 and 104. Co-requisite: NR 205. *Credits: 1*

220 Landscape Ecology Study of pattern, process, and dynamics in the landscape. Considers the role of landscape pattern in determining habitat quality and ecosystem function. Prerequisites: One biology, one ecology course; senior standing. Alternate years, 2002-03. *Credits: 2*

222 Pollution Ecology (Cross-listed with Environmental Sciences 222.) Impacts of pollutants on the structure and function of ecosystems. Examination of how air, land, and water influence ecological fate and effects of pollutants. Prerequisites: Biology 1; Chemistry 23, Natural Resources 103 or equivalent ecology course. *Credits: 3*

224 Conservation Biology Conservation of biological diversity at genetic, species, ecosystem, and landscape levels. Emphasis on genetic diversity, population viability, endangered species, critical habitats, international implications. Prerequisites: Biology 1, 2; a 100-level ecology course. *Credits: 3*

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: 2*

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-requisites: Senior Standing. *Credits: 3*

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 or one course in ecology plus one course in design or drawing. Cross-listed with CDAE 238, ENVS 238, PSS 238. *Credits: 4*

240 Park and Wilderness Mgmt (Cross-listed with PRT 240.) History, philosophy, and management of wilderness, national parks, and related areas. Prerequisite: Junior or senior standing in Parks, Recreation and Tourism. *Credits: 3*

242 Adv Geospatial Techniques Advanced course encompassing a wide range of topics in GIS, remote sensing, GPS, modeling, and visualization designed to provide technical expertise in geospatial techniques. Prerequisite: Introductory GIS (NR 143 or GEOG 184 or NR 343) or remote sensing (NR 146, NR 346, GEOG 185) course as determined by instructor. *Credits: 1-3*

243 GIS Practicum An applied course in geospatial technology with a focus on ESRI's ArcGIS software suite. Prerequisites: NR 143/343. *Credits: 3*

245 Integrating GIS & Statistics Advanced approaches in integrating Geographic Information Systems (GIS) and statistical methods to analyze quantitatively spatial patterns and relationships. Prerequisites: senior/Grad standing, one introductory GIS course, one introductory statistics course. *Credits: 3*

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, and ecology course. *Credits: 4*

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: 102 or equivalent basic course in water. *Credits: 3*

256 Ecology of a Large Lake A field exploration of the littoral zone and deep lake environments and human impacts on large lakes using Lake Champlain as the class laboratory. Prerequisite: 100-level ecology course. *Credits: 4*

260 Wetlands Ecology & Mgmt Structure, dynamics and values of natural and artificial wetlands; wetlands management and issues. Prerequisites: Biology 1 and 2, and an upper-level ecology course. *Credits: 3*

261 Wetlands Ecology Lab *Credits: 1*

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. Prerequisites: Senior standing, permission. *Credits: 3*

264 SL: C Ross Env Publ Serv Pract Creating proposals for modification and implementation of natural resource and environmental policy in Vermont with emphasis on critical thinking, problem solving and leadership. Prerequisite: NR 103, 104 or equivalent. NR 153 or equivalent is recommended. *Credits: 4-5*

265 Environment & Human Behavior Applies social psychological frameworks--attitudes, exchange theory, symbolic interaction, group processes, social cognition, discourse theory--to help understand environmentally related behaviors, conflict, and management. Prerequisite: Junior standing. *Credits: 3*

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*

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. Prerequisites: Biology 1, Chemistry 23, 42; 102 or equivalent; senior standing. *Credits: 3*

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*

276 Water Quality Anlys & Interp Selected aspects of water chemistry and bioassay as related to surface and ground waters. Laboratory analysis of water quality parameters and data interpretation. Prerequisite: One course in chemistry, calculus, statistics; senior standing. *Credits: 3*

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. Prerequisites: 170 or equivalent (or as a co-requisite), Math. 20, Physics 11, Chemistry 23, 26 or equivalent, senior standing. *Credits: 3*

280 Stream Ecology Ecology of streams including hydrodynamics, morphology, sediment transport, chemistry, biology and human impacts. Field and laboratory experience. Prerequisites: One year biology, one year chemistry, an ecology course. chemistry. *Credits: 4*

285 Advanced Special Topics Advanced special topics in natural resource planning beyond the scope of existing formal courses. Prerequisites: Graduate or senior standing, instructor's permission. *Credits: 1-6*

288 Ecol Design & Living Technol The course explores the potential for ecological design to shape a sustainable future. It analyzes living technologies for food production, waste management and environmental restoration. Pre/co-requisites: Jr/Sr standing; background in ecology/systems theory. *Credits: 3*

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*

298 Honors 'Project' Planning Process, procedures, and strategies leading to the development of an individual or group Honors Project Proposal, to be submitted for review and approval. Prerequisites: JR standing, concurrent enrollment in NR 199 for HCOL students, permission, UG only. *Credits: 2*

299 Honors Honors project dealing with aquatic resources, terrestrial ecology, or integrated natural resources. Prerequisite: By application only; see program chair. *Credits: 3-6*

Neuroscience NSCI

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

097 Readings & Research *Credits: 1-6*

098 Readings & Research Credits: 1-6

110 Exploring Neuroscience Neuroscience survey, including cellular and molecular functioning of neurons, anatomical and functional organization of the nervous system, and diseases of the nervous system. With lab. Prerequisites: PSYC 001, BCOR 011, BCOR 012 *Credits: 4*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Intrmd Readings & Research Credits: 1-6

198 Intrmd Readings & Research Credits: 1-6

270 Diseases of the Nervous System Senior level, seminar-stype capstone course in which students bring together information learned in other courses for an in-depth study of disease states of the nervous system. Pre/co-requisites: NSCI 110 and senior standing. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

297 Advanced Readings & Research Credits: 1-6

298 Advanced Readings & Research Credits: 1-6

Nuclear Medicine Technology NMT

152 Radiopharmaceuticals The radiopharmacological aspects of nuclear medicine technology, including radiation physics, safety, tracer principles, dosimetry, and venipuncture. Prerequisite: MLRS 141. NMT students only. *Credits: 0-4*

153 Nuclear Med Clin Procedures I Principles of diagnostic imaging procedures emphasizing the nuclear medicine technologist's role in patient care and preparation, radiopharmaceutical selection, image acquisition, and data processing and analysis. Prerequisite: NMT 152. *Credits: 3*

154 Nuclear Med Clin Procedures II Principles and technical considerations of in vivo and in vitro nuclear medicine diagnostic and therapeutic procedures. Prerequisite: NMT 153. *Credits: 3*

155 Instrumentation I Nuclear medicine instrumentation, with emphasis on planar imaging devices, computer, and quality control; introduction to SPECT camera systems. Prerequisite: NMT 152. *Credits: 3*

156 Instrumentation II Advanced nuclear medicine instrumentation with emphasis on state-of-the-art imaging devices including PET/CT and SPECT/CT. Prerequisites: NMT 155. *Credits: 3*

160 Patient Care Seminar Prepares the students of nuclear medicine technology with basic patient care techniques. NMT majors only. Co-requisite: NMT 164. NMT students only; instructor permission. *Credits: 1*

162 Introduction to Clinical NMT Clinical practicum designed to provide the student with an orientation to the clinical environment, with emphasis in radiation safety, patient care and communication. Prerequisite: MLRS 140. Co-requisite: MLRS 141; NMT students only. *Credits: 1*

163 Nuclear Med Clin Practicum I Students observe and participate in Fletcher Allen Health Care's Nuclear Medicine Department. Prerequisite: MLRS 141; co-requisite: NMT 152, 153. *Credits: 1*

164 Nuclear Med Clin Practicum II Students participate in routine imaging procedures emphasizing patient care, positioning, and instrumentation. NMT majors only. Prerequisite: NMT 163. *Credits: 3*

174 Nuclear Cardiology Designed to provide the student a comprehensive understanding of the theory and principles of nuclear medicine cardiac imaging. Prerequisites: NMT 152, NMT 163. *Credits: 3*

252 Senior Seminar Course designed to consolidate, review, and enhance the principles and practice of nuclear medicine learned in previous courses through discussion and student presentations. Prerequisite: NMT 164. Co-requisite: NMT 263. *Credits: 2*

263 Adv Nuclear Med Clin Pract III Experience in advanced clinical and pharmacological procedures. NMT majors only. Prerequisite: NMT 164. *Credits: 3*

264 Clinical Practicum IV Full-time clinical experience at an affiliated institution. NMT majors only. Prerequisite: NMT 263. *Credits: 14*

296 Advanced Special Topics Credits: 1-18

Nursing NURS

120 Pathophysiology This course is designed to provide the student with a comprehensive foundation in pathophysiology. The phenomena that result in dysfunction in human physiologic response will be examined. Prerequisites: ANPS 19, 20. Recommended: MMG 65 or MLRS 54, MLRS 56. *Credits: 3*

135 Hlth Issues in Dev Countries Discussion of status and practice issues in developing countries including several Black African countries and Peoples' Republic of China. Historical, sociocultural, religious, political perspectives. *Credits: 3*

138 Critical Care Nursing Prepares the experienced registered nurse with the knowledge to competently manage the critically ill adult patient. Focuses on assessment, analysis, and nursing management strategies. Pre/co-requisites: Registered Nurse status. *Credits: 6*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-12*

Nursing & Health Sciences NH

003 Medical Terminology Terminology related to medical and health sciences. Online. Prerequisite: CNHS students or DNFS majors. *Credits: 2*

015 Personal Power in Health Explores consumer power in health care. Addresses how an individual can influence personal health as well as health of community. *Credits: 3*

050 App to Hlth: From Pers to Syst This course introduces students to a range of topics related to their chosen majors and future careers. Pre/co-requisites: First year CNHS student. *Credits: 1*

095 Special Topics Introductory courses on health topics beyond the scope of departmental or college offerings. See Schedule of Courses for specific titles. *Credits: 1-6*

120 Health Care Ethics A study of ethical principles and applications used to help resolve dilemmas in health care delivery. Introduction to ethical decision-making models used in the practice of modern health care. *Credits: 3*

195 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of the normal departmental or college offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

201 Hlth: Sex, Drugs & Fast Foods All Honors College Juniors within the CNHS will take this course in fulfillment of the Honors College curriculum. The course will be an exploration into the determinants of health. *Credits: 3*

202 D2:Social Justice and Health Examination of the health impacts of injustice and the role of health professionals, their associations and employers in promoting social justice to improve health. Pre/co-requisite: CNHS Honors College junior or permission of instructor. *Credits: 3*

251 HC: Honors Project and Seminar All senior Honors College students are required to complete a senior project. This course will facilitate this project for CNHS students. *Credits: 3*

252 HC: Honors Project and Seminar This course facilitates the completion and second half of the Honors College project. All CNHS Honors College students must enroll in the NH 251-252 sequence. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Nutrition and Food Sciences NFS

020 Vtrim for Undergrads This course is designed to teach healthy eating, exercise and weight management behaviors to college students. *Credits: 1*

021 Vtrim for Undergrads Part II This course is designed to teach healthy eating, exercise and weight management behaviors to college students. Prerequisite: NFS 020. *Credits: 1*

033 What's Brewing in Food Science This course will explore food science via the production of beer and other fermented beverages. Students will also identify mechanisms to modify their drinking habits. *Credits: 3*

034 Servsafe Certification Course This course will prepare students for the ServSafe Certification Exam. The topics include food safety and proper food handling in a restaurant setting. *Credits: 1*

043 Fundamentals of Nutrition The study of standard guidelines to select foods that maximize human health and the functions of the essential nutrients needed to sustain human life. Prerequisites: High school chemistry and biology. *Credits: 3*

044 Survey of the Field Nutrition and Food Sciences (1-0) Introduction to the professional field and career opportunities in dietetics, nutrition and food science. Required of all first-year and transfer students. Fall. *Credits: 1*

050 D2:Cheese and Culture The history of cheesemaking is used as a lens through which to view current conflicts in European and American attitudes towards foods. *Credits: 3*

053 Basic Concepts of Foods Study of the scientific aspects of food with emphasis on reasons for procedures used and phenomena occurring in food preparation. Spring. *Credits: 3*

054 Basic Concepts of Foods Lab Developing comprehension of scientific principles of food preparation through modification of standard recipes, manipulation of ingredients and techniques, and evaluation using sensory and objective methods. Prerequisite: 53 or concurrent registration in 53 or permission. Spring, Department majors only. *Credits: 1*

063 Obesity,Weight Control&Fitness Introduction to the causes, consequences, and treatment of obesity. Fall. *Credits: 3*

073 D2:Farm to Table:Our Food Sys This course provides an introduction to the contemporary food system, focusing on the interdependence of all components, from farm to table. *Credits: 3*

095 Special Topics Introductory level special topics courses. *Credits: 1-18*

143 Nutrition in the Life Cycle Nutritional needs of people throughout the life cycle. Physiological and environmental factors which affect nutritional status. Designed for nutrition majors. Prerequisites: Nutrition 43. Fall. *Credits: 3*

153 Principles of Food Technology Food processing technologies and underlining principles of changes in microbiological quality and safety, chemical composition and nutritional value, and interaction of functional additives and ingredients. Prerequisites: 43, 53, organic chemistry. Spring. *Credits: 3*

154 Principles Food Technology Lab Experiential learning of principles of major modern food processing and preservation technologies, essential skills of food quality and safety assurance, and new product development. Prerequisites: 54, 153 or concurrent enrollment in 153, organic chemistry. Department majors only. *Credits: 1*

163 Sports Nutrition Timing and composition of meals for training and pre- and post-competition. Pre-requisite: Instructor's permission. Fall and Spring. *Credits: 3*

185 D2:Food and Culture This course presents an overview of the cultural dimensions of food preparation, consumption and rituals by combining lab and lecture experiences. Prerequisites: SOC 001 or ANTH 021. *Credits: 4*

195 Intermediate Special Topics Lectures, laboratories, readings, or projects relating to contemporary areas of study. Credits negotiable. Enrollment may be more than once, maximum of 12 hours in 195 and 295 combined. Prerequisite: Departmental permission. *Credits: 1-12*

196 Field Experience Professionally-oriented field experience under joint supervision by faculty and business or community representative. Credits negotiable, maximum of 15 hours in 196 and 296 combined. Prerequisite: Departmental permission. *Credits: 1-15*

197 Undergraduate Research Individual laboratory or community research in food or nutritional sciences under the guidance of a faculty member. Arrangement with faculty member and department chairperson permission. *Credits: 1-3*

198 Undergraduate Research Individual laboratory or community research in food or nutritional sciences under the guidance of a faculty member. Arrangement with faculty member and department chairperson permission. *Credits: 1-15*

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. Prerequisites: A course in biochemistry. Fall. *Credits: 4*

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, 154 or instructor's permission. *Credits: 3*

208 Sensory Evaluation of Foods Practical study of the methods and protocols used to evaluate the sensory quality of food in the industry and research world. Prerequisite: NFS 053 *Credits: 3*

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 43, 53, 54, 143. *Credits: 3*

243 Advanced Nutrition Study of nutrients and their specific functions in metabolic process integrating cellular physiology, biochemistry, and nutrition. Prerequisites: NFS 043, PBIO 201 or equivalent, ANPS 19 or equivalent; Junior standing. Spring. *Credits: 3*

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 42, ANPS 20, NFS 53, 54, 143. *Credits: 3*

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 65 and 120 *Credits: 4*

253 Food Safety & Regulation Comprehensive study of the relationships between food processing and preservation, food toxicology, and the scope, applicability, and limitations of U.S. food laws. Prerequisites: AGBI 201 or equivalent. Spring. *Credits: 3*

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. Prerequisites: 53, 143, 243, 244. *Credits: 3*

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. Prerequisites: 260 and senior standing. Spring. *Credits: 3*

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). Prerequisites: 243 or instructor's permission. Spring. *Credits: 3*

274 Community Practicum Professional field experience in a community nutrition organization. Credit negotiable but not to exceed three per semester. Enrollment may be more than once, maximum of 6 credits. Prerequisite: Instructor's permission. *Credits: 1-6*

283 HACCP: Theory & Application This course addresses the development of a HACCP plan. Requirements of both the USDA-FSIS and FDA are examined. A mock HACCP plan will be developed. Prerequisite: NFS 203 and instructor permission. *Credits: 3*

295 Advanced Special Topics Lectures, laboratories, readings, or projects relating to contemporary areas of study. Credits negotiable. Enrollment may be more than once, maximum of 12 hours in 195 and 295 combined. Prerequisite: Departmental permission. *Credits: 1-15*

296 Field Experience Professionally-oriented field experience under joint supervision of faculty and business or community representative. Credit negotiable. Maximum of 15 hours in 196 and 296 combined. Prerequisite: Departmental permission. *Credits: 1-15*

Obstetrics & Gynecology OBGY

295 Advanced Special Topics Lectures, readings and discussion for advanced students within areas of expertise of faculty and staff. Prerequisite: Permission of instructor. *Credits: 1-12*

Orthopedic Surgery ORTH

291 Rsch in Orth & Rehab Work on research problem under the direction of a faculty member. Review of literature, preparation of manuscript. Prerequisite: Permission. (in collaboration with clinical faculty of the Department). *Credits: 3*

292 Special Topics:Orthopaedics Work on research problem under the direction of a faculty member. Review of literature, preparation of manuscript. Prerequisite: Permission. (in collaboration with clinical faculty of the Department). *Credits: 3*

Overseas Study Program OSSP

000 Overseas Study Program *Credits: 0-12*

001 ISEP Exchange *Credits: 12*

002 UVM Exchange *Credits: 12*

Parks, Recreation and Tourism PRT

001 Intro to Recreation & Tourism Introduction to leisure studies focusing on outdoor recreation and tourism. Includes philosophy, history, social science, future trends, and business applications of recreation and tourism. *Credits: 3*

050 Tourism Planning Examination of tourism including its economic, environmental, and social effects. Emphasis on planning to maintain the integrity of tourist regions. *Credits: 3*

138 Park & Recreation Design Recreation design methodology applied to the design of public and private recreational facilities. *Credits: 0-4*

152 Forest Resource Values History, methods, and current issues associated with the nonmarket and market values of forest-based resources, including aesthetics, wildlife, recreation, water, and timber. Prerequisite: EC 012 or CDAE 061. (Same as FOR 152.) *Credits: 3*

153 Recreation Admin & Operations Administration and operation of outdoor recreation agencies and businesses. Special emphasis on recreation administrative structures, personnel management, and maintenance of parks and outdoor recreation areas. Prerequisite: Junior or senior standing. *Credits: 3*

157 Ski Area Management A study of the management and operating functions of ski areas and resorts in Vermont, with applicability across the North American ski industry. Prerequisite: Junior or senior standing. *Credits: 0-4*

158 Resort Mgmt & Marketing Study of the management of year-round resort facilities. Emphasis on resort marketing, internal support functions, and associated recreational facilities. Prerequisite: Junior or senior standing. *Credits: 3*

188 Special Topics Independent study. Prerequisite: Junior standing, permission. *Credits: 1-3*

191 Parks, Rec & Tourism Practicum Supervised field experience in national, state, urban, or private park and recreation operations. Prerequisite: Junior or senior standing in Parks, Recreation and Tourism. *Credits: 1-6*

230 Ecotourism Study of nature-based travel emphasizing international destinations. Examination of ecotourism as a tool for preservation and economic development. Prerequisites: Junior or senior standing *Credits: 3*

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. Prerequisite: Advanced standing in Parks, Recreation and Tourism or permission. *Credits: 3*

240 Park and Wilderness Management History, philosophy, and management of wilderness, national parks, and related areas. Prerequisite: Junior or senior standing in Parks, Recreation and Tourism. *Credits: 3*

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 Parks, Recreation and Tourism or permission. *Credits: 3*

258 Entrepreneurship Rec&Tourism Study of entrepreneurial theories, concepts, and practices and their application to recreation and tourism. Emphasis on preparation of individual business plans. Prerequisite: Junior or senior standing in Parks, Recreation and Tourism or permission. *Credits: 3*

299 Parks, Rec and Tourism Honors Honors project dealing with management of outdoor recreation and tourism. Prerequisite: By application only; see program chair. *Credits: 3-6*

Pathology PATH

101 Intro to Human Disease Elementary course in human pathology designed for Allied Health students. First portion deals with general mechanisms of disease, followed by disorders of specific organs. Prerequisites: College biology, anatomy, and physiology. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-3*

Pharmacology 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. Prerequisites: Introductory courses in Biology and Organic Chemistry. *Credits: 0-3*

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*

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. Prerequisites: Introductory course in organic chemistry, background in physiology or health sciences. *Credits: 3*

Philosophy PHIL

010 Introduction to Philosophy Courses introducing philosophical argument and analysis in a variety of ways. Content, readings and assignments vary by section. Not repeatable for credit. Credit not awarded for more than one Philosophy course numbered below 100, except that credit will be given for PHIL 013 in addition to one other course numbered below 100. *Credits: 3*

013 Introduction to Logic Study of the basic principles of deductive inference. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

101 History of Ancient Philosophy Study of the works of the Pre-Socratics, Plato, Aristotle, and their successors. Prerequisite: One philosophy course. *Credits: 3*

102 History of Modern Philosophy Study of works of the major philosophers of the 17th and 18th centuries: Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, Kant, and others. Prerequisite: One philosophy course. *Credits: 3*

105 History of Medieval Philosophy Study of works of such major philosophical figures as Augustine, Anselm, Abelard, Aquinas, Duns Scotus, and William of Ockham. Prerequisite: 101 is recommended. *Credits: 3*

108 Plato (Same as Classics 161.) Prerequisites: One course in philosophy or in Classics (Greek Culture or Greek). *Credits: 3*

111 Philosophy of Mind Inquiry into such topics as consciousness, the relation between the mental (beliefs, sensations, etc.) and the physical (chemicals, neurons, etc.) and how minds represent things. Prerequisites: One course in philosophy or instructor permission. *Credits: 3*

112 Philosophy of Science Introduction to major philosophical problems raised by science. Typical topics: the nature of scientific inference, the structure of theories, causation, explanation, and scientific change. Prerequisite: One course in philosophy or two courses in any natural science. *Credits: 3*

118 Metaphysics A study of such topics as vagueness, the nature of time, persistence of objects and people through change and whether numbers or properties exist. Prerequisites: One philosophy course. *Credits: 3*

120 Phil of Cognitive Science An examination of philosophical issues concerning the nature of the human mind raised by the cognitive sciences (psychology, computer science, linguistics, and neuroscience). Prerequisites: One course in philosophy or instructor permission (students with relevant background are encouraged to seek permission). *Credits: 3*

121 D2:Chinese Philosophy I Study of the Classical Schools of Chinese thought, including Confucianism, Taoism, Mohism, and Legalism. Prerequisite: One course in philosophy, religion, or Asian studies. *Credits: 3*

135 Philosophy of Religion Typical topics: the nature of religion, the concept of God, the grounds for belief in God, mortality, truth, and revelation. Historical and contemporary sources. Prerequisite: One philosophy course. *Credits: 3*

140 Social & Political Philosophy Examination of some major figures in the history of social and political philosophy, focusing on issues such as political obligation, rights, property, and justice. Prerequisite: One philosophy course. *Credits: 3*

142 Philosophy of Law I Analysis of the nature of law, the relation between law and morality, legal obligation, and the judicial decision. Prerequisites: One philosophy course or Political Science 41. Cross-listing: Political Science 143. *Credits: 3*

143 Philosophy of Law II Problems of liberty, e.g. freedom of expression, privacy, paternalism; scope and limits of the criminal law; philosophy of punishment; selected problems in criminal justice, e.g. plea bargaining; preventive detention. Prerequisites: One philosophy course or Political Science 41. Cross-listing: Political Science 144. *Credits: 3*

144 Phil Problems in Medicine Such issues as the physician-patient relationship, allocation of organs for transplantation, reproductive assistance technology and genetic engineering, the justice of the health-care delivery system. Prerequisites: One philosophy course. *Credits: 3*

145 Killing Things It is sometimes morally permissible to kill things: you can kill a mosquito biting you, for example. What else is permissible to kill? When? Prerequisites: 1 philosophy course or instructor permission *Credits: 3*

152 Philosophy of Art A consideration of some leading theories of art, and their application to problems of art as they appear in music, literature, painting, and in the general criticism of the arts. Prerequisites: One philosophy course. *Credits: 3*

160 Continental Philosophy An explanation of such movements in Continental philosophy as phenomenology, existentialism, and structuralism and such figures as Husserl, Heidegger, Sartre, and Foucault. Prerequisites: One philosophy course. *Credits: 3*

170 Feminism:Theories and Issues Theories of libertarianism, liberalism, and egalitarianism; application to the analysis and evaluation of social issues of contemporary interest, such as abortion and affirmative action. Prerequisite: One philosophy course.- *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research Prerequisite: Instructor permission. *Credits: 1-6*

198 Readings & Research Prerequisite: Instructor permission. *Credits: 1-6*

205 Seminar:Maj Phil Author/School Study of major philosophical texts by a single author or school of thought. May be repeated for credit when different authors are studied. Prerequisites: One philosophy course at 100-level. *Credits: 3*

211 Phil of Mind:Advanced Topics In-depth study of topics like consciousness, the relation between the mental (belief, sensations, etc.) and the physical (chemicals, neurons, etc.) and how minds represent things. Prerequisites: One philosophy course at the 100-level. *Credits: 3*

217 Philosophy of Language Philosophical study of the nature of language. Prerequisite: One philosophy course at 100-level. Recommended: 13. *Credits: 3*

218 Metaphysics:Advanced Topics In-depth study of such topics as vagueness, the nature of time, persistence of objects and people through change, and whether numbers or properties exist. Prerequisites: One philosophy course at the 100-level. *Credits: 3*

219 Epistemology:Advanced Topics In-depth study of select topics concerning theories of knowledge and related concepts such as belief, truth, rationality, evidence, perception, and memory. Prerequisites: One philosophy course at the 100-level *Credits: 3*

221 D2:Topics in Chinese Phil Detailed examination of a classical Chinese philosophical text or school. Prerequisite: 121. *Credits: 3*

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.) Prerequisites: 101, 102 or 135. *Credits: 3*

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. Prerequisites: One Philosophy course at the 100-level. *Credits: 3*

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. Prerequisites: 140, 142, 143, or 144. *Credits: 3*

242 Justice & Equality An examination of contemporary normative theories of distributive justice and equality. Prerequisites: POLS 41 and either a 100-level POLS course or PHIL 140, 142, 143, or 144. Cross-listed with POLS 241. *Credits: 3*

244 Phil of Medicine:Adv Topics In-depth study of issues in contemporary medical ethics such as genetic engineering, cloning, embryonic stem cell research, abortion and physician-assisted suicide. Prerequisites: One philosophy course at 100-level. *Credits: 3*

265 American Philosophy The thought of such leading American philosophers as Peirce, James, Royce, Santayana, Dewey, and Whitehead. Prerequisites: 101, 102. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

297 Adv Readings & Research Independent study with an instructor on a specific philosopher or philosophical problem. Prerequisite: An Instructor permission; an appropriate 200-level course in philosophy. *Credits: 1-6*

298 Adv Readings & Research Independent study with an instructor on a specific philosopher or philosophical problem. Prerequisite: Instructor permission; an appropriate 200-level course in philosophy. *Credits: 1-6*

Physical Education PEAC

000 Varsity Sports *Credits: 1*

001 Remedial Physical Education *Credits: 0.5-1*

002 Conditioning 1-4 *Credits: 1*

003 Ski Conditioning *Credits: 1*

004 Weight Training 1-4 *Credits: 1*

005 Club Sports *Credits: 1*

006 Fitness Assessment *Credits: 1*

007 Weight Reduction *Credits: 1*

008 Fitness & Weight Control 1-4 *Credits: 1*

009 Run For Fitness *Credits: 0.5*

010 Fitness & Aging *Credits: 1*

013 Wilderness Survival *Credits: 1*

014 Orienteering 1-2 *Credits: 1*

015 Rappelling *Credits: 0.5-1*

016 Gymnastics 1-4 *Credits: 1*

017 Military Fitness *Credits: 1*

018 Rock Climbing Basic climbing techniques and holds are taught. Additionally, students learn how to belay and become familiar with climbing etiquette and safety practices. *Credits: 1*

019 Backpacking *Credits: 1*

020 Triathlon Training *Credits: 1*

021 Walking for Fitness 1-4 *Credits: 0.5-1*

022 Stretch & Relaxation *Credits: 0.5-1*

023 Cross Training *Credits: 1*

024 Stress Reduction 1-4 *Credits: 1*

025 Orienteering *Credits: 1*

026 Jogging for Fitness This course examines cardio-respiratory, fitness, exercise principles, and how to design and evaluate fitness programs/workouts. Additionally, the course emphasizes the importance of life-long exercise. *Credits: 1*

027 Group Fitness This course introduces students to a variety of different types of group fitness classes, such as yoga, Pilates, spinning, total body conditioning, and other aerobic classes. *Credits: 1*

028 Conditioning Act *Credits: 1*

031 Aerobic Exercise 1-4 *Credits: 1*

033 Aquatic Aerobics 1-2 *Credits: 1*

034 Aerobic Dance *Credits: 1*

035 Low Impact Aerobics 1-4 *Credits: 1*

036 Swimming 1-3 *Credits: 0.5-1*

038 Swimming 3-4 *Credits: 1*

039 Swim for Fitness *Credits: 1*

040 Advanced Lifesaving *Credits: 1*

041 Lifeguard Training *Credits: 1*

042 Emergency Water Safety *Credits: 0.5-1*

043 WSI-Crossover *Credits: 0.5*

045 Intermediate Sailing *Credits: 0.5-1*

047 Scuba *Credits: 1*

049 Learn to Sail *Credits: 0.5-1*

050 Individual Sports *Credits: 1*

051 Advanced Sailing *Credits: 0.5*

052 Yoga & Mindfulness This course introduces students to various yoga poses and techniques, delves into the history of yoga, and provides students with the understanding of how yoga improves one's overall wellness. *Credits: 1*

053 Archery 1-4 *Credits: 0.5 OR 1*

054 Archery 2 *Credits: 0.5*

056 Badminton 1-2 *Credits: 0.5-1*

057 Badminton 2 *Credits: 0.5*

058 Badminton 3-4 *Credits: 1*

059 Fencing *Credits: 0.5-1*

060 Badminton 4 *Credits: 0.5*

061 Bowling 1-4 *Credits: 0.5-1*

062 Bowling 3-4 *Credits: 1*

063 Horseback Riding 1-4 *Credits: 0.5*

064 Skating 1 *Credits: 0.5*

065 Figure Skating 1-4 *Credits: 0.5-1*

066 Inter Skating *Credits: 0.5*

070 Racquet Sports *Credits: 1*

071 Handball 1-2 *Credits: 1*

073 Aikido Basic Aikido techniques, such as throws and immobilizing holds, are taught in this martial art that emphasizes leverage and circular movements as defensive techniques. *Credits: 1*

075 Judo 1-4 *Credits: 1*

077 Judo 3-4 *Credits: 1*

079 Racquetball 1-4 *Credits: 1*

081 Racquetball 3-4 *Credits: 1*

085 Telemarking 1-4 *Credits: 0.5-1*

086 Snowboarding 1-4 *Credits: 0.5-1*

087 Downhill Skiing 1-4 *Credits: 1*

088 Ski Instructors *Credits: 0-1*

089 X-Country Skiing 1-4 *Credits: 0.5*

091 Intermediate X-C Skiing 3-4 *Credits: 0.5*

092 Squash 1-2 *Credits: 1*

096 Tennis 1-2 *Credits: 1*

098 Tennis 3-4 *Credits: 1*

100 Tennis 5-6 *Credits: 1*

102 Tennis Doubles 3-4 Students will learn rules, positioning, and a variety of strategies unique to doubles tennis. *Credits: 1*

104 Platform & Indoor Tennis 3-4 The first half of this course is an introduction to platform tennis, an outdoor game played on a raised miniature court surrounded by screened walls. The second half of the course is an intermediate tennis course. *Credits: 1*

105 Outdoor Recreation *Credits: 1*

106 Platform Tennis 1-2 This course is an introduction to platform tennis, an outdoor game played on a raised miniature court surrounded by screened walls. *Credits: 1*

108 Moo Gong Do 1-2 *Credits: 1*

110 Moo Gong Do 3-4 *Credits: 1*

111 Golf 1 *Credits: 0.5-1*

112 Golf 2 *Credits: 0.5*

113 Golf 1-4 *Credits: 1*

114 Mountain Biking *Credits: 0.5-1*

117 Racquetball 5-6 *Credits: 1*

125 Team Sports 1 *Credits: 1*

126 Team Sports 2 *Credits: 1*

136 Team Handball *Credits: 0.5*

143 Volleyball 1 *Credits: 0.5-1*

144 Volleyball 2 *Credits: 0.5*

145 Volleyball 3-4 *Credits: 1*

146 Volleyball 4 *Credits: 0.5*

147 Volleyball 5-6 *Credits: 1*

150 Introduction to Dance *Credits: 1*

151 Hip Hop Dance 1-2 This course is an introduction to hip hop dance that explores several different styles of hip hop as students learn to transfer combinations into fully choreographed dances. *Credits: 1*

152 Hip Hop Dance 3-4 This course is an intermediate level hip hop dance class that utilizes more complex and challenging combinations as dances are choreographed. *Credits: 1*

153 Global Dance This is a survey course, covering primarily the basics of Hawaiian, Indian, and Spanish dance. *Credits: 1*

154 West African Dance This class incorporates various styles of West African Dance and explores dance as part of the culture of many West African societies. *Credits: 1*

155 Tap Dance 1-4 *Credits: 1*

161 Modern Jazz 1-2 *Credits: 1*

163 Modern Jazz 3-4 *Credits: 1*

165 Jazz Aerobics 1-2 *Credits: 1*

166 Ballet 1-2 *Credits: 1*

168 Ballet 3-4 *Credits: 1*

169 Ballet 4 *Credits: 0.5*

170 Ballet 3-6 *Credits: 1*

171 Modern Dance 1-2 *Credits: 1*

179 Folk & Square Dancing 1-2 *Credits: 1*

183 Ballet 5-6 *Credits: 0.5-1*

185 Ballet 5-6 *Credits: 1*

187 Ballroom Dance 1-2 *Credits: 1*

188 Orchesis Dancers *Credits: 1*

189 Social Dance:International *Credits: 0.5*

190 Dance for Majors *Credits: 1*

192 Jazz 5+ *Credits: 1*

199 Physical Education Activities *Credits: 0.5-1*

Physical Education-Prof EDPE

021 Foundations of Phys Educ Examination of the development of physical education as an academic discipline and profession, its foundations, current trends, issues and career opportunities. Prerequisites: Physical Education majors; others by instructor's permission. *Credits: 3*

023 Amer Red Cross Emergency Resp To meet the needs of individuals who are in a position to provide first aid and emergency care frequently. Red Cross certification for successful performance in Advanced First Aid Emergency Care. Prerequisite: PE, HDS, and Health majors, others by instructor's permission. *Credits: 3*

024 Life Skills: Student Athletes This course provides students with skills training for academic and athletic success, alcohol education and prevention, and moral reasoning and decision-making. *Credits: 1*

026 Water Safety Instructor Advanced performance skills in swimming, diving, survival, and rescue techniques. Theory and practice in techniques of teaching aquatic skills. Red Cross certification as Water Safety Instructor or Instructor for Beginning Swimming. Prerequisite: Current Red Cross Lifesaving Certificate. *Credits: 2*

032 Recreational Sport Officiating Basic techniques and skills of rule interpretation for officiating recreational sport competition. *Credits: 2*

054 Hist, Phil, and Trends in Rec Review of chronological history of evolution of recreation movement; examination of past and emerging theories and philosophies of recreation and leisure; exploration of trends in recreation and leisure and probable impact on our life styles. *Credits: 3*

055 Special Topics I *Credits: 1-6*

100 Integ Movement/Elem School Cur Planning and implementing movement-based lessons and integrating movement across the curriculum for children aged 5-12. *Credits: 2*

104 Phys Educ Teaching Experience Experience-based course sequence emphasizing relationship of motor development to learning. Includes age level needs and appropriate physical education activity sequences. First semester: grades K-3; second semester (105); grades 4-6. Prerequisites: 23 or 157, junior standing. *Credits: 5*

105 Phys Educ Teaching Experience Experience-based course sequence emphasizing relationship of motor development to learning. Includes age level needs and appropriate physical education activity sequences. First semester: grades K-3; second semester (105); grades 4-6. Prerequisites: 23 or 157, junior standing. *Credits: 5*

121 Coaching Baseball Theory and technique of coaching interscholastic baseball. Includes practice, game, and schedule organizations. Prerequisites: Skill competency in baseball, sophomore standing or permission. *Credits: 0-2*

123 Coaching Softball Theory and technique of coaching interscholastic softball. Includes practice, game, and schedule organizations. Prerequisites: Skill competency in softball, sophomore standing or permission. *Credits: 2*

155 Phys Educ in Secondary Schl Theories of teaching which include unit plan development, classification and grouping of students for instruction, and a variety of teaching methods. Laboratory experience in teaching activity skills to youth aged 12-18. Prerequisite: Junior standing, PE majors only. *Credits: 3*

166 Kinesiology Designed for the teacher/coach to analyze factors of peak physical performance. Muscle actions, mechanical principles, related factors enhancing movement are emphasized. Prerequisite: One year of biological science; PE majors, coaching minors, Sports Nutrition; others by instructor's permission. Crosslisted with EXMS 166. *Credits: 3*

167 Exercise Physiology Investigates physiological responses during exercise. Laboratory, classroom experiences enable understanding of body responses during exercise. Content includes energy metabolism, muscular, cardiovascular, pulmonary responses, and temperature regulation. Prerequisites: PE majors, coaching minors, sports nutrition; others by instructor's permission. *Credits: 4*

168 Measurement&Data Analysis Introductory statistics and research design class. Covers basic statistics--t-tests, measurement scales, Anova, correlations, etc. Application in physical education and exercise science are specifically discussed. Prerequisites: EXSS majors only; others by instructor's permission. Crosslisted with EXMS 168. *Credits: 1 OR 3*

173 Practicum in Field Experience Individually prescribed teaching experience involving work with youth groups in activities related to physical education, health, or recreation. Responsibilities approximate those commonly associated with student teaching. Prerequisite: 104, 105, or 155, instructor's permission. *Credits: 1-4*

181 Student Teaching Teaching in elementary or secondary schools under guidance of cooperating teachers, principals and college supervisors. A full-time, full semester, 12-credit experience. Prerequisites: Acceptance into the teacher education program; must meet criteria for student teaching. Variable credit, three to 12 hours. *Credits: 3-12*

182 Student Teaching Seminar Provides students opportunities to discuss, process, give and receive input and to receive materials to support and enhance their experience, and develop licensure portfolio. Prerequisites: Concurrent with EDPE 181. *Credits: 2*

185 Injury Eval&Rec:Athl Training Course is integrative and clinical in nature, consisting of injury evaluation and recognition skills. Injury mechanisms, etiology, pathology, clinical signs and symptoms. Prerequisites: 157, 158. *Credits: 4*

195 Hlth/Fitness Ldrshp&Programmng Practical approach to significance, theories, and characteristics of leadership content, and methods of program planning. Field work practice in planning and leadership techniques. Prerequisite: EDPE 21. *Credits: 3*

197 Readings & Research Crosslisted with EXMS 197 *Credits: 1-4*

200 Contemporary Issues Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisites: Twelve hours in education and related areas. *Credits: 1-6*

201 Admin of Athletic Programs Background for effective administration of the athletic program of schools. Include scheduling, budgeting, management, equipment, policy, public relations, and education justification. Prerequisite: Twelve hours of education and psychology. *Credits: 3*

203 Principles of Physical Ed Principles basic to sound philosophy of physical education for appraisal of historical development; relationship to health education, recreation, and other areas; foundation and functions of physical education. Prerequisites: Admission to the program and permission. *Credits: 3*

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. Prerequisites: Sociology 1 or 19, or equivalent. *Credits: 3*

230 Philosophy of Coaching In-depth study of over 100 major philosophical coaching considerations. Lectures by visiting coaches. Study in areas of need and interest. Prerequisite: Junior standing. UG only. *Credits: 3*

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. Crosslisted with EXMS 241. *Credits: 2-4*

265 Exercise & Sport Science Discussion and integration of topics related to exercise physiology, kinesiology, motor learning, and sociocultural aspects of sport. Prerequisites: 166, 167, 220, 240; senior standing, or permission. Crosslisted with EXMS 265. *Credits: 3*

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. Crosslisted with EXMS 266. *Credits: 3*

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. Cross-listed with EXMS 267. *Credits: 3*

295 Lab Experience in Education Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences. *Credits: 1-12*

Physical Therapy PT

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

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-requisites: DPT majors only *Credits: 2*

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*

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-requisite: Enrollment in DPT program. *Credits: 0*

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-requisites: Enrollment in DPT program. *Credits: 0*

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-requisites: Enrollment in DPT program. *Credits: 0*

213 Movement Science I Students learn to apply kinesiology and biomechanical principles and concepts to the analysis of human movement, posture, joint structure and function, and gait. Pre/co-requisites: ANNB 201, enrollment in DPT program. *Credits: 3*

215 Movement Science 2 Lecture and laboratory experience re theory, concepts, and measurement of normal sensory motor development, motor control, and motor learning across the lifespan. Pre/co-requisites: ANNB 302 Neuroanatomy, PT 242 Patient Management 2, RMS 213, Movement Science 1/Enrolled as a DPT student. *Credits: 3*

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-requisites: ANNB 201; Enrolled as DPT student. Co- requisites: Pharmacology and Pathophysiology. *Credits: 6*

242 Patient Mgmt Musculoskeletal 1 Lecture/Lab experiences in which students will apply fundamental biomechanical and kinesiology principles of the trunk, spine, and extremities. Prerequisites: PT 241, RMS 213, Pathophysiology, Pharmacology; Enrolled as DPT student. Co-requisites: RMS 244, RMS 251. *Credits: 8*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-15*

Physics PHYS

009 Energy and the Environment Forms of energy as defined in physics; sources, uses, and transformations of energy: introductory seminar will place emphasis on environmental issues. Limited use of algebra and geometry. *Credits: 3*

011 Elementary Physics Algebra-based survey of mechanics, oscillations, waves and thermal physics. Appropriate for students in health and life sciences. Accompanying lab: PHYS 021. Prerequisites: High-school algebra and trigonometry. *Credits: 4*

012 Elementary Physics Algebra-based survey of electricity, magnetism, optics and modern physics. Appropriate for students in health and life sciences. Accompanying lab: PHYS 022. Prerequisites: High-school algebra and trigonometry. PHYS 011 or 031. *Credits: 4*

013 Conceptual Physics One-semester conceptual survey. Topics selected from mechanics, electricity, magnetism and modern physics. For students in the College of Nursing and Health Sciences only. *Credits: 3*

021 Introductory Lab I Prerequisite: Concurrent enrollment or credit in PHYS 011. *Credits: 1*

022 Introductory Lab II Prerequisite: Concurrent enrollment or credit in PHYS 012. *Credits: 1*

030 Physics Problem Solving I Problem-solving techniques for first semester physics with calculus. Accompanies 031. Co-requisite: Concurrent enrollment in 031. *Credits: 1*

031 Physics for Engineers I Mechanics including oscillations and waves. With lab. Accompanying optional problem-solving session: 030. Pre-requisite: Math 021, secondary school trigonometry. *Credits: 4*

044 The Physics of Music Basic physical principles underlying the production, transmission and perception of musical sound. Vibrations, waves, elementary acoustics with applications to a wide range of musical topics. Pre-requisites: High School Algebra. *Credits: 3*

051 Fundamentals of Physics I Calculus-based introduction to kinematics, dynamics, oscillations, thermal physics. For students in the natural sciences. With lab. Credit not given for both 051 and 031.

Pre/co-requisites: Credit or concurrent enrollment in MATH 021. *Credits: 4*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

123 Physics Problem Solving II Problem-solving techniques for second semester physics with calculus. Accompanies 125. Co-requisite: Concurrent enrollment in 125. *Credits: 1*

125 Physics for Engineers II Electricity, magnetism, electromagnetic waves, optics. Appropriate for students in engineering and physical sciences. Without lab. Accompanying optional problem-solving session: PHYS 123. Pre-requisites: 031, MATH 022; concurrent enrollment in MATH 121. *Credits: 3*

128 Waves and Quanta Classical and electromagnetic waves, relativity, wave-particle phenomenology, wave mechanics, and applications of the Schrodinger equation. With laboratory. Prerequisites: PHYS 152 or 125; MATH 121. *Credits: 0-4*

130 Introductory Laboratory III Prerequisite: Concurrent enrollment or credit in 128. *Credits: 1*

152 Fundamentals of Physics II Calculus-based introduction to electricity, magnetism and optics. For students in the natural sciences. With lab. Credit not given for both 125 and 152. Pre/co-requisites: PHYS 031 or 051; credit or concurrent enrollment in MATH 022. *Credits: 4*

195 Intermediate Special Topics See Schedule of Courses for specific titles. Prerequisite: 128, department permission. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. Prerequisite: 128, department permission. *Credits: 1-18*

197 Readings & Research Prerequisite: 128, department permission. *Credits: 1-6*

198 Readings & Research Prerequisite: 128, department permission. *Credits: 1-6*

201 Experimental Physics I Experiments in classical and modern physics. Prerequisites: PHYS 128; MATH 121, junior standing. *Credits: 3*

202 Experimental Physics II Experiments in classical and modern physics. Prerequisites: PHYS 128; MATH 121, junior standing. *Credits: 3*

211 Classical 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: PHYS 152; MATH 121. *Credits: 3*

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: PHYS 152; MATH 121. Credit not given for more than one of PHYS 213 or EE 141. *Credits: 3*

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 241. *Credits: 3*

222 Biological Physics Physical laws, processes, and interactions pertaining to biological systems. Prerequisites: PHYS 012 or 152; MATH 121. *Credits: 3*

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: 128. *Credits: 3*

257 Modern Astrophysics (Same as ASTR 257.) 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. *Credits: 3*

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: 128. *Credits: 3*

264 Nuclear & Elem Particle Physic Introduction to theoretical and experimental aspects of nuclear and elementary particle physics. Prerequisites: 128, junior standing. *Credits: 3*

265 Thermal & Statistical Physics Thermodynamics, kinetic theory, statistical mechanics. Prerequisites: PHYS 152; MATH 121. *Credits: 3*

273 Quantum Mechanics I Introduction to nonrelativistic quantum mechanics. Schrodinger equation and applications to simple systems. Prerequisites: 128, 211. *Credits: 3*

274 Applctns 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-requisites: PHYS 273 *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Plant & Soil Science PSS

003 D2:Coffee Ecol & Livelihoods This course presents an overview of the environmental, social and economic dimensions of coffee production, commercialization and consumption, with a focus on Mesoamerica coffee producing regions. *Credits: 3*

010 Home & Garden Horticulture Planning, selecting, and maintaining shrubs, trees, flowers, lawns, fruits, and vegetables around the home. Suitable for students in any major. *Credits: 3*

015 Home & Garden Horticulture Lab This lab provides practical, hands-on horticultural skills both in and around the home. Co-requisite: PSS 010. *Credits: 1*

021 Introduction to Ecological Agr Ecological concepts as applied to agriculture including farm visits. *Credits: 3*

028 A Bug's Life An introduction to the world of insects and their impact on our everyday lives, from the food we eat to solving murder crimes. *Credits: 3*

095 Special Topics Courses or seminars on topics beyond the scope of existing department offerings. *Credits: 1-18*

096 Special Topics Courses or seminars on topics beyond the scope of existing department offerings. *Credits: 1-18*

106 Entomology & Pest Mgmt Survey of the major insect orders, and methods for controlling injurious species. Prerequisites; PSS 10 or 21 or 1 semester biology or permission. *Credits: 4*

112 Weed Ecology & Management Identification, ecology, and management of weeds and other invasive plants in agriculture, urban/suburban landscapes, and natural areas. Prerequisites: PSS 10 or 21 or PBIO 4 or permission. *Credits: 3*

117 Plant Pathology Introduction to the causes of plant disease including the relationship of the plant, pathogen, and environment in disease development and disease management. Pre/co-requisites: PBIO 4, or BIOL 1 and 2, or BCOR 11 and 12 or permission; Cross-listing: PBIO 117. (Alternate years.) *Credits: 4*

121 Indoor Plants Indoor flowers, culture, related topics such as design. Prerequisite: PSS 10 or 21 or 1 semester biology or permission. *Credits: 1*

123 Garden Flowers Outdoor flowers, culture, related topics. Prerequisite: PSS 10 or 21 or 1 semester biology or permission. *Credits: 2*

124 Agroecology of Vegetable Crops The course will introduce students to agroecological research in vegetable cropping systems, farm management, and current trends in organic and conventional vegetable production. Prerequisites: PSS 10, 21, 1 semester of biology, or permission of the instructor. Alternate years. *Credits: 4*

125 Woody Landscape Plants Identification, climatic requirements, cultural management, and use of ornamental plant materials in landscape planting. Prerequisite: PSS 10 or 21 or 1 semester biology or permission. *Credits: 4*

127 Greenhouse Operations & Mgmt Principles and practices of commercial greenhouse management including construction, heating, cooling, container media, watering, fertilization, light and temperature, growth regulators, integrated pest management and disease control. Prerequisite: PSS 010 or 021 or 1 semester biology or permission. (Alternate years.) *Credits: 4*

137 Landscape Design Fundamentals Studio course to learn techniques of landscape design and analysis, develop graphic communication skills for representing the landscape, and apply sustainable design principles to a site. Pre/co-requisites: Junior standing; at least one course in drawing, design, or mapping, or consent of instructor. Cross-listings: CDAE 137, ENVS 137, NR 137. *Credits: 4*

138 Commercial Plant Propagation Principles and practices involved in propagating herbaceous and woody plants by seeds, division, layering, cuttings, budding, grafting, and aseptic culture. Prerequisite: PSS 10 or 21 or 1 semester biology or permission. *Credits: 4*

143 Forage and Pasture Mgmnt Principles and practices of growing and utilizing forage plants for hay, silage and pasture; introduction to management intensive grazing; understanding forage quality. Pre/co-requisites: PSS 10 or 1 sem Biology or 1 sem Plant Biology or permission. Cross-listing: ASCI 143. *Credits: 4*

145 Turfgrass Management Establishment, maintenance, and utilization of turf for aesthetic, athletic and utility functions. Pre/co-requisite: PSS 10 or 21 or 1 semester Biology or permission. (Alternate years) *Credits: 3*

154 Composting Ecology & Mgmt Examines ecological, physical and chemical principles, the practical management of the composting process, and benefits of using compost in plant and soil ecosystems. Prerequisite: 3 credits in basic biological or ecological science or permission. (Alternate years.) *Credits: 3*

156 Permaculture Design of agriculturally productive environments that have the diversity, stability, and resilience of the natural biosphere to harmoniously integrate landscape and people. Prerequisite: Three credits in a basic biological or ecological science, or permission. Cross-listed with ENVS 156. *Credits: 3*

158 Internship:Eco Ag/Lndscape Hrt Academically oriented hands-on experience in agriculture and horticulture under the joint supervision of instructor and host. Pre/co-requisites: Must be a junior or senior in the Ecological Agriculture Major or the Sustainable Landscape Horticulture Major or permission. *Credits: 1-3*

161 Fundamentals of Soil Science Biological, chemical, and physical properties of the dynamic soil system as related to plant growth and environmental problems. Prerequisite: Inorganic chemistry or permission. *Credits: 4*

162 Soil Fertility & Conservation An ecological approach to soil management including nutrient supply and uptake, rhizosphere-microbial interactions, soil conservation, and nutrient management strategies. Prerequisite: PSS 161 or permission. *Credits: 3*

195 Undergrad Special Topics Courses or seminars on topics beyond the scope of existing department offerings. Prerequisite: permission. *Credits: 1-18*

196 Undergrad Special Topics Courses or seminars on topics beyond the scope of existing department offerings. Prerequisite: permission. *Credits: 1-18*

197 Undergrad Independent Study Individual projects under direction of a faculty member. Project may involve original research, readings, internship, or assisting in teaching. Prerequisite: permission. More than a total of 6 credits per semester requires the chair's permission. *Credits: 1-6*

198 Undergrad Independent Study Individual projects under direction of a faculty member. Project may involve original research, readings, internship, or assisting in teaching. Prerequisite: permission. More than a total of 6 credits per semester requires the chair's permission. *Credits: 1-6*

208 Organic Farm Planning Students acquire financial, business, and technical knowledge and skills needed to run a 3-acre vegetable farm at UVM's Horticultural Research Farm. Pre/co-requisites: PSS 021 and one 100-level PSS course (PSS 106, PSS 112, PSS 124, etc.), equivalent experience, or instructor permission. *Credits: 3*

209 Organic Farm Practicum As an experiential learning course, students will gain experience in implementing their business and farm management plans generated from the spring course, Organic Farm Planning. Pre/co-requisites: PSS 021 and one 100-level PSS course (PSS 106, PSS 112, PSS 124, etc.), equivalent experience, or instructor permission. *Credits: 3*

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. Cross-listed with ENVS 212. *Credits: 4*

232 Biological Control Describes theory and application of biological control of insects, disease, and weeds. Discuss ecological factors that contribute to the success of classical, augmentative, and conservation approaches to biological control. Approved for graduate credit. Prerequisite: Course in entomology, ecology, or relevant experience. *Credits: 3*

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 or one course in ecology plus one course in design or drawing. Cross-listed with CDAE 238, ENVS 238, NR 238. *Credits: 4*

261 Soil Morph Class & Land Use Field techniques that describe soil properties, formation, and classification. The principles and processes of soil genesis, land use classification systems, and land use challenges. Prerequisite: PSS 161 or permission. (Alternate years.) *Credits: 3*

264 Chemistry of Soil & Water An environmentally oriented study of the colloidal chemistry of soil and its interfaces with roots, water, and air. Prerequisites: PSS 161, two semesters chemistry or permission. (Alternate years.) *Credits: 4*

266 Soil Water Movement Mathematical modeling and physical principles of the soil-water-plant interaction and its relationship to environmental and agricultural issues. Prerequisites: PSS 161, one semester of physics or permission. (Alternate years.) *Credits: 3*

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*

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. Prerequisite: PSS 161 or permission. (Alternate years.) *Credits: 3*

281 Prof Dev:Eco Ag/Sust Lndsc Hrt Students will develop and articulate a professional philosophy and improve skills in career development including writing, resume preparation, effective interviewing and negotiation. Prerequisites: Sophomore/junior standing; Ecological Agriculture Major or the Sustainable Landscape Horticulture Major or permission. *Credits: 1*

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: Permission. *Credits: 1-12*

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: Permission. *Credits: 1-12*

297 Advanced Independent Study Individual projects under direction of a faculty member. Project may involve original research, readings, internship, or assisting in teaching. Prerequisite: Permission. More than a total of 6 credits per semester requires the chair's permission. *Credits: 1-6*

298 Advanced Independent Study Individual projects under direction of a faculty member. Project may involve original research, readings, internship, or assisting in teaching. Prerequisite: Permission. More than a total of 6 credits per semester requires the chair's permission. *Credits: 1-6*

Plant Biology PBIO

004 Intro to Botany Structure, function, and reproduction of plants. Fundamental aspects of plant science with implications of botanical knowledge needed for applied plant sciences. Credit not given for both PBIO 4 and BIOL 1. *Credits: 4*

006 The Green World Evaluation of the impact of plants on the aesthetic, cultural, social, medical, and religious lives of peoples of the world. Botany and Biological Science majors will not receive credit for PBIO 6 as part of program distribution requirements. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-4*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-4*

104 Plant Physiology Study of the plant as a whole, growth and development, water and mineral relations, environmental factors, and regulatory processes. Prerequisites: One year of plant or biological science, and one year of chemistry, or instructor's permission. *Credits: 4*

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

109 Plant Systematics Collection and identification of ferns and flowering plants; survey of prominent Vermont plant families; plant nomenclature, classification, and phylogeny; species concepts and speciation; floral function. Pre/co-requisites: PBIO 4 or BIOL 2 or BCOR 012 *Credits: 4*

117 Plant Pathology Introduction to the causes of plant disease including the relationship of the plant, pathogen, and environment in disease development and disease management. Pre/co-requisite: PBIO 4 or Biology 1 and 2, or BCOR 11 and 12 or permission. Cross-list: PSS 117. Alternate years. *Credits: 4*

151 Plant Anatomy Prerequisites: BIOL 001 or 002, or BCOR 011 or 012, or PBIO 004. *Credits: 3*

185 Survey of Biochemistry Broad coverage of biochemical topics suitable for students in the applied health sciences. Prerequisite: CHEM 042 or acceptable course work in organic chemistry. Cross-listed with BIOC 185. *Credits: 3*

187 Survey of Biochemistry: Lab Introduction to techniques and equipment used for the isolation and quantitative analysis of amino acids, proteins, carbohydrates and DNA enzymes in biological materials. Pre/co-requisite: BIOC 185. Cross-listed with BIOC 187. *Credits: 1*

193 College Honors (For Arts and Sciences seniors.) *Credits: 3*

194 College Honors (For Arts and Sciences seniors.) *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Undergrad Research Individual projects under direction of a faculty member. Project may involve original research, readings, or apprenticeships. Prerequisites: Junior or senior standing, departmental permission. One to six hours. *Credits: 1-6*

198 Undergrad Research Individual projects under direction of a faculty member. Project may involve original research, readings, or apprenticeships. Prerequisites: Junior or senior standing, departmental permission. One to six hours. *Credits: 1-6*

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: 104. *Credits: 3*

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; BCOR 101 recommended. Alternate years. *Credits: 3*

213 Plant Communities Plant sociology; structure and organization of the plant community; sampling methods and analysis of data; climatic and edaphic factors; field work. Prerequisite: 109 or departmental permission. *Credits: 0-3*

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*

226 Environmental Problem Solving Students negotiate a contract, work as a team, and map and inventory forested natural areas as they apply problem solving skills to Vermont environmental project. Prerequisites: Instructor permission. One to three hours. *Credits: 1-3*

229 Water Relations of Plants See Forestry 299. *Credits: 3*

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*

234 Ecology of Freshwater Algae Community, population and physiological ecology of algae. Topics include taxonomy; diversity; distribution and seasonal succession; productivity and grazing; growth kinetics; and competitive and synergistic reactions. Prerequisites: Natural Resources 103 or BCOR 102. Alternate years. *Credits: 3*

241 Tropical Plant Systematics Principles and methods of angiosperm phylogeny. Recent systematic and evolutionary research on flowering plants; survey of tropical flowering plant families. Student presentations on recent research. Prerequisite: 109. Alternate years. *Credits: 3*

251 Principles of Light Microscopy Introduction to the optics, construction, and care of the light microscope. Theory of phase and interference contrast, fluorescence, and video methods. Prerequisite: One year of physics or permission. *Credits: 1*

256 Advanced Plant Genetics Review of major topics in higher plant genetics and cytogenetics. Designed to be applied to the systematics, breeding, and gene engineering of higher plants. Prerequisite: BCOR 101. *Credits: 3*

260 Plant Population Biology Study of how environmental and life-history characteristics of plants determine the dynamics and

evolution of populations. Prerequisites: BCOR 102 or instructor permission. *Credits: 3*

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*

275 Global Change Ecology Survey of global climate change including its causes, mechanisms, and ecological and societal impacts. Prerequisites: BCOR 102 or equivalent. *Credits: 3*

281 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*

282 Botany Seminar See PBIO 281. *Credits: 0*

295 Advanced Special Topics For advanced students within areas of expertise of faculty. Aspects of ecology, physiology, genetics, cytology, bryology, pteridology, paleobotany, photobiology, membrane physiology, and cell biology. Prerequisite: Departmental permission. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

297 Advanced Undergrad Research Individual projects under direction of a faculty member, including original research and readings. Prerequisites: Junior or senior standing, departmental permission. *Credits: 1-6*

298 Advanced Undergrad Research Individual projects under direction of a faculty member, including original research and readings. Prerequisites: Junior or senior standing, departmental permission. *Credits: 1-6*

Political Science POLS

021 American Political System Institutions, processes, and problems of American government. *Credits: 3*

028 D1:Race & Ethnicity in the US Examines race and oppression in American society by looking at the experiences of four groups: Native Americans, African Americans, Latinos and Asians. *Credits: 3*

029 D1:Amer Civil Rights Movemnts Examination of American racial discrimination; emphasis on strategies and actions of NAACP, SCLC, SNCC, Black Panthers, Nation of Islam, to end racial discrimination. *Credits: 3*

041 Intro to Political Theory Examination of basic problems in political philosophy, e.g. morality and law; punishment; freedom; equality; obligation and disobedience. *Credits: 3*

051 Intro International Relations Examination of the basic theoretical concepts in international relations. Introduces the student to systemic, domestic, and individual levels of analysis for assessing foreign policy decisions. *Credits: 3*

071 Comparative Political Systems Examination of political behavior, political structures, and political processes from a cross-national perspective. *Credits: 3*

095 Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

120 The Politics of Sex The evolution of sexual politics within the United States. Includes examinations of shifting debates over marriage, reproduction, abortion, LGBT rights, sex education, and teen sexuality. Pre/co-requisites: POLS 21 or WGST 073 or WGST 075. Cross-listed with WGST 125. *Credits: 3*

121 Law & Politics Examination of the U.S. courts focusing on the legal and political factors that influence court action, and judicial action that affects public policy. Prerequisite: 21. *Credits: 3*

122 Constitutional Law:Gov Powers Emphasis on developing skills of legal analysis. Historical origins and general principles of constitutionalism. Prerequisite: 21. *Credits: 3*

123 The Vermont Political System Analysis of the political processes and institutions of governance in Vermont in the context of the federal system and other American states. Prerequisite: 21. *Credits: 3*

124 The Presidency The functions and activities of the president and staff. Prerequisite: 21. *Credits: 3*

125 Political Parties & Elections Analysis of U.S. political parties and elections, including partisan realignments throughout history, campaign technology, and voting for president and Congress. Prerequisite: POLS 21. *Credits: 3*

127 The Congressional Process Organization, procedure, and behavior of the chambers of the U.S. Congress. Prerequisite: 21. *Credits: 3*

129 D1:Const Law:Civil Rights Amer Critical examination of role of judiciary in enforcing 14th Amendment's "Equal Protection Clause." Prerequisite: 21. *Credits: 3*

130 U.S.Environmental Politics Environmental and natural resources politics in the American context. Analysis of the environmental movement and political theories, issues, processes, and institutions. Prerequisites: POLS 21. *Credits: 3*

131 Political Leadership Methods of identifying leaders, their relationships with nonleaders and with one another, their impact on public policy, and their personalities and social backgrounds. Prerequisite: 21. *Credits: 3*

132 US Supreme Court:Proc&Policy The U.S. Supreme Court as one of the three major political institutions, including the selection process, intracourt politics, and dynamics of court decision making. Prerequisite: 21. *Credits: 3*

133 Public Opinion/Political Part Theories and the empirical study of public opinion and political participation. Topics include: public opinion polling methodology, the origins of political outlooks, ideology, authoritarianism, generational politics, public opinion on race, voting behavior. Prerequisite: 21. *Credits: 3*

137 Politics and The Media The role of the media in politics, including how media presentation and interpretation of events affect public opinion, political institutions, and public policy. Prerequisites: 21. *Credits: 3*

138 Const Law: Civil Liberties Investigation of the Supreme Court's interpretation of the First Amendment, rights of the accused, and the right to privacy. Prerequisite: 21. *Credits: 3*

139 Public Policy:Tools&Processes Examination of public policy process with particular focus on tools used to fashion public policy such as contracts, regulations, legislation, and presidential orders. Pre/co-requisites: POLS 21. *Credits: 3*

141 History of Political Thought Development of Western political thought from Plato to Aquinas. Prerequisite: 41. *Credits: 3*

142 History of Political Thought Modern political thought from Machiavelli to Nietzsche. Prerequisite: 41. *Credits: 3*

143 Philosophy of Law I Analysis of the nature of law, the relation between law and morality, legal obligation, and the judicial decision. Prerequisites: 41 or one philosophy course. Cross-listing: PHIL 142. *Credits: 3*

144 Philosophy of Law II Problems of liberty, e.g. freedom of expression, privacy, paternalism; scope and limits of the criminal law; philosophy of punishment; selected problems in criminal justice, e.g. plea bargaining; preventive detention. Prerequisites: 41 or one philosophy course. Cross-listing: PHIL 143. *Credits: 3*

147 20thC Political Thought This course examines selected major works by the leading political thinkers of the twentieth century. Prerequisites: POLS 41 *Credits: 3*

148 Democratic Theory This course explores the nature of democracy. Students will examine both recent debates in democratic theory and classical sources of democratic ideas. Prerequisite: POLS 041. *Credits: 3*

149 Intermediate Political Theory Intermediate courses on topics in political theory beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: 41 or instructor's permission. *Credits: 3*

150 International Security Theoretical and empirical examination of the security of the international system and the states within it, with particular emphasis on 21st century security challenges. Prerequisites: POLS 051 *Credits: 3*

151 American Foreign Policy Overview of the United States' involvement with the world. Focuses on the domestic political, institutional, and ideological influences on the formation of policy. Prerequisite: 51. *Credits: 3*

153 International Organization Theory and practice in supranational institutions. Prerequisite: 51 *Credits: 3*

154 Internatl Political Economy Examination of the major theories in international political economy. Specific topics include trade, finance, development, foreign direct investment, and the multinational corporation. Prerequisite: 51 or Economics 11. *Credits: 3*

157 D2:Int'l Politics Middle East Formation and operation of the state system in the 20th century Middle East. Emphasis on Great Power involvement, Arab-Israeli issues, regional conflict, transitional ideologies. Prerequisite: 51. *Credits: 3*

159 Int'l Environmental Governance Examination of official and informal processes and institutions that have developed among, across, and beyond nation states for global environmental governance. Prerequisite: POLS 051. *Credits: 3*

160 International Development Examination of theories defining the post-World War II development project, alternatives to the project, and their relevance to solving global development problems. Prerequisite: POLS 051. *Credits: 3*

161 Political Geography (See Geography 177.) Prerequisite: 51 or 71 or GEOG 050 or 070 or instructor permission. *Credits: 3*

168 D2:Middle East Politics State formation in the Middle East and problems it has occasioned. Review of modern history and examination of contemporary politics of several countries. Prerequisite: 71. *Credits: 3*

171 Western European Political Sys A comparative examination of the British, German, and French political systems. Prerequisite: 71. *Credits: 3*

172 Politic&Society in Russian Fed Examines the nature of politics and the development of post-Soviet social and economic institutions in Russia. Prerequisite: 71. *Credits: 3*

173 Canadian Political System Institutions, process, and problems of the Canadian polity. Prerequisite: 71. *Credits: 3*

174 D2:Latin American Politics Comparative examination of selected Latin American political systems. Prerequisite: 71. *Credits: 3*

175 D2: Govt & Politics of China Institutions, processes, and problems of government of China. Prerequisite: 71. *Credits: 3*

176 D2:Govt & Politics of Japan Institutions, processes, and problems of government in Japan. Prerequisite: 71. *Credits: 3*

177 D2: Pol Sys of Trop Africa Development of differing political systems in African countries located south of the Sahara and north of South Africa. Prerequisite: 71, or one course in African Studies. *Credits: 3*

181 Fund of Social Research (Same as Sociology 100.) Introduction to research methods in social science. Includes examination of research design, measurement, data collection, data analysis, and the presentation and theoretical interpretation of research findings. Prerequisite: One core course and STAT 051 or higher. *Credits: 4*

191 Internships *Credits: 1-6*

192 Internships *Credits: 1-6*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research *Credits: 1-6*

198 Readings & Research *Credits: 1-6*

220 Topics in Law In-depth analysis of selected topics in law. May repeat for credit with different content. Prerequisite: POLS 21, 3 hours at 100-level *Credits: 3*

222 Constitutional Law II Selected topics in constitutional law. Prerequisite: 122. *Credits: 3*

225 Intergovernmental Relations Problems of the federal system. National-state-local cooperative administration of selected public functions. Prerequisites: 21, three hours at 100 level. *Credits: 3*

226 Topics on the Presidency Further study of the executive branch and its operations. Selected topics, e.g. presidential decision making. White House staffing and operations, congressional-executive relations. Prerequisite: 124. *Credits: 3*

228 Congress & Foreign Policy Congress's role in foreign policy making, emphasizing congressional action in the post-Vietnam period. Prerequisites: 21, three hours at 100 level. *Credits: 3*

229 Seminar in American Politics *Credits: 3*

230 VT Legislative Research Shop This course involves students in policy research for the Vermont State Legislature on a wide range of topics that include the environment, health, and welfare. Prerequisites: POLS 21 and 3 hours at 100 level. *Credits: 3*

232 Comparative State Politics Politics, policy, and institutions of state governments of the U.S.; techniques for comparative analysis of these aspects of politics. Prerequisite: 21, three hours at 100 level. *Credits: 3*

234 Topics in Public Opinion This course will examine the quality and sophistication of public attitudes, and the motivations that underlie political participation and electoral choice. Pre/co-requisites: POLS 21; 3 hours at 100 level; juniors and seniors only. *Credits: 3*

235 Gender and Law Examination of the interaction between gender and law in American society. Topics covered include work-place law, family law, and personal autonomy. Pre/co-requisites: POLS 21, 3 hours at 100-level, or instructor permission. Cross-listings: WGST 235. *Credits: 3*

237 Film, TV and Public Opinion The impact of popular Film and TW on public opinion. Class research projects relate Film and/or TV to people's views of politics. Pre/co-requisites: POLS 137 *Credits: 3*

238 Law & Public Policy Examination of courts as policymakers, relationships with other actors in the policy process, fields in which courts play policy roles, and difficulties facing judges. Pre/co-requisites: POLS 21, three hours at 100 level. *Credits: 3*

241 Justice & Equality Examination of contemporary normative theories of distributive justice and equality. Prerequisites: 41 and either a 100-level POLS course or PHIL 140, or 142, or 143, or 144. Cross-listing: PHIL 242. *Credits: 3*

242 American Political Thought American political thought from the colonial period to recent times. Prerequisites: 41, three hours at 100 level. Background in American history recommended. *Credits: 3*

244 Liberalism and its Critics This course examines the works of leading contemporary liberal political theorists, and also works

representing various theoretical approaches critical of liberalism. Pre/co-requisites: POLS 41; 3 hours at 100 level. *Credits: 3*

245 Ethics and Public Policy This course explores some of the most difficult moral questions that confront citizens and policy-makers today. Topics include the ethics of war and torture, abortion and euthanasia, capital punishment, immigration, and other related issues. Prerequisite: One course in ethics or political philosophy. *Credits: 3*

249 Seminar in Political Theory *Credits: 3*

251 Foreign Pol Newly Indep States Examines the development of foreign relations of post- Soviet states, with a special focus on Russia and the post-Communist era. Prerequisites: 51, or three hours at 100 level. *Credits: 3*

257 Pol of European Integration Survey of the European Union including historical development, public opinion, governmental institutions, internal policies, external relations, and future prospects. Prerequisites: 51, or 71 plus three hours at the 100 level; or appropriate International Studies background. *Credits: 3*

258 Causes of War Examination of various theories explaining the outbreak of war, with applications to historical cases. Prerequisites: 51, three hours at the 150 level. *Credits: 3*

259 Sem in International Relations *Credits: 3*

260 War, Strategy and Politics The domestic, international, and geopolitical factors determining states' choice of strategies and tactics in interstate conflicts and confrontations. Contemporary and historical examples. Prerequisites: 51, three hours at the 150 level. *Credits: 3*

261 Topics American Foreign Policy In-depth examination of selected topics related to the making and implementation of U.S. foreign policy. Prerequisites: 51, three hours at the 150 level. *Credits: 3*

263 Third World Foreign Policy The particular security and political economic challenges facing states in the process of nation-building in Latin America, Africa, Middle East, South Asia, Southeast Asia. Prerequisites: 51, three hours at the 150 level. *Credits: 3*

265 East Asian Political Economy Examination of the historical, political, economic, and international factors for the rise of East Asia since the Second World War. Prerequisites: 51 or 71, one 100-level course. *Credits: 3*

266 D2:Politics of Persian Gulf Covers the political systems of the states bordering the Persian Gulf, the role of oil in regional politics and the international relations of the region. Prerequisite: POLS 157 or POLS 168 or permission of the instructor *Credits: 3*

270 Mexican Politics An in-depth examination of the Mexican political system. Topics will include an overview of Mexican history, one-party authoritarian rule, democratization, and political economy. Prerequisites: POLS 071 plus 3 hours at the 100 level; or appropriate international studies background. *Credits: 3*

272 Eastern European Pol Systems Examination of Eastern European political systems with emphasis on the role of ethnic conflict and Marxist-Leninist ideology. Prerequisites: 71, three hours at 100 level. *Credits: 3*

276 British Politics Topics include the role of the citizenry; the character of political and governmental institutions; and policy making in particular fields. Northern Ireland is also covered. Prerequisites: 71 plus three hours at the 100 level; or appropriate International Studies background. *Credits: 3*

277 Comparative Ethno-Nationalism Ethnicity and nationalism in Europe, Asia, and Africa. Political, historical, social, and economic factors are examined comparatively. Prerequisites: 71, three hours at the 100 level. *Credits: 3*

279 Sem in Comparative Politics *Credits: 3*

280 D2:Central Asian Politics This course explores political and economic change in Soviet and post-Soviet Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Prerequisites: POLS 071, 3 hours at 100 level, or appropriate Russian/East European Studies background. *Credits: 3*

293 Senior Honors Seminar I Examination of major contemporary research topics in political science. Prerequisite: Admission by invitation only. *Credits: 3*

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: 1-18*

296 Advanced Special Topics Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

297 Advanced Readings & Research For advanced undergraduate and graduate students. *Credits: 3*

298 Advanced Readings & Research For advanced undergraduate and graduate students. *Credits: 3*

Portuguese PORT

001 Elementary Portuguese I Fundamentals of Portuguese (speaking, reading, writing, listening, comprehension). Structure of the basic Portuguese sentence. No prior knowledge expected. *Credits: 4*

002 Elementary Portuguese II Continuation of Elementary Portuguese. Prerequisite: PORT 001. *Credits: 4*

051 Intermediate Portuguese I Significant review of Portuguese grammar, including focus on achieving intermediate proficiency in speaking, reading, writing and listening comprehension. Prerequisite: PORT 002. *Credits: 3*

052 Intermediate Portuguese II Continues building on the language skills developed in PORT 051. More emphasis on accurate language usage and more extensive readings. Prerequisite: PORT 051. *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Professional Nursing PRNU

060 Trans to Cntmp Prof Nursing This course bridges students into the RN-BS-MS program. An emphasis is placed on nursing theory, holistic nursing practice, contemporary issues in nursing and ethical decision-making. Prerequisite: Admission to program (NAT majors). *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

110 Art & Science of Nursing Ways of knowing that contribute to the professional nurse's understanding of the human experience of health are explored within the context of environment and culture. Prerequisites: Sociology, Psychology 1, English 1, NH 50 *Credits: 3*

111 Research in Nursing Provides an introduction to nursing research and its relationship to nursing theory and practice. Knowledge and skills essential for the critique and utilization of nursing research are presented. Prerequisites: PRNU 110, STAT 111 or 141. *Credits: 3*

113 Health Assessment Through classroom and laboratory experiences, students learn to holistically assess and differentiate healthy from at-risk or altered findings of clients in a variety of settings. Prerequisites: ANPS 19, NFS 43, HDFS 5; Prerequisites:ANPS 19, NFS 43, HDFS 5, PRNU 110; Pre/corequisites: PRNU 111, 114, ANPS 20, MMG 65 or MLRS 54, MLRS 56. *Credits: 3*

114 Intro to Clinical Practice Introduces students to the application of nursing knowledge to address basic human health problems. Course objectives are applied through supervised experiences in selected settings. Pre/Co-requisites: PRNU 113. *Credits: 3*

127 Hlth Promotion Across Lifespan This course focuses on health promotion across the lifespan emphasizing the role of the nurse. Service-learning with community partners will provide structured learning experiences. Prerequisites: NH 50; PRNU 110, 111, 113, 114; Recommended: PRNU 128, NURS 120 *Credits: 3*

128 Nurs Implications Drug Therapy Examination and application of knowledge of pharmacotherapeutic principles to nursing practice. Prerequisites: NH 50, PRNU 110, 111, 113, 114, CHEM 26, ANPS 20; Pre/corequisite: NURS 120. *Credits: 3*

129 Fam Care/Chldbrg Women&Newborn This course focuses on the human experiences of child bearing. Students will have opportunities to care for childbearing women, neonates and their families in a variety of settings. Prerequisites: NH 50, PRNU 110, 111, 113, 114; Co-requisites: PRNU 127, 128, NURS 120. *Credits: 4*

131 Exp of Alterations in Health I Focus on the human experience of alterations in health for individuals and their families. Content addresses individual and family responses to disease processes from a holistic perspective. Prerequisites: 127, 128, NURS 120. *Credits: 3*

132 Caring for Child W/Alter Hlth Focus on children experiencing alterations in health. Through classroom and practicum students learn to holistically care for children experiencing alterations within the context of family, in a variety of settings. Prerequisites: PRNU 127, 128, 129, NURS 120; Pre/corequisite: PRNU 131. *Credits: 5*

134 Care Adult/Elders W/Alt Hlth Focus on adults and elders experiencing alterations in health. Through classroom and practicum students learn to holistically care for adults and elders experiencing alterations within the context of family, in a variety of settings. Prerequisites: NURS 120, PRNU 127, 128, 129; Pre/corequisite: PRNU 131. *Credits: 6*

196 Special Topics Refer to course schedule for specific title. Prerequisites: Majors only; senior standing. *Credits: 1-12*

197 Independent Study An independent study is an educational experience taken for credit that occurs separate from a group class. The student develops a plan specific to their learning needs and interests and works under the guidance of a faculty member to achieve the predetermined objectives. Prerequisites: Agreement from a faculty sponsor and approval by the Baccalaureate Education Committee. *Credits: 1-3*

231 Exp Chronic Ill & End of Life This course focuses on individual and family responses to alterations in health. A holistic and lifespan approach will be used in examining the nursing care of these clients. Prerequisites: NURS 120, PRNU 127, 128 *Credits: 3*

234 Care Adlts/Elders w/Alt HlthII The second course of a two-course sequence focusing on adults and elders experiencing alterations in health. Through classroom and practicum students learn to holistically care for adults and elders experiencing alterations within the context of family. Prerequisites: PRNU 131, 134; Pre/corequisites: PRNU 132, 231, 235. *Credits: 6*

235 Care Indv w/Alt in Mental Hlth Focus on individuals experiencing alterations in mental health. Through classroom and practicum students learn to holistically care for individuals experiencing alterations in mental health in a variety of settings. Prerequisites: PSYC 152, NURS 120; PRNU 127, 128, 129; Pre/corequisite: PRNU 131. *Credits: 5*

240 Contemp Iss&Ldrsh Prof Nursng Focuses on issues in health care as they relate to the leadership and management roles of the professional nurse. Practicum focuses on caring for clients in an identified clinical specialty. Prerequisites: PRNU 132, 231, 234, 235; Corequisite: PRNU 241 *Credits: 6*

241 Cmty/Public Health Nursing This course focuses on population health and community partnerships. Students will provide care to a defined community within their clinical groups and will work in collaboration with professionals in a variety of settings. Prerequisites: PRNU 132, 231, 234, 235; Corequisites: PRNU 240. *Credits: 0-6*

263 Prof Nursing Pract&Soc Justice Course will focus on social justice for individuals, families, and groups recognized as marginalized within our society. Prerequisite: Admission to program (NAT majors). *Credits: 3*

Psychology PSYC

001 General Psychology Introduction to the entire field, emphasizing the behavior of the normal adult human being. *Credits: 3*

015 Improv Memory,Motiv&Cog Skills Theory and research on learning and memory, motivation, and cognitive skills. Emphasis on the application of principles to everyday life. Prerequisite: 1 or instructor's permission. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

104 Learning, Cognition & Behavior Behavioral and cognitive principles underlying learning, memory, and action inside and outside the laboratory. Includes conditioning, motivation, biological constraints, and mechanism of remembering and forgetting. Pre/co-requisites: PSYC 001 *Credits: 3*

109 Psychology Research Methods I Basic course in principles of research methodology, including design, statistical procedures, and reporting. Prepares students to understand and evaluate psychological research in a variety of areas of psychology. Prerequisite: 1. *Credits: 3*

110 Psychology Research Methods II More advanced methodology course for majors in psychology. Prepares students to conduct and report research in psychology, with special attention to experimental procedures in learning and cognition. Laboratory experiences. Prerequisite: 109. *Credits: 4*

111 Psychology of Decision Making Introduction to the study of individual and group decisions. Focus on "how," "how best," and "how reasonably" to decide. Attention to tricks and traps in the process. Prerequisite: 1. Summer only. *Credits: 3*

119 History of Psychology Review of major theoretical and empirical developments in psychology, including schools of psychology that have influenced contemporary models of psychology. Prerequisites: 1, junior or senior standing. *Credits: 3*

121 Biopsychology Biological bases of behavior: classical and contemporary issues, including introduction to nervous system, behavioral effects of drugs, chemical bases of behavioral disorders. Prerequisite: 1 or Biology 1. *Credits: 3*

130 Social Psychology An introduction to concepts and methods used to study the behavior of individuals in various social situations. Prerequisite: 1. *Credits: 3*

152 Abnormal Psychology Describing and defining abnormal behavior; models of etiology; research evidence for biological and social models; methods of intervention and prevention. Prerequisite: 1. *Credits: 3*

161 Developmental Psyc:Childhood Survey of research and theories on child development from conception to adolescence emphasizing experimental analyses of early social and cognitive development. Prerequisite: 1. *Credits: 3*

163 Psychology Mass Communication Survey of theory and research concerning mass media effects in children's socialization, information diffusion, and in shaping values, behaviors regarding health, politics, consumer choices, and environment. Prerequisite: 1 or instructor's permission. *Credits: 3*

195 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

197 Independent Study Individual research under staff direction. Prerequisite: Departmental permission. *Credits: 1-6*

198 Independent Study Individual research under staff direction. Prerequisite: Departmental permission. *Credits: 1-6*

205 Learning Analysis of theory and research on the basic learning process and behavior. Prerequisite: 109. *Credits: 3*

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: 109. *Credits: 3*

207 Cognition Research and theories on the major areas within cognition: perception, attention, pattern recognition, memory, knowledge representations, mnemonic strategies, problem-solving and neurocognition. Prerequisite: PSYC 109. *Credits: 3*

215 Cognition & Aging Changes in both sensory and cognitive aspects of aging, including changes in vision, hearing, perception, learning, and memory. Prerequisite: 208 or permission of instructor. *Credits: 3*

220 Animal Behavior Behavior of animals under controlled experimental conditions and in their natural environments. Consideration of evolution, development, function, and control of behavior. Prerequisite: 109 or BCOR 102. *Credits: 3*

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*

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: 121 or 221. *Credits: 3*

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*

224 Hormones and Behavior A study of the involvement of hormones in cognition, emotion, the stress response, circadian and homeostatic mechanisms that affect mental state, psychopathology, and reproductive behavior. Pre/co-requisites: PSYC 121 and 109 (or permission from the instructor). *Credits: 3*

230 Advanced Social Psychology Advanced survey of current research on the behavior of individuals in social situations. Prerequisite: 109 or 130. *Credits: 3*

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, art, or education). *Credits: 3*

235 Psychology of Art Exploration of key psychological processes involved in creating and experiencing all forms of art; participants also conduct a research project in an area of interest. Prerequisite: Strong background in Psychology and/or Art. *Credits: 3*

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: 109 or 130. *Credits: 3*

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. Prerequisites: 109 or 130 or 230; other advanced background in education or a social science. *Credits: 3*

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. Prerequisites: 109, or instructor's permission. *Credits: 3*

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. Prerequisites: 109, or instructor's permission. *Credits: 3*

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. Prerequisites: 109, 152. *Credits: 3*

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: 109 or 161 (109 may be taken concurrently). *Credits: 3*

254 Prim Prevent&Mental Hlth Promo An examination of empirical approaches to prevention of mental and emotional disorders; history of public health methods; sources of support and opposition to prevention efforts. Prerequisites: 109, 152. *Credits: 3*

255 Intro to Health Psychology Psychology of the cause, treatment, and prevention of physical illness and disability. Topics include: stress, health behavior, medical compliance, patient-provider relationships, coping with illness. Prerequisite: 109 or advanced standing in Allied Health Sciences. *Credits: 3*

260 Self and Social Cognition An advanced course in social psychology that covers theory and research on the self and social cognition. Pre/co-requisites: PSYC 109 and PSYC 130. *Credits: 3*

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: 109 or 161 (109 may be taken concurrently). *Credits: 3*

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: 109 or 161 (109 may be taken concurrently). *Credits: 3*

264 Psychology of Gender Examines psychological theories, methods, and research about gender. Explores social, situational, individual, and biological explanations of gender similarities and differences and their development. Prerequisite: One psychology course at the 100 level or above. Cross-listed with WGST 254. *Credits: 3*

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. Prerequisites: 109, 161 (may be taken concurrently), or comparable. *Credits: 3*

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: 109 or 161 or 163. *Credits: 3*

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*

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: PSYC 001, and Sociology/Nursing/HDFS 020 or HDFS 195/295 or permission. *Credits: 3*

269 D1:Cross-Cultrl Psyc:Clin Pers Introduction to issues posed for psychologists in their work with ALANA (African, Latino/a, Native and Asian American) and international populations. Critical appraisal of readings, research and case studies. Prerequisites: PSYC 1, 109. (Cross listed with ALANA 269). *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Public Administration PA

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

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*

295 Advanced Special Topics Current issues and new developments in public policy and public administration. Prerequisite: Permission. *Credits: 1-6*

296 Advanced Special Topics Current issues and new developments in public policy and public administration. Prerequisite: Permission. *Credits: 1-6*

Public Serv Tech Gen PSTG

299 Visiting Grad *Credits: 0*

Radiation Therapy RADT

152 Prin of Radiation Therapy Introduction to the practice and theory of radiation therapy through lectures and discussions. Prerequisites: MLRS 140. *Credits: 3*

173 Intro to Clinical Practice Introduction to the clinical environment through activities which include patient care issues, treatment unit operations and manipulations and direct patient case. Includes a clinical practicum. Pre-requisite: RADT 152 *Credits: 3*

174 Clinical Practicum Students participate and observe in the Fletcher Allen Health Care Radiation Therapy Department. RADT majors only. Prerequisite: RADT 173. *Credits: 2*

176 Clinical Radiation Oncology The various types of neoplasms, methods of diagnosis of treatment, and elementary pathology are presented. RADT majors only. Prerequisites: Anatomy and Physiology 19-20, concurrent enrollment in RADT 174. *Credits: 3*

223 Clin Pract: Radiation Therapy A continuation of RADT 174 emphasizing increasing clinical capabilities. RADT majors only. Prerequisite: RADT 174. *Credits: 3*

244 Patient Care Seminar This course presents all aspects of care associated with the treatment of cancer when patients receive Radiation Therapy. Prerequisites: RADT 152 and 173; co-requisites: RADT 174 and 176; RADT majors only. *Credits: 3*

270 Dosimetry Concepts This course introduces students to dosimetry, treatment planning and quality assurance concepts to prepare for clinical Dosimetry rotations. Pre/co-requisites: MLRS 140, 141, 175, 215; RADT 174, 176. *Credits: 3*

274 Clin Intern:Radiation Therapy Students are assigned to approved clinical education sites to observe and increase their participation in the clinical environment. Evaluations based on defined clinical objectives and competencies to be completed by the clinical and University faculty. RADT majors only. Prerequisites: Successful completion of all previous required major courses and concurrent enrollment in RADT 280. Spring. *Credits: 14*

275 Dosimetry Treatment plan verification using three-dimensional computer models, simulation data, and knowledge of treatment unit capabilities. RADT majors only. Prerequisites: RADT Senior Standing. *Credits: 3*

277 Techniques Radiation Therapy Instructs students in advanced theory and clinical application of radiotherapeutic techniques. RADT majors only. Prerequisites: Concurrent enrollment in RADT 223 and 275. *Credits: 4*

280 Qual Assurance&Treatment Plan The integration of clinical oncology, radiobiology, dosimetry, and treatment planning, and how they affect patient outcomes. Co-requisite: RADT 274. *Credits: 3*

Rehabilitation & Movement Sci RMS

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

157 Prevention & Care Athletic Inj Course focuses on prevention, recognition, and care of injuries incurred by the physically active. Includes topics of anatomy, biomechanics, nutrition, environmental concerns, and emergency procedures. *Credits: 3*

188 D2:Org&Ldrship in AthTrn&Ex Sc Concepts of diversity, equity, and active citizenship in health care management, professional development, leadership, and professional ethics for athletic training and exercise-related professions. Pre/co-requisites: Junior standing, AT and EMS majors only. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

213 Biomechanics of Human Movement Students learn to apply kinesiology and biomechanical principles and concepts to the analysis of human movement, posture, joint structure and function, and gait. Pre/co-requisites: ANPS 019/020, and undergraduate physics. *Credits: 3*

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-requisites: Undergraduate Statistics. *Credits: 3*

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-requisites: ANPS 19/20. *Credits: 3*

250 Exercise Physiology An exploration of the acute and long-term responses to exercise on the metabolic, skeletal, cardiovascular, and respiratory systems. Prerequisites: ANPS 019/020; EMS, AT majors only or instructor's permission. *Credits: 0-4*

280 Senior Research Experience This course is designed to increase student understanding of the connection between systematic investigation and professional knowledge through a range of research activities and experiences. Pre/co-requisites: RMS 220, Instructor Permission. *Credits: 1-4*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Religion REL

020 D2:Intro Rel:Comparative Comparison of diverse practices and beliefs from selected religious traditions and cultures. *Credits: 3*

021 D2:Intro Rel:Asian Traditions Study of the Hindu, Buddhist, and East Asian religious traditions as expressed in their basic symbolisms, writings, practices, and cultural forms. *Credits: 3*

023 Intro Rel:Bible Study of religious expressions as exemplified in biblical and related texts. *Credits: 3*

026 D2:Intro Rel:African Religions Introduction to the study of religion with an emphasis on African religious beliefs, practices and experiences. *Credits: 3*

027 Integr Humanities Study of religious and philosophical thought in Western culture from Hebraic and Greek antiquity to present. Prerequisites: Concurrent enrollment in Integrated Humanities Program, English 27, 28 and History 13, 14. *Credits: 3*

028 Integrated Humanities Study of religious and philosophical thought in Western culture from Hebraic and Greek antiquity to present. Prerequisites: Concurrent enrollment in Integrated Humanities Program, English 27, 28 and History 27, 28. *Credits: 3*

029 D2:Intro Rel:Global Religion Study of the global dimensions of religion, including the impact of globalization on religious communities, and the effect of religious movements on global processes. *Credits: 3*

080 Religion & Race in America Historical survey of forms of African-American religion in the U.S. in their relation to slavery, segregation, and civil rights; current issues in education and cultural diversity. *Credits: 3*

085 On the Meaning of Life An exploration of the ways in which different religious and philosophic thinkers, texts, and traditions have responded to questions concerning the meaning of human life. *Credits: 3*

086 Phil Questions & Rel Responses An exploration of philosophic questions dealing with religious responses drawing on thinkers from classical, modern, and contemporary texts. *Credits: 3*

095 Intro Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Intro Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

100 Interpretation of Religion Examination of major theories and methods used in studying and interpreting religious phenomena. Prerequisite: Three hours in religion. *Credits: 3*

103 Sacred Sounds This course examines the sonic aspects of religious life, paying particular attention to musical phenomena. Prerequisites: 3 hours of Religion *Credits: 3*

104 Mysticism,Shamanism & Possessn Comparative study of ways in which the inward dimension of religious life finds expression. Prerequisite: Three hours in religion. *Credits: 3*

107 Rel Perspectives on Death Comparative study of the history of Christian and Buddhist beliefs and practices concerned with the afterlife, specifically the postmortem realms of heaven, hell, and purgatory. Prerequisite: 3 hours of REL. *Credits: 3*

108 Myth, Symbol & Ritual Study of patterns and significance of myth and ritual as they appear in cross-cultural perspective, with reference to contemporary interpretations of symbol and language. Prerequisite: Three hours in religion. *Credits: 3*

109 Ritualization:Rel,Body,Culture A cross-cultural examination of ritual strategies for integrating personal and social experience, with attention to various theories and types of religious ritual. Prerequisites: Three hours in religion. *Credits: 3*

111 Western Religious Thought Study of ways in which Western religious thinkers-in both Greek and Biblical traditions-have expressed and responded to philosophical-theological questions about human existence, world, and God. Prerequisite: Three hours in religion. *Credits: 3*

114 Hebrew Scriptures Study of the history and writings of the Hebraic-Judaic religion to the first century B.C. Prerequisite: Three hours in religion. *Credits: 3*

116 Judaism Investigation of sustaining rituals, customs, institutions, and beliefs of normative Judaism. Prerequisite: Three hours in religion. *Credits: 3*

124 Christianity Historical study of the Christian tradition examining major religious movements of early, medieval, and Reformation Christianity, and the spirituality of Christians during these periods. Prerequisite: Three hours in religion. *Credits: 3*

125 Women in Christianity to 1500 Women's roles in early and medieval Christianity, including women's religious orders, religious identities, mystical writings devotional practices, and their relationships to structures of ecclesiastical authority. Prerequisites: 3 hours in Religion. Cross-listing WGST 117. *Credits: 3*

128 Religion in America Study of the relationship between religion, the cultural ethos, and identity in America. Prerequisite: Three hours in religion. *Credits: 3*

129 Religion&Pop Culture in the US Introduces concepts and theories developed in Religion about the intersection of religion and popular culture in contemporary America. Prerequisite: Three hours in religion. *Credits: 3*

130 D2:Islam Overview examining doctrines and practices of Muslims and their religious institutions from the rise of Islam to the present. Prerequisite: Three hours in Religion. *Credits: 3*

132 D2:Buddhist Traditions A survey of Buddhist beliefs and practices in a diversity of cultures, including some modern developments. Prerequisite: Three hours in religion. *Credits: 3*

141 D2:Religion in Japan An examination of Japanese values as expressed in folk, Shinto, and Buddhist traditions, and in social structures, aesthetic pursuits, or business practices. Prerequisite: Three hours in religion. *Credits: 3*

145 D2:Religion in China Examination of Classical, Confucian and Taoist thought through texts in translation, developments in these traditions, and interactions with folk religion and Buddhism in the premodern period. Prerequisite: Three hours in religion. *Credits: 3*

163 D2:Women & Religion in Africa This course examines the relationships between women and religious institutions, practices, and communities in a variety of settings in sub-Saharan Africa. Prerequisites: 3 hours in Religion. Cross-listing: WGST 116. *Credits: 3*

167 D2:Christianity in Africa Examination of Christianity in Africa from both historical and cultural perspectives. Prerequisites: 3 hours in Religion *Credits: 3*

173 Studies in Gender & Religion Selected topics focusing on the social and religious construction of gender and the shape of women's religious lives. Religious traditions studied vary by semester. Prerequisite: Three hours in religion. May be repeated up to six hours. *Credits: 3*

180 Moral&Rel Persp on Holocaust A study of the Holocaust in relation to questions of moral responsibility, justice, guilt, and human suffering, focusing on Jewish responses. Prerequisites: 3 hours in REL or HST 190 or permission of instructor. *Credits: 3*

190 Methods in Teaching Religion Provides formal academic structure to support learning in Religion pedagogy for undergraduate teaching assistants. Pre/co-requisite: Simultaneous appointment as Teaching Assistant. *Credits: 1-3*

191 Methods in Teaching Religion Provides formal academic structure to support learning in Religion pedagogy for undergraduate teaching assistants. Pre/co-requisite: Simultaneous appointment as Teaching Assistant. *Credits: 1-3*

195 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research Variable credit. *Credits: 1-6*

198 Readings & Research Variable credit. *Credits: 1-6*

201 Senior Seminar Selected contemporary issues in theory and interpretation; preparation and presentation of individual senior projects. Prerequisites: Twelve hours in religion, including 100 and six hours at the intermediate level, senior standing. *Credits: 3*

214 Studies in Judaica Selected topics of concentration emerging out of and related to the study of normative Judaism, e.g. the prophetic faith, Rabbinic Judaism, Hasidism, and Jewish mysticism. Prerequisite: Nine hours in religion, with three hours at the intermediate level (116 recommended). May be repeated up to six hours. *Credits: 3*

224 Studies in Christianity Examination of selected issues, movements, periods, or individuals within the Christian tradition. Prerequisites: Nine hours in religion (124, 125, or 173 recommended). May be repeated up to six hours. *Credits: 3*

228 Studies in Western Rel Thought Important figures, issues, movements, or texts examined. Prerequisite: Nine hours in religion, with three hours at the intermediate level. May be repeated up to six hours. *Credits: 3*

230 Studies in Islam Topics varying by semester such as Women and Islam, Sufi (mystical) traditions, Shi'ite Islam, Islam and the West, and South Asian Muslim Cultures. Prerequisites: Nine hours in Religion, with three hours at the intermediate level (130 recommended). *Credits: 3*

234 D2:Buddhism in Sri Lanka An examination of Theravada Buddhist belief and practice in the context of Sri Lankan culture, with attention to lay and monastic interaction. Prerequisites: Nine hours in religion with three hours at the intermediate level; or REL 132. *Credits: 3*

240 Studies in Asian Religions Concentrated studies in the history, life, or thought of a selected Asian religious tradition. Prerequisite: Three hours in religion at intermediate level in the same religious traditions. *Credits: 3*

259 Religion and Secular Culture Comparison of religious and secular systems of meaning, value, and practice. Prerequisite: Nine hours in religion, with three hours at the intermediate level. *Credits: 3*

291 Tpcs in Hist & Phenom of Rel Prerequisites: Nine hours in religion, with six hours at the intermediate level, junior standing. May be repeated up to six hours. *Credits: 1-6*

292 Tpcs in Hist & Phenom of Rel Prerequisites: Nine hours in religion, with six hours at the intermediate level, junior standing. May be repeated up to six hours. *Credits: 1-6*

297 Interdisciplinary Seminar Student-faculty workshop on a topic of current interest, employing resources from various disciplines. Prerequisites: Nine hours in religion, with six hours at the intermediate level, junior standing, instructor's permission. *Credits: 3*

298 Interdisciplinary Seminar Student-faculty workshop on a topic of current interest, employing resources from various disciplines. Prerequisites: Nine hours in religion, with six hours at the intermediate level, junior standing, instructor's permission. *Credits: 3*

Russian RUSS

001 Elementary Russian An introduction to all aspects of contemporary standard Russian: speaking, listening, reading, writing. Cultural components include topics such as music, art, literature, and current events. No previous knowledge of Russian needed for 1. *Credits: 4*

002 Elementary Russian An introduction to all aspects of contemporary standard Russian: speaking, listening, reading, writing. Cultural components include topics such as music, art, literature, and current events. Prerequisite: RUSS 1 or equivalent. *Credits: 4*

051 Intermediate Russian Continued practical work in all language skills (speaking, listening, reading, writing), with more analysis of the structure of Russian. Continuation of cultural components. Prerequisite: 1, 2. *Credits: 4*

052 Intermediate Russian Continued practical work in all language skills (speaking, listening, reading, writing), with more analysis of the structure of Russian. Continuation of cultural components. Prerequisite: 51. *Credits: 4*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

101 Phonology Practical work on Russian intonation, element order, and phonetics, using primarily Russian materials. Classroom and language laboratory work. May be taken together with 52. Prerequisite: 52 or concurrent enrollment in 52. *Credits: 3*

121 Composition & Conversation Continued practical work on all four language skills. Emphasis on oral and written self-expression. Presentations and compositions based on Russian-language media and literature. Prerequisite: 52 *Credits: 3*

122 Composition & Conversation Continued practical work on all four language skills. Emphasis on oral and written self-expression. Presentations and compositions based on Russian-language media and literature. Prerequisite: 52. *Credits: 3*

141 Reading Comprehension Development of contextual strategies for reading authentic texts on a number of content areas, primarily expository texts from Russian newspapers, magazines, historical and scientific documents. Prerequisite: 52. *Credits: 3*

142 Listening Comprehension Intensive directed aural work with authentic Russian-language media (especially television, radio, and films), supplemented by work on vocabulary development and listening strategies. Prerequisite: 52. *Credits: 3*

161 Russian Lexicology Study of Russian word roots and derivational morphology to increase vocabulary recognition and retention, building on correspondences with English/Latinic equivalent roots where possible. Prerequisite: 52. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research *Credits: 1-6*

198 Readings & Research *Credits: 1-6*

201 Survey of Russian Literature Readings and discussions about Russian literature to the rise of modernism. Particular attention to the social and historical context of the 19th century novel. Prerequisites: 52, WLIT 118 recommended. *Credits: 3*

202 Survey 20th Century Russ Lit Readings and discussions about Russian literature from the rise of modernism to present. Particular attention to function of literature in Soviet society. Prerequisites: 52, WLIT 118 recommended. *Credits: 3*

221 Cult & Civ to 1905 Revolution Social, cultural, and political institutions from the time of Peter the Great to the 1905 revolution. Particular attention to Russian music, art, and literature. Prerequisite: 52. *Credits: 3*

222 Cult & Civ in the 20th Century Social, cultural, and political institutions from the 1905 revolution to the present. Particular attention to tensions between official and unofficial culture during the Soviet period. Prerequisite: 52. *Credits: 3*

251 Russian News Media Analysis of journalistic style and content in news coverage of contemporary events as reported in Russian

newspapers and radio and television broadcasts. Prerequisites: 52, 141 or 142 recommended. *Credits: 3*

271 Slavic Linguistics History of Slavic linguistics with particular focus on East, West and South Slavic Languages. Prerequisite: One 100-level Russian course or instructor's permission. *Credits: 3*

281 Sem on Sel Lit Genre or Period Study of a literary genre or period through close readings of representative texts supplemented by lectures and reports on sociocultural context. May be repeated. Prerequisite: One 100-level Russian course. *Credits: 3*

282 Seminar on Selected Author(s) Study of author(s) through close readings of representative texts supplemented by lectures and reports on the works' sociocultural context. May be repeated. Prerequisite: One 100-level Russian course. *Credits: 3*

295 Advanced Readings & Research See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Readings & Research See Schedule of Courses for specific titles. *Credits: 1-18*

Secondary Education EDSC

011 Ed Tech in Sec Ed Classroom Students are introduced to a variety of uses for information technology in education with particular applications to stimulate and manage a student-centered classroom. *Credits: 3*

050 Exploring Education Introduction to philosophical, psychological, sociological questions basic to teaching and learning. Exploration of beliefs and understandings about personal learning and the field of education. *Credits: 3*

055 Special Topics *Credits: 1-6*

197 Readings & Research *Credits: 1-4*

200 Contemporary Issues Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisites: Twelve hours in education and related areas. *Credits: 3*

207 Development:Theory & Applctn Participants in this class examine adolescent developmental and learning theories. A Service Learning requirement allows students to apply understanding in the context of instructional settings. Prerequisites: EDTE 001 or EDFS 002 or instructor permission. *Credits: 4*

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-requisites: EDFS 203/EDSC 207 *Credits: 3 OR 4*

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 207, EDSC 209. *Credits: 3-4*

216 Curr,Instr&Assmt Sec Schl Tchr 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*

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*

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. Prerequisites: 203, 207, 209, 215, 216 and Special Methods. *Credits: 8-12*

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. Prerequisites: Twelve hours in education and related areas or permission. *Credits: 3*

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*

240 Teach English:Secondary School Approaches to teaching composition, literature, and the English language in secondary school. Prerequisites: Acceptance into licensure program. *Credits: 3*

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. Prerequisites: Twelve hours in education and related areas or permission. *Credits: 3*

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*

295 Lab Experience Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences. *Credits: 1-6*

Social Work SWSS

002 Foundations of Social Work An introduction to the profession of social work, its functions, values, knowledge, and the problems it addresses. Includes a service-learning component. *Credits: 3*

003 Human Needs & Social Services Students provide volunteer service in a human service agency, relate observations to theory about clients, agency structure, programs, and operations, and assess their commitment to the profession of social work. Prerequisite: 2 or instructor's permission. *Credits: 3*

005 Biosociopolitical Issues SW Outlines human body organ systems and extrapolates from the biological into the socio-political. Bioethical dilemmas, environmental racism, and multiple chemical sensitivity studied from a social work perspective. Prerequisite: SW major or permission. *Credits: 3*

007 Quantitative Meth SW Research Introduction to statistics and social work research methods. This course introduces students to quantitative methodology in research and practice. *Credits: 3*

008 Civic Engagemnt&Self-Reflectn This seminar is specifically designed for Dewey House residents to accompany their residential learning experiences and their collective and individual service in the community. *Credits: 1*

047 D2:Theories in Social Work I Critical examination of traditional and contemporary theories of social work and human behavior and their application in generalist direct practice social work. Prerequisite: SWSS 002; SWSS 003. *Credits: 3*

048 D2:Theories in Social Work II Critical examination of traditional and contemporary theories of social work and human behavior and their application in generalist group and macro practice contexts. Prerequisites: SWSS 002; SWSS 003; SWSS 047. *Credits: 3*

055 Special Topics Designed so that its content and structure may accommodate special issues not offered within the boundaries of an existing course. Open to first-year and sophomore students. *Credits: 1-6*

058 Civic Engagemnt,Ldrshp,Pub Spk This course is specifically designed for Dewey House residents in their second year to accompany their residential learning experiences as student directors and their community impact proposal and project. *Credits: 1*

060 D1:Racism & Contemporary Issue Study of perception, conceptualization, and comprehension of racism. Strategies, techniques, and procedures to identify and decrease many facets of racism. *Credits: 3*

140 D1:SW w/Indigenous: VT Abenaki An introduction to social work practice and cultural competency with the Abenaki tribe in Northwestern Vermont. An understanding of tribal history and traditions prepares students to work effectively and respectfully from a cross-cultural perspective. Prerequisites: Sophomore standing and Social Work major. Cross-listed with U.S. Ethnic and ALANA Studies. *Credits: 3*

150 Independent Study Supervised practicum, readings, or research on special topics not within the boundaries of an existing course for advanced level students. Prerequisites: Social Work major, permission, pre-arrangement *Credits: 1-12*

160 Soc Wrk Pr:Chld,Fam&Youth Svc Explores perspectives relevant to child protection and family support. Emphasizes skills in writing reports, giving oral testimony, making referrals, interdisciplinary collaboration, ethical decision making, cultural competence. Pre/co-requisites: Junior yr status in social work, SWSS 2, 3, 47, 48 or permission of instructor. *Credits: 3*

163 Theory & Integration Prep Sem This course is a bridge between theories studied in pre- and co-requisite courses and senior year. It prepares the student for their field pacticum. Pre/co-requisites: SWSS 047, 048, 164, 165 and 166. *Credits: 3*

164 Intro Social Work Research Introduction to models and methods of social research from a social work perspective. Prerequisites: 2, 3, 47, 48 or permission. *Credits: 3*

165 Iss & Pol in Social Welfare I An introduction to economic, political, historical, and social forces that influence the development and implementation of social welfare policy. Prerequisites: 2, 3, 47, 48 or permission. *Credits: 3*

166 Iss & Pol in Social Welfare II In-depth examination of social welfare policy and accompanying social services in the U.S.; major policy analysis models presented and used. Prerequisites: 165 or permission. *Credits: 3*

168 Social Work Practice I Social work theory and practice methods employed by social workers in providing services to individuals, families, and small groups. Prerequisite: Social Work major, senior standing or permission. *Credits: 3*

169 Social Work Practice II Social work theory and practice methods employed by social workers in providing services to groups, organizations, and communities. Prerequisites: Social Work major, 168, senior standing or permission. *Credits: 3*

171 Field Experience Seminar I Weekly integrative seminar; discussion of practice within field agency. Prerequisite: Concurrent enrollment in 173. *Credits: 3*

172 Field Experience Seminar II Weekly integrative seminar; discussion of practice within field agency. Prerequisite: Concurrent enrollment in 174. *Credits: 3*

173 Field Experience I Supervised field-based learning of 15-20 hours per week. Students are placed in human service agencies and organizations and learn the application of social work, theory, ethics and skills. Pre/co-requisites: Social work major, senior standing or permission, taken concurrently with SWSS 168 and 171. *Credits: 6*

174 Field Experience II Supervised field-based learning of 15-20 hours per week. Students are placed in human service agencies and organizations and learn the application of social work, theory, ethics and skills. Pre/co-requisites: Social work major, senior standing or permission, 168 and 171, taken concurrently with SWSS 169 and 172. *Credits: 6*

197 Readings & Research Prerequisite: Social Work major. Pre-arrangement only. Variable credit. *Credits: 1-4*

198 Readings & Research *Credits: 1-4*

199 Laboratory Experience Supervised practicum for advanced level students. Pre/co-requisites: Social work major, permission, pre-arrangement. *Credits: 1-12*

200 Contemporary Issues Content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Permission. *Credits: 1-6*

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 permission. *Credits: 3*

213 Social Work Practice II Knowledge and skills of social work practice with organizations and communities is emphasized. Prerequisite: Completion of 212, MSW advanced standing or permission. *Credits: 3*

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 permission. *Credits: 3*

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: 216 or permission. *Credits: 3*

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 permission. *Credits: 3*

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: 220 or permission. *Credits: 3*

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*

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*

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 permission. *Credits: 3*

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 permission. *Credits: 3*

228 Aging:A Strength&Hum Right Per An examination of aging for social work policy and practice from the perspectives of strengths, social justice, human rights and critical social constructionism. *Credits: 3*

229 D2:Soc Work&Disability Rights A multi-cultural, age, gender, economic and international exploration of having a disability in terms of language, labeling, rights, social location, legislation, services and personal narratives. *Credits: 3*

280 Perspectives on Social Work Taking a social constructionist stance, students explore guiding concepts of the MSW curriculum and their application to social work practice, policy, human behavior and research. Pre/co-requisite: MSW standing. *Credits: 4*

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: 3-4*

293 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

294 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

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. Prerequisites: Background in human services or social work major or MSW standing and permission of instructor. *Credits: 3*

Sociology SOC

001 Introduction to Sociology Fundamental principles and problems in the sociological analysis of the structure and dynamics of modern society. *Credits: 3*

011 Social Problems Introduction to sociology through detailed examination of a selected number of major structural problems characteristic of contemporary societies. Problems treated may vary. *Credits: 3*

014 Deviance & Social Control Analysis of the causes and consequences of social behavior that violates norms. Examines patterns of deviant socialization and social organization and forms of deviance control. *Credits: 3*

019 D1:Race Relations in the US Analysis of racial prejudice, discrimination, and other dominant group practices directed toward Native, Asian-, and African-Americans and their social movements for integration, accommodation, and separatism. *Credits: 3*

020 Aging: Change & Adaptation Individual and social meanings of aging and old age; physical, physiological, psychological, and sociological changes accompanying aging; individual, family, community, and societal adaptations to aging. Crosslisted with HDFS 020. *Credits: 3*

029 Sociology of the Family Description and analysis of contemporary patterns in American sexual, marital, and familial behavior; their historical development, variants, and the evolving alternatives to traditional normative forms. *Credits: 3*

032 Social Inequality Introduction to structured class inequality in the U.S., causes and consequences. Focus on wealth, prestige, and power. Inequalities of age, gender, and ethnicity also examined. *Credits: 3*

043 Survey of Mass Communication The historical development of the socioeconomic, political, educational, and religious impacts of the press, film, radio, and television in American society. *Credits: 3*

049 Science Fiction & Society Explores works in science fiction and sociology as an introduction to core sociological questions and critical thinking. *Credits: 3*

057 Drugs & Society Patterns of illicit drug distribution, use, abuse, and control in contemporary society. Examines the interaction of cultural, social, psychological, and physiological factors in prohibited drug-taking. *Credits: 3*

090 Intro to Soc Theory/Methods This course, required for Sociology minors, introduces students to important theoretical perspectives and research methods in sociology that social scientists use to answer sociological questions. *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

100 Fund of Social Research Introduction to research methods in social science. Includes examination of research design, measurement, data collection, data analysis, and the presentation and theoretical interpretation of research findings. Prerequisite: Three hours of sociology or six hours in a related social science, or instructor permission, plus STAT 051 or higher. Cross-listed with POLS 181. *Credits: 4*

101 Developm't Sociological Theory Classical sociological theory including Marx, Weber, Durkheim, and Mead, as well as DuBois and early female theorists such as Martineau. Reading and writing intensive. Prerequisites: Six hours of sociology or equivalent preparation in another social science with instructor's permission. *Credits: 3*

102 Population, Environment & Soc Analysis of the causes and consequences of varying relationships among population size, distribution and composition, social organization, technology, and resource base. Prerequisite: Three hours of sociology. *Credits: 3*

103 Environ Crises Modern Society Examines global, national, and local ecological crises both empirically and theoretically. Emphasis on economic processes, political/legal aspects, and social activism. Prerequisite: Three hours of sociology. *Credits: 3*

105 The Community Comparative examination of patterns of social interaction in social groups with common territorial bases in contemporary societies and the analysis of community structure and dynamics. Prerequisite: Three hours of sociology. *Credits: 3*

109 The Self & Social Interaction Analysis of the roles of sociocultural and situational factors in individual behavior and experience and the social genesis, development, and functioning of human personality. Prerequisite: Three hours of sociology or Psychology 1. *Credits: 3*

114 Sociology of Punishment This course explores the concept of punishment from sociological perspective. Focus is on analysis of formal and informal punishment, and the ironies of punishment/social control. Prerequisite: 3 credits sociology *Credits: 3*

115 Crime Analysis of the nature and types of behavior that violates law, the mechanisms for defining such behaviors as criminal and their causes and consequences. Prerequisite: Three hours of sociology. *Credits: 3*

118 Race, Crime & Criminal Just A comprehensive examination of race, gender, and class on racial minorities' participation in criminal activities and how individuals are treated by the criminal justice system. Prerequisite: Three hours of sociology. *Credits: 3*

119 D1:Race & Ethnicity (Same as Anthropology 187.) Description and analysis of ethnic, racial, and religious groups in the U.S. Examination of social/cultural patterns in the larger society and in these groups themselves. Prerequisite: Three hours of sociology. *Credits: 3*

120 Aging in Modern Society Analysis of contemporary needs and problems of the elderly, including discrimination, poverty, health care, and loneliness, and the evaluation of services and programs for the elderly. Prerequisite: Three hours of sociology or professional experience working with the elderly. *Credits: 3*

121 Sociology of Disaster Examination of disasters (natural, technological, intentional) using a sociological, critical lens. Analysis of research, theories, and current debates in the field of disaster sociology. Pre/co-requisites: Three hours of sociology or equivalent with instructor permission; sophomore standing. *Credits: 3*

122 D2:Women & Gender in Society Examination of the construction of gender in women's lives with an emphasis on the relationship between gender, race, sexuality and class in contemporary society. Pre/co-requisites: Three hours of sociology or WGST 73. Cross-listing: WGST 101. *Credits: 3*

128 Sociology of Childhood Examination of socio-historical changes in the construction of childhood and experiences of children; applications of interpretive approaches in contemporary

sociology to analyze children's peer cultures. Prerequisites:three hours Sociology. *Credits: 3*

130 Sociology of Heterosexuality Examination of heterosexuality as cultural production with attention to how heterosexuality works along side other forms of social power especially gender, race, and class. Pre/co-requisites: Three hours of Sociology, preferably Sociology 1 or WGST 73 or 75. Crosslist: WGST 130. *Credits: 3*

132 Affluence & Poverty in Mod Soc Examination of structured social inequality in contemporary American society with special attention to the distribution of wealth and its relationship to power, prestige, and opportunity. Prerequisite: Three hours of sociology. *Credits: 3*

145 Youth and Popular Culture Examination of the historical and contemporary development of children's popular culture, its sociocultural significance, and children's perspectives on various cultural forms. Prerequisites: three hours of Sociology. *Credits: 3*

148 Sociology of News Explores sociological processes that shape the news, controversies about the news, and ways to interpret the news critically. Prerequisites: 3 hours of Sociology *Credits: 3*

150 Popular Culture Analysis of social significance of a selected range of contemporary non-elite cultural forms in the U.S., such as rock music, television programming, and popular literature. Prerequisite: Three hours of sociology. *Credits: 3*

151 Sociology of Religion&Ideology Beliefs and value systems and their institutional arrangements, focusing on relationships between these systems and the larger social structure, in cross-cultural and historical perspective. Prerequisites: Three hours of sociology or six hours of religion. *Credits: 3*

154 Social Org of Death & Dying Comparative examination of sociocultural adaptations to mortality with special attention to family, medical, legal, religious, and economic responses to fatal illness and death in contemporary society. Prerequisite: Three hours of sociology. *Credits: 3*

155 Culture, Health and Healing Introduction to medical anthropology. Social and cultural perspectives on health and illness experiences, doctor-patient interactions, healing practices, and access to health and health care. Prerequisites: three hours of Sociology or ANTH 21. Crosslist: ANTH 174. *Credits: 3*

156 Sociology of Freakishness This course considers how American popular culture was born of the display of racial, cultural, sexual and bodily "freaks." Prerequisite: Three hours of sociology *Credits: 3*

160 Our Consuming Society A critical look at the things we buy and our motivations for buying them, and a consideration of collective action solutions to over-consumption. Prerequisites: three hours of sociology. *Credits: 3*

161 Sociology of Leisure Analysis of the sociocultural organization of nonwork activity, emphasizing the relationships of class, life style, education, and work to contemporary recreation and leisure use patterns. Prerequisite: Three hours of sociology. *Credits: 3*

171 D2:Soc Chng&Dev Persp 3rd Wrld perspectives on development in the Third World. Prerequisite: Three hours in sociology. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings & Research *Credits: 1-6*

198 Readings & Research *Credits: 1-6*

202 Population Dynamics Analysis of the factors affecting human population growth and distribution, migration patterns, and the relationship between economic activity and population trends. Prerequisite: Six hours of sociology including 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

203 Adv Environmental Sociology Examination of theoretical interpretations of environmental problems, sources, and solutions, focusing on the social conditions under which problems arise. Emphasis on writing and individual research projects. Prerequisite: Six hours of sociology including 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

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 1 and 100, or 1 and 101 or instructor permission. Crosslist: CDAE 205. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

207 Community Org & Development Communities as changing sociocultural organizational complexes within modern society. Special attention given to problems of formulation and implementation of alternative change strategies. Prerequisite: Six hours of Sociology including 1 and 100, or 1 and 101, or instructor permission. Cross-list: CDAE 218 *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

212 D2: Int'l Migration & U.S. Soc A comparative approach to the migration of people from the rest of the world to the United States with an emphasis on Mexican immigration. Prerequisites: 6 hours of Sociology including 001 and 100, or 001 and 101, or instructor permission. *Credits: 3*

213 Women in Dev in 3rd World An examination of the meaning and measurement of development, sociodemographic characteristics, sex stratification, and effects of Colonialism and Westernization on women's issues in the third world. Prerequisites: Six hours of Sociology including 1 and 100, or 1 and 101, or instructor permission. Crosslist: WGST 205. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

216 Criminal Justice Analysis of the social structures and processes in the arenas of criminal justice, the labeling of criminal offenders, and other issues related to crime, punishment, and justice. Prerequisites: SOC 001 and SOC 100 or 101 *Credits: 3*

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 1 and 100 or 1 and 101, or instructor permission. *Credits: 3*

218 D2:Disability as Deviance Analyzes constructions of disability as deviance in current and historical contexts such as American eugenics, Nazi sterilization and "Euthanasia" crimes, and present national policies. Prerequisites: Six hours of Sociology including 1 and 100, or 1 and 101; or HST/HS 190 (History of the Holocaust); or HST/HS 139 (History of Germany); or instructor permission. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

220 Internship in Gerontology Supervised service or research internship integrating theoretical and practical gerontological issues. Prerequisites: 6 hours of Sociology including 1 and 100, or 1 and 101 or instructor permission or 20, 120; 221 or 222; or equivalent gerontological preparation *Credits: 3*

221 Disaster & Vulnerability This seminar explores disaster events in depth, paying particular attention to how differential vulnerability affects impacts and recovery. Prerequisite: SOC 001 and 101, or SOC 001 and 100, or instructor permission. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

223 Sociology of Reproduction Examines reproduction of cultural values in relation to social conduct of reproduction of human life (childbearing) under advanced capitalism. Prerequisite: Six hours of Sociology to include one of 29, 122, or 229. Crosslist: WGST 201. *Credits: 3*

224 Health Care and Aging Health and health care issues in aging and old age with emphases on chronic illness and health care institutions, occupations, financing, and long-term care. Prerequisite: 6 hours of Sociology including SOC 001 and 100, or 001 and 101, or instructor permission. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

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 the public. Prerequisite: Six hours of Sociology including 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

251 Sociology of Ideology & Religion Beliefs and value systems and their institutional arrangements, focusing on relationships between these systems and the larger social structure, in cross-cultural and historical perspective. Prerequisites: 6 hours of Sociology including 1 and 100, or 1 and 101; or instructor permission *Credits: 3*

252 Sociology of Emotions Studies the theoretical premises of a sociocultural explanation of emotions; examines specific emotions such as respect, shame, hatred, love and compassion in humans; and explores the existence of emotions in non-human animals. Prerequisites: 3 hours Sociology including 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

253 Sociology of Animals & Society This course provides a sociological perspective on the human/animal relationship in late modernity. Cross/cultural, philosophical, and animal rights/welfare issues will also be studied. Pre/co-requisites: SOC 1&100; or Soc 1&101. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

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 1 and 100, or 1 and 101, or instructor permission. *Credits: 3*

274 Qualitative Research Methods Principles of qualitative research design and ethics and data collection, analysis, and presentation. Students will complete a research project over the course of the semester. Prerequisites: 6 hours of sociology including SOC 001 and 100, or instructor permission. *Credits: 3*

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 SOC 001 and 100, or instructor permission. *Credits: 3*

279 Contemporary Sociological Thry Critical examination of contemporary functional, conflict, exchange, interactionist, and structural theoretical approaches. A number of other theoretical approaches selected by seminar participants also examined. Prerequisite: 6 hours of Sociology including SOC 001 and 101, or instructor permission. *Credits: 3*

281 Seminar Presentation and discussion of advanced problems in sociological analysis. Prerequisites: Twelve hours of sociology, instructor's permission. *Credits: 3*

282 Seminar Presentation and discussion of advanced problems in sociological analysis. Prerequisites: Twelve hours of sociology, instructor's permission. *Credits: 3*

285 Internship Prerequisite: Twelve hours of sociology including at least one 200-level course in substantive area relevant to field placement, departmental permission. *Credits: 1-6*

286 Internship Prerequisite: Twelve hours of sociology including at least one 200-level course in substantive area relevant to field placement, departmental permission. *Credits: 1-6*

288 Rsch Meth Teaching Sociology The development and evaluation of the teaching of sociology. Prerequisites: Twelve hours of sociology, permission of department. Open only to students who serve concurrently as teaching assistants in the Department. *Credits: 3*

289 Rsch Meth Teaching Sociology The development and evaluation of the teaching of sociology. Prerequisites: Twelve hours of sociology, permission of department. Open only to students who serve concurrently as teaching assistants in the Department. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisites: 6 hours of Sociology including 1 and 100, or 1 and 100, or instructor permission. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisites: 6 hours of Sociology including 1 and 100, or 1 and 101, or instructor permission. *Credits: 1-18*

297 Readings & Research Prerequisites: 6 hours of Sociology including 1 and 100, or 1 and 101, or instructor permission. *Credits: 1-6*

298 Readings & Research Prerequisites: 6 hours of Sociology included 1 and 100, or 1 and 101, or instructor permission. *Credits: 1-6*

Spanish SPAN

001 Elementary I Fundamentals of Spanish composition, comprehension, pronunciation, speaking, reading, writing. Structure of the basic Spanish sentence. No prior knowledge expected. *Credits: 4*

002 Elementary II Continuation of 1. Prerequisite: 1 or equivalent. *Credits: 4*

009 Basic Spanish Grammar Review Thorough review of Spanish grammar in preparation for intermediate level. Considerable emphasis on written exercises. *Credits: 3*

010 Elem Span for Special Purposes Elementary language study targeted to specialized vocabulary needs, such as health, ecology, community development, etc.. Prerequisite: SPAN 002 or permission. *Credits: 1-3*

011 Elem Span Conversation Oaxaca Elementary language study for students on the UVM Oaxaca program. Includes grammar study and attention to developing oral proficiency skills. Prerequisite: SPAN 001. *Credits: 3*

051 Intermediate Language Study I Significant review of grammar, proceeding from basic knowledge of Spanish to increased proficiency in understanding, speaking, reading and writing. Compositions, oral practice, reading. Prerequisites: 02 or 09 or equivalent (Placement Exam, 2-3 years in high school, consultation). *Credits: 3*

052 Intermediate Language Study II Continues building on the skills developed in Spanish 51. More emphasis on accurate language usage and more extensive readings. Prerequisite: 51 or equivalent (Placement Exam, 3-4 years in high school, consultation). *Credits: 3*

090 Intrm Span Conversation Oaxaca Intermediate language study for students on the UVM Oaxaca program. Includes grammar study and attention to developing oral proficiency skills. Prerequisite: SPAN 002. *Credits: 3*

095 Introductory Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics Introductory courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. *Credits: 1-18*

101 Composition & Conversation Writing practice, sentence structure, correct expression, and guided discussions in Spanish of assigned topics. A good command of basic grammar expected. Prerequisite: 52 or permission. *Credits: 3*

105 Phonetics & Phonology The sound system of Spanish: Spanish/English pronunciation contrasted; vowels, consonants, rhythms, intonation. Counts as major/minor elective, not for A&S language requirement. Prerequisite: 52 or permission. *Credits: 3*

109 Spanish Grammar An intensive study of Spanish grammar. Topical approach. Prerequisite: 52 or permission. *Credits: 3*

110 Adv Span Conversation Oaxaca Advanced language study for students on the UVM Oaxaca program. Includes grammar study and attention to developing oral proficiency skills. Prerequisite: SPAN 052. *Credits: 3*

140 Analyzing Hispanic Literatures Introduction to basic genres of Hispanic literatures (narrative, poetry, drama, essay); development of analytical and critical reading/discussion skills. Short analytical papers and ample class discussion. Prerequisite: 101 or concurrent enrollment (with permission). *Credits: 3*

141 Intro To Literature of Spain An introductory survey of major developments in Spanish peninsular literature. Readings and discussions focus on textual analysis, and historical and cultural contexts. Prerequisites: 140 pre- or co-requisite. *Credits: 3*

142 Intro To Lit Spanish America Readings and discussion focus on textual analysis, and historical and cultural contexts. Prerequisites: 140 pre- or co-requisite. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. Prerequisite: 140. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. Prerequisite: 140. *Credits: 1-18*

197 Readings & Research Permission of chair required. Prerequisite: 140. *Credits: 1-6*

198 Readings & Research Permission of chair required. Prerequisite: 140. *Credits: 1-6*

201 Adv Composition & Conversation To improve both written and oral proficiency. Textbook supplemented by panel discussions, debates, translation, and a weekly composition. Prerequisite: 101 or permission. *Credits: 3*

202 Topics in Spanish Lang Study Varied topics devoted to a special area such as translation, creative writing, Spanish for the professions (medicine, business, journalism, law), etc. Prerequisite: 101 or permission. *Credits: 3*

211 History of Spanish Language The evolution of the Spanish language from its origins to the present. Prerequisites: 140. *Credits: 3*

212 Intro to Hispanic Linguistics Introduction to the field of Hispanic linguistics, exploring the structures, sounds, semantics, and history of Spanish and its varieties around the world. Prerequisite: 6 credits at 100 level. *Credits: 3*

217 Spanish Dialectology Study of the dialectal features that differentiate Latin American and peninsular Spanish and factors that have contributed to this process. Prerequisite: 6 credits at 100 level. *Credits: 3*

236 Poetic Voices/Cultural Change A topical approach to exploration of self and society in Spain's poetic voices before 1700. Verses range from humorous to amorous, from satirical to political. Prerequisite: 140. *Credits: 3*

237 Issues in Early Spanish Lit An exploration of topics on Spain's richly diverse literature written before 1700. Prose and/or theatre texts from this highpoint of cultural development are the focus. Prerequisite: 140. *Credits: 3*

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: 140. *Credits: 3*

250 Dilemmas of Mdrnty in Span Lit How Spanish writers since the Enlightenment have responded to the changes accompanying the arrival of "modernity". Topics may include questions of identity, democracy, traditional beliefs. Prerequisite: 140 *Credits: 3*

252 Span Lit:Dictatorshp-Democracy Literature in Spain from the Franco dictatorship to the present. Topics to include censorship and dissidence, writing-in-exile, and contemporary trends. Prerequisite: 140. UG only. *Credits: 3*

260 Gender in Hispanic Literatures A topical exploration of how Hispanic women writers and literary representations of gender-related issues reflect, expand and question literary and cultural norms. Prerequisite: 140. *Credits: 3*

261 Hispanic Writing from Margins Exploration of writers and communities at the margins of mainstream Latin-America and/or Spanish culture. Topics may include indigenous, Afro-Hispanic, regionalist authors; testimonial literatures; censorship. Prerequisite: 140 *Credits: 3*

264 Border Literatures Introduction to border literatures of the Hispanic worlds. These texts partake of two or more cultural spheres, challenging traditional notions of linguistic, literary, cultural hegemony. Prerequisite: 140. *Credits: 3*

274 Latin-American Poetry A topical exploration of Latin-American poetry. Possibilities include the innovations of modernismo, recent hypertextual trends and more. Prerequisite: 140. *Credits: 3*

279 Act Out:Perf Cult'l Pol Lat Am A study of the relationship between Latin-American performance and its political contexts. Emphasis is placed on works particularly concerned with reshaping culture, politics, and aesthetics. Prerequisite: 140. *Credits: 3*

281 Contemp Spanish-Amer Fiction A study of representative works by major authors tracing the development of narrative forms from their roots in the last century to the present. Prerequisite: 140. *Credits: 3*

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*

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: 140. *Credits: 3*

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: 140. *Credits: 3*

291 Early Cultures of Spain A study of the Spanish cultures from earliest times through 1700, emphasizing major intellectual, political, and artistic developments. Prerequisite: 140. *Credits: 3*

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: 140. *Credits: 3*

293 Early Latin-American Cultures A study of colonial Latin American cultures from pre-Hispanic times through Independence. Emphasis on major intellectual, artistic, and cultural developments. Prerequisite: 140. *Credits: 3*

294 Modern Latin-American Cultures An overview of the cultures of Latin America with a multidisciplinary approach to understanding cultural constructions. Themes included: the city, nationhood, subjectivity, marginality. Prerequisite: 140. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisite: 140. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisite: 140. *Credits: 1-18*

297 Advanced Readings & Research Permission of chair required. Prerequisite: 140. *Credits: 1-6*

298 Advanced Readings & Research Permission of chair required. Prerequisite: 140. *Credits: 1-6*

299 Topics in Hispanic Cultures Focus on a particular cultural topic in the Hispanic world. Study might emphasize regional studies, current conflicts on ecology, ethnicity, and gender. Prerequisite: 140. *Credits: 3*

Special Education EDSP

005 D2:Iss Aff Persons W/Disabil Students study the effects of discrimination, advocacy, litigation and sociological perspectives on disabilities. History, current legislation, and family issues for children and adults are emphasized. *Credits: 3*

197 Independent Study *Credits: 1-3*

200 Contemporary Issues Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisites: Twelve hours in education and related areas. *Credits: 1-3*

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 permission. *Credits: 3*

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*

207 Cooperative Learning Theoretical and experiential instruction in procedures to increase social acceptance and academic achievement of exceptional learners in mainstream settings through cooperative learning. Prerequisites: Permission. *Credits: 3*

216 Curr&Instruct 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-requisites: Permission. *Credits: 3*

217 Behavior Analysis in SpecialEd Individualized instruction for learners with significant disabilities emphasizing learning principles, behavior analysis, and research based instruction and interventions. Prerequisites: Permission. *Credits: 3*

221 Family Centered Services An in-depth study of families of children with special needs; family ecology; interaction and life cycle. Development and implementation of family/professional collaboration strategies. Practicum required. Prerequisites: Permission. *Credits: 3*

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: Permission. *Credits: 3*

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: Permission and introductory behavior analysis course. *Credits: 3*

274 D2:Culture of Disability Focus on theoretical questions of how societies understand disability and its consequences for social justice, by examining the multiple determinants of the societal construction of disability. Prerequisites: Junior, senior or graduate standing. Cross-listings: CSD (formerly CMSI) 274. *Credits: 3*

275 Voc Instr Students W/Spec Need Development of instructional strategies for including students with disabilities in vocational education. Procedures for developing, implementing, and evaluating individualized vocational plans. Prerequisite: Admission to an approved teacher certification program or permission. *Credits: 3*

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. Prerequisites: Admission to Graduate Program in Special Education or permission of instructor. *Credits: 3*

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: Permission. *Credits: 3*

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: 1-6*

296 Laboratory Exp in Education Credit as arranged. *Credits: 1-6*

297 Adolescent Lit & Math Curric Development, adaptation and assessment of literacy and mathematics curriculum for adolescent age students with disabilities. Prerequisite: Permission. *Credits: 3*

298 Special Educ Practicum Students provide direct instruction for six learners with learning disabilities, mental retardation, behavior disorders, and/or multidisabilities. Prerequisite: Permission. *Credits: 1-6*

Speech SPCH

011 Effective Speaking Fundamentals course in effective, informative, and persuasive public speaking and critical listening. Includes theory and practice. *Credits: 3*

031 Argument & Decision Inductive, deductive, causal, and analogical reasoning as applied to the speaking situation. *Credits: 3*

051 Persuasion Human motivation, attitudes, emotion, stereotypes, attention and audience psychology as applied in the speaking situation. *Credits: 3*

071 Fundamentals of Debate An introduction to intercollegiate debate, students learn basics of argumentation & national debate tournament/cross examination debate. Students travel to tournaments. Pre-requisite: SPCH 011. *Credits: 3*

072 Citizen Advocacy & Debate This course explores citizen advocacy through the vehicle of debating. Students will engage in: preparatory research, in-class debating and discussion, debate adjudication, and public debate. *Credits: 3*

082 African American Rhetoric Through "Great Speakers" approach, this course utilizes rhetoric criticism to examine, attempt to understand & analyze the advocacy & discourse of African Americans throughout history. *Credits: 3*

083 Rhetoric of Reggae Music Course examines origins, characteristics, social phenomena, and messages found in African-Caribbean musical form: Reggae. Reggae music is examined as rhetorical and social movement. *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. Spring only. *Credits: 1-18*

171 Advanced Debate For students interested in competitive academic debate in the WUDC format. Course offers opportunities to advance debating skills by competing against other college debaters. Pre-requisite: SPCH 071 or 072. *Credits: 3*

181 Presidential Campaign Rhetoric Students learn about theories, style, construction, strategies, and the criticism and evaluation of rhetoric as applied to the presidential campaign. Pre-requisite: SPCH 011, 031, 051, 082, or 083. *Credits: 3*

184 Rhetoric of Ivan Illich Course focuses on the non-fiction works of Ivan Illich (1926-2002), who was an influential social critic and questioned the assumptions of our daily lives. Prerequisite: SPCH 011, 031, or 051. *Credits: 3*

185 Rhetoric of Terrorism Examines terrorism through the lens of rhetorical criticism. Students survey approaches to rhetorical criticism, using acquired skills to investigate the rhetoric of terrorism. Prerequisite: SPCH 011, 031, or 051. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

197 Readings and Research See Schedule of Courses for specific titles. *Credits: 1-6*

198 Readings and Research See Schedule of Courses for specific titles. *Credits: 1-6*

283 Seminar Seminar topics include: Nonverbal Communication, Rhetorical Criticism, Advanced Argumentation, Advanced Persuasion, Debate, Interpersonal Communication in Group Interaction, Communication in Conflict Management. Prerequisite: Six hours of speech, of which at least three hours must be at the 100 level. Fall only. *Credits: 3*

284 Seminar Seminar topics include: Nonverbal Communication, Rhetorical Criticism, Advanced Argumentation, Advanced Persuasion, Debate, Interpersonal Communication in Group Interaction, Communication in Conflict Management. Prerequisite: Six hours of speech, of which at least three hours must be at the 100 level. Spring only. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

297 Readings and Research See Schedule of Courses for specific titles. *Credits: 1-6*

298 Readings and Research See Schedule of Courses for specific titles. *Credits: 1-6*

Statistics STAT

051 Probability With Statistics Introduction to probabilistic and statistical reasoning, including probability distribution models and applications to current scientific/social issues. Roles of probability, study design, and exploratory/confirmatory data analysis. Prerequisites: Two years H.S. algebra. No credit for sophomores, juniors, or seniors in the mathematical and engineering sciences. *Credits: 3*

095 Special Topics Lectures, reports, and directed readings at an introductory level. Prerequisite: As listed in course schedule. *Credits: 1-12*

111 Elements of Statistics Basic statistical concepts, methods, and applications, including correlation, regression, confidence intervals, and hypothesis tests. Prerequisites: Two years of high school algebra, sophomore standing. *Credits: 3*

140 Natural Resource Biostatistics (See Natural Resources 140.) *Credits: 4*

141 Basic Statistical Methods Foundational course for students taking further quantitative courses. Exploratory data analysis, probability distributions, estimation, hypothesis testing. Introductory regression, experimentation, contingency tables, and non-parametrics. Computer software used. Prerequisites: MATH 019 or 021, sophomore standing. *Credits: 3*

143 Statistics for Engineering Data analysis, probability models, parameter estimation, hypothesis testing. Multi-factor experimental design and regression analysis. Quality control, SPC, reliability. Engineering cases and project. Statistical analysis software. Prerequisites: MATH 020 or 022, sophomore standing. *Credits: 3*

151 Applied Probability Foundations of probability, conditioning, and independence. Business, computing, biological, engineering reliability, and quality control applications. Classical discrete and continuous models. Pseudo-random number generation. Prerequisites: MATH 020 or 022. *Credits: 3*

153 Prob & Stat for Cmptr Sci Foundations of probability, conditioning, independence, expectation and variance. Discrete and continuous probability distributions. Computer simulation examples. Introductory descriptive and inferential statistics. Simple regression analysis. Pre/co-requisites: Math 20 or 22. *Credits: 3*

183 Statistics for Business Advanced quantitative methodologies for contemporary business scenarios. Analysis of variance, multiple regression, time series analysis, non-parametric methods, Bayesian

statistics and decision analysis. Prerequisites: STAT 141 or EC 170 *Credits: 3*

191 Special Projects Student-designed special project under supervision of a staff member culminating in a report. Prerequisites: Junior standing, permission of Program Director. *Credits: 1-4*

195 Intermediate Special Topics Lectures, reports, and directed readings. Prerequisite: As listed in course schedule. *Credits: 1-18*

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: STAT 111, 141 or 143; or 211. Cross listed with BIOS 200. *Credits: 3*

201 Stat Analysis Via Computers 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 co-requisite 211. *Credits: 3*

211 Statistical Methods I (Cross listed with Biostatistics 211.) Fundamental concepts for data analysis and experimental design. Descriptive and inferential statistics, including classical and non-parametric methods, regression, correlation, and analysis of variance. Statistical software. Prerequisite: Junior standing. *Credits: 3*

221 Statistical Methods II (Cross listed with Biostatistics 221.) Multiple regression and correlation. Basic experimental design. Analysis of variance (fixed, random, and mixed models). Analysis of covariance. Computer software usage. Prerequisites: 141 or 143; or 211. *Credits: 3*

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, 221 or 225 recommended, matrix algebra recommended. *Credits: 3*

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: 141 or 143; or 211. *Credits: 3*

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*

227 Adv Statistical Methods II (Cross listed with Psychology 341.) Continuation of 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: 211 with computer experience or Psychology 340. *Credits: 3*

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. *Credits: 3*

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. *Credits: 3*

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: 211; or 141 or 143 with instructor's permission. *Credits: 3*

235 Categorical Data Analysis (Cross listed with Biostatistics 235.) Measures of association and inference for categorical and ordinal data in multiway contingency tables. Log linear and logistic regression models. Prerequisite: 211. *Credits: 3*

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). Prerequisites: 211; or 141 or 143 with instructor's permission. *Credits: 3*

241 Statistical Inference (Cross listed with Biostatistics 241.) Introduction to statistical theory: related probability fundamentals, derivation of statistical principles, and methodology for parameter estimation and hypothesis testing. Prerequisites: 151 or 153 or 251; 141 or equivalent; Math. 121. *Credits: 3*

251 Probability Theory (Cross listed with Math. 207.) Distributions of random variables and functions of random variables. Expectations, stochastic independence, sampling and limiting distributions (central limit theorems). Concepts of random number generation. Prerequisite: Math 121; Stat 151 or 153 recommended. *Credits: 3*

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 or STAT 153 or STAT 251 *Credits: 1*

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. Prerequisite: 211 or 225; or 141 or 143 with instructor's permission. Cross-listing: CSYS 253. *Credits: 3*

256 Neural Computation Introduction to artificial neural networks, their computational capabilities and limitations, and the algorithms used to train them. Statistical capacity, convergence theorems, backpropagation, reinforcement learning, generalization. Prerequisites: Math 124 (or 271), Stat 153 or equivalent, computer programming. Cross-listing: CS 256/CSYS 256. *Credits: 3*

261 Statistical Theory 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. Cross listed with BIOS 261. *Credits: 3*

265 Integrated Product Development (Cross listed with Business Administration 293.) Project-based course focusing on the entire product life cycle. Team dynamics, process and product design, quality, materials, management, and environmentally-conscious manufacturing. Prerequisite: Senior standing. *Credits: 3*

281 Statistics Practicum Intensive experience in carrying out a complete statistical analysis for a research project in substantive area with close consultation with a project investigator. Prerequisites: Any one of 200, 201, 221 through 237; or 253; some statistical software experience. No credit for graduate students in Statistics or Biostatistics. *Credits: 1-4*

293 Undergrad Honors Thesis A program of reading, research, design, and analysis culminating in a written thesis and oral defense. Honors notation appears on transcript and Commencement Program. Contact Statistics Program Director for procedures. *Credits: 1-8*

294 Undergrad Honors Thesis A program of reading, research, design, and analysis culminating in a written thesis and oral defense. Honors notation appears on transcript and Commencement Program. Contact Statistics Program Director for procedures. *Credits: 1-8*

295 Advanced Special Topics For advanced students. Lectures, reports, and directed readings on advanced topics. Prerequisite: As listed in course schedule. *Credits: 1-6*

Surgery SURG

195 EMT - Basic *Credits: 1-6*

196 EMT - Basic *Credits: 1-6*

197 EMT - Intermediate *Credits: 3*

198 EMT - Intermediate *Credits: 3*

200 Introduction to CTS I Introduction to research in Clinical & Translational Science (CTS) with a laboratory focusing on human subjects research in Emergency Medical Services (EMS). Prerequisite: Junior status or instructor permission; completion of mandatory hospital training at least one month before semester. *Credits: 3*

201 EMS Research Advanced discussion and research training in Emergency Medical Services (EMS), with continued emergency department-based human subjects laboratory. Prerequisite: SURG 200 or CTS 200. *Credits: 3*

220 Adv Topics in EMS Research Emergency Medical Services (EMS) research under guidance of a faculty member. Prerequisites: SURG 200, 201 and/or faculty permission. *Credits: 3-6*

295 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisite: Instructor permission. *Credits: 1-6*

Teacher Education EDTE

001 Teaching to Make a Difference This course serves as an introduction to the field of education and how teaching can foster a more just and humane world. *Credits: 3*

055 Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

074 Science of Sustainability Students become familiar with conversations and issues surrounding sustainability, while gaining a deeper understanding of how it applies to elementary and middle level science education. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

Theatre THE

001 Introduction to Theatre Overview of general theatre practices and theories, emphasizing history, script analysis, character development, and communicative skills directed toward a modern audience. *Credits: 3*

010 Acting I: Intro to Acting Exercises to increase self-awareness and heighten perceptions of human behavior. Basics of script analysis and development of vocal and physical skills through practice and performance. *Credits: 3*

016 Musical Theatre Performance Singing technique and vocal development with acting/song interpretation. Includes posture, breathing, phonation, registration, resonance, articulation and voice qualities (classical, Broadway legit, belt voice, belt mix). May not be used as credit by Music majors/minors; may be counted toward Theatre major/minor with prior approval. Crosslisted with MU 016. *Credits: 3*

020 Fundamentals of Lighting Primary course in the area of stage lighting design and execution. Includes Lab. *Credits: 4*

030 Fundamentals of Scenery A hands-on introduction to the theory and practical application of the scenic elements involved in play production (drawing, building, and painting techniques). Includes Lab. *Credits: 4*

040 Fundamentals of Costuming Primary course in area of costume design and construction. Includes Lab. Fall *Credits: 4*

041 History of Costume Overview of period costume and its adaptation for the stage. Alternating Falls w/THE 042. *Credits: 3*

042 Fund Theatrical Make-up Focus on the development of drawing, painting, and sculpture skills as they relate to the creation of a dramatic character for the stage. Alternating Falls w/THE 041. Pre/co-requisites: THE 040 or permission. *Credits: 3*

050 Dramatic Analysis Examination of structural characteristics of the basic forms and styles of drama and the manner in which they affect theatrical representation. Fall. Prerequisite: Sophomore standing & permission. *Credits: 3*

070 Playwriting Development of dramatic writing skills and broadened understanding of theatre/art by its creation. Study of published plays but focus on student writing. Prerequisite: Sophomore standing *Credits: 3*

075 D1:Diversity:Cont US Theatre Course focuses on plays and playwrights in contemporary theatre exploring themes pertaining to race, sexuality, gender and the physically challenged. Pre/co-requisite: Sophomore standing. *Credits: 3*

076 D1:Contemp US Latina/o Theatre Analysis of contemporary Latina/Latino-American plays and playwrights. Pre/co-requisite: Sophomore standing. *Credits: 3*

095 Special Topics See Schedule of Courses for specific titles. Fall. Prerequisite: permission. *Credits: 1-18*

096 Special Topics See Schedule of Courses for specific titles. Spring. Prerequisite: permission. *Credits: 1-18*

110 Acting II:Cntmp Scene Study Continuation of Acting I. Development of acting techniques through intensive scene work: refining script analysis and performance skills using contemporary scenes. Prerequisites: THE 010 and permission *Credits: 3*

111 Acting III:Voice & Speech Study of the basics of voice production and Standard American Speech; exercises and practice focusing on freeing the voice and developing good vocal habits. Spring. Prerequisites: THE 010 and permission. *Credits: 3*

112 Acting IV: Movement Development of physical freedom and articulate physical expression through techniques promoting relaxation, flexibility, strength, creative spontaneity, and purposeful movement. Techniques applied to short movement performances. Fall. Prerequisite: THE 010 and permission. *Credits: 3*

120 Lighting Design Explores, through classroom instruction and projects, the development of lighting designs for a variety of live performance situations. Prerequisite: 20. Fall only. *Credits: 3*

130 Scene Design A practical application of the elements, principles, and styles of theatrical stage design through research, sketching, and rendering techniques. Prerequisite: 30. Spring only. *Credits: 3*

131 Scene Painting Concepts&Appl Lab course to study practical application of painting techniques used in theatre, trompe l'oeil. Develops skills introduced in THE 30. Alternating Falls w/THE 230. Prerequisites: THE 030 & either THE 020 or THE 040 or permission. *Credits: 3*

140 Costume Design Elements, principles, and styles of design applied to the visual creation of a dramatic character. Prerequisites: 40; 41 highly recommended. Spring only. *Credits: 3*

141 Adv Costume:Draping&Flat Pattn Explores the methods of creating period shapes. Students develop a sloper, fit it to a human body, create a researched and completed period costume. Prerequisite: 040. Alternating Springs w/THE 142, 143, & 144 *Credits: 3*

142 Adv Cost Const:Per Undrgarmts Focuses on techniques for creating artificial understructures that support period silhouettes. Corsets, hoop skirts, petticoats, etc., are researched, fit on the human body, and constructed. Prerequisite: 040. Alternating Springs w/THE 141, 143, 144. *Credits: 3*

143 Adv Costume Constr:Millinery Explores methods of hat construction, including work in various media. Methods of shaping, covering, and trimming are researched, leading to the completion of

hats. Prerequisites: 040. Alternating Springs w/ THE 141, 142, 144. *Credits: 3*

144 Adv Costume Constr:Tailoring Explores traditional methods of tailoring as well as practical adaptations for the stage. Research, discussion, and demonstration lead to completion of a period suit. Prerequisite: 040. Alternating Springs w/THE 141, 142, 143. *Credits: 3*

150 Hist I:Class/Med/Ren Thtr A study of the theatrical rituals of Greece, Rome, and the Middle Ages leading to the reinvention of theatre in Renaissance Italy, England, and Spain. Spring. Prerequisite: THE 050 *Credits: 3*

151 Hst II:Ren-Contemp Eur&US A study of the historical context, theatrical conventions, and the plays representative of Neo-classicism, Romanticism, Realism, and the revolts against Realism. Fall. Prerequisite: THE 150. *Credits: 3*

160 Stage Management Theory and practice for stage managing in the non-commercial theatre. Spring. Prerequisites: THE 010 & two of 020, 030, 040 or 050. *Credits: 3*

180 Eurotheatre Spring research and preparation for 2-week intensive study of theatre in Europe. Trip: May/June culminating in submission of journal and research paper. Alternating Spring Prerequisite: Interview with the professor required. *Credits: 1-6*

190 Theatre Practicum Students actively involved in current department productions may earn credit for work on stage or backstage. Project proposals must be approved by department faculty and be of significant scope to qualify for credit. Prerequisite: Permission. Repeatable up to 3 hours. *Credits: 0.5-3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. Fall. Prerequisite: Permission *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. Spring. Prerequisite: Permission. *Credits: 1-18*

197 Readings & Research Fall. Prerequisite: Permission. *Credits: 0.5-9*

198 Readings & Research Spring. Prerequisite: Permission. *Credits: 0.5-9*

200 Professional Preparation Topics include preparing for auditions, portfolio reviews, interviews, and research papers for entrance into graduate schools or professional theatre venues. Prerequisite: Junior or senior standing and by permission only. *Credits: 1-3*

210 Acting V:Shakespeare Scne Stdy Refining and developing script analysis and performance skills using Shakespeare, ancient Greek, Moliere, or other stylized texts. Prerequisite: 010, 110 & 111 or permission. Fall. *Credits: 3*

230 Advanced Scene Design An in-depth study of the realization process for a stage design. A combination of script analysis, sketching, model making, rendering, and paint elevations, all as forms of communication. Prerequisites: 030, 130. Alternating Falls w/THE 131. *Credits: 3*

250 Directing I Theory of theatrical directing, including script analysis; approaches to audition, rehearsal, and performance; coaching actors. Prerequisites: 010, 020, 030, 040, 050, 110, 150, either 120, 130, or 140. Senior standing & permission. Fall. *Credits: 3*

251 Directing II Development of skills and aesthetic values through the direction of a complete one act play. Not offered as performance opportunity. Enrolled students may not act in their own projects. Prerequisites: THE 250 and permission. Senior standing. Spring. *Credits: 3*

255 Playing with Femininity Finding new femininities. Investigating how contemporary American artists use femininity to question and invert cultures and explore new femininities challenging gender, race and sexual preferences. Prerequisite: THE 150 or permission. *Credits: 3*

283 Seminar Credits: 3. Fall only. *Credits: 3*

284 Seminar Credits: 3. Spring only. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. Pre/co-requisites: Permission Only. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. Pre/co-requisites: Permission Only. *Credits: 1-18*

297 Senior Readings and Research Credits: 3. Fall only. *Credits: 1-3*

298 Senior Readings & Research Credits: 1-3. Spring only. *Credits: 1-3*

Vermont Studies VS

052 Introduction to Vermont Survey of Vermont's geography, history, politics, social issues, ethnic populations, culture, and environment. Special emphasis on an interdisciplinary approach to the study of Vermont. *Credits: 3*

055 Environmental Geology (See Geology 55.) *Credits: 4*

064 D1:Native Americans of Vermont (See Anthropology 64.) *Credits: 3*

092 Vermont Field Studies (See Geography 92.) *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

123 The Vermont Political System (See Political Science 123.) Prerequisite: POLS 21. *Credits: 3*

158 History of New England History of New England as place and idea, exploring the process by which regional identities are formed and change over time. Pre/co-requisites: History 11 or 12, or instructor permission. Cross-listing: History. *Credits: 3*

160 The Literature of Vermont (See English 178.) *Credits: 3*

162 Geography of Place Names Investigation and interpretation of the names found on maps of Vermont, North America, and Europe. Prerequisite: Three hours in geography. *Credits: 3*

184 Vermont History (See History 184.) Prerequisite: Three hours in history (11 or 12 recommended). *Credits: 3*

191 Internships Prerequisites: Nine hours of Vermont Studies, permission of Director of Vermont Studies, junior or senior standing. *Credits: 3*

192 Vermont Field Studies (See Geography 192.) Prerequisite: Three hours in geography. *Credits: 3*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-6*

197 Readings & Research Prerequisite: Declared minor in Vermont Studies. *Credits: 1-6*

198 Readings and Research Prerequisite: Declared minor in Vermont Studies. *Credits: 1-6*

230 The Vermont Economy (Cross listed with Economics 230, Seminar C.) Prerequisites: EC 170, 171, 172. *Credits: 3*

284 Seminar in Vermont History Topical approach to Vermont history through original research utilizing primary sources available at UVM, the Vermont Historical Society, and the Vermont State Archives. Prerequisites: Junior or senior standing, 12 hours of history, including 184 or permission. (Cross listed with HST 284). *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisite: Advanced undergraduate or graduate standing. *Credits: 1-6*

296 Advanced Special Topics See Schedule of Courses for specific titles. Prerequisite: Advanced undergraduate or graduate standing. *Credits: 1-6*

297 Readings & Research Prerequisite: Declared minor in Vermont Studies. *Credits: 1-3*

298 Readings & Research Prerequisite: Declared minor in Vermont Studies. *Credits: 1-3*

Wildlife & Fisheries Biology WFB

013 Intro to Wildlife Tracking This outdoor course is designed to introduce the student to wildlife track identification and analysis at the UVM Jericho Research Forest. Cross-listed with FOR 013. *Credits: 1*

014 Wildlife Trail Analysis This outdoor course is designed to introduce the student to analysis and interpretation of wildlife trails at the UVM Jericho Research Forest. Cross-listed with FOR 014. *Credits: 1*

015 Wildlife Track Analysis This course introduces students to the details and clues left inside animal tracks including major body movements including speed, changes of direction and head position. Cross-listed with FOR 015. *Credits: 1*

074 Wildlife Conservation Historical and contemporary values of wildlife; impacts on habitats and populations; strategies for conservation, allocation, and use. Nonmajors only. Prerequisite: Basic understanding of biological terms and concepts. *Credits: 3*

130 Ornithology Taxonomy, classification, identification, morphology, physiology, behavior, and ecology of birds. Prerequisites: Biology 1, 2 or equivalent. *Credits: 3*

131 Field Ornithology Identification and field studies of birds, emphasizing resident species. Two weeks in summer. Prerequisite: 130; preference to WFB majors. *Credits: 2*

141 Field Herpetology Identification, life histories, preferred habitats, conservation concerns, and appropriate means of capture and field study for all reptiles and amphibians of Vermont. Pre/co-requisites: Biology 1, 2 or equivalent, Natural Resources 103. *Credits: 3*

150 Wildlife Habitat & Population Measurement Field methods for measuring habitat variables and estimating population parameters. One week in summer. Prerequisites: 131, Forestry 21 or Plant Biology 109, Natural Resources 140. *Credits: 1*

161 Fisheries Biology & Management Introduction to freshwater fish, habitats, and life histories. Overview of fishery management techniques and principles, including sampling and assessment methods, stocking, population and habitat manipulation, and regulations. Prerequisites: Biology 1, 2 or equivalent. *Credits: 4*

174 Principles of Wildlife Management Application of ecology and sociology to the management of wildlife populations and habitat; integration of wildlife management with demands for other resources; consideration of game species, endangered species, and biological diversity. Prerequisites: Natural Resources 103 or BCOR 102 *Credits: 3*

175 Wildlife and Society Investigates how people's attitudes, institutions, policies, and behaviors have affected wildlife across the North American landscape. Alternate years. *Credits: 3*

176 Florida Ecology Field Trip Major ecosystems and associated wildlife, ranging from north Florida flatwoods to south Florida Everglades. Field trip over spring recess. Prerequisites: 130, 174; permission. Alternate years. *Credits: 2*

177 Texas Wildlife Field Trip Major ecosystems and associated wildlife of south Texas, including Gulf coast, coastal prairies, lower Rio Grande Valley, and Chihuahuan desert. Field trip over spring recess. Prerequisites: 130, permission. Alternate years. *Credits: 2*

185 Special Topics *Credits: 1-6*

187 Undergrad Special Projects Individual projects supervised by a faculty member. Projects may involve independent field, laboratory, or library investigations. Formal report required. Prerequisites: Junior standing, submission of a project prospectus for permission. *Credits: 1-5*

191 Wildlife & Fisheries Practicum Supervised work experience in the wildlife and fisheries area. Prerequisite: Instructor's permission. Credit as arranged. *Credits: 1-6*

224 Conservation Biology Conservation of biological diversity at genetic, species, ecosystem, and landscape levels. Emphasis on genetic diversity, population viability, endangered species, critical habitats, international implications. Discussion section covers basic genetic principles, population genetics, and population modeling. Pre/co-requisites: BIOL 1 and 2, or PBIO 4; a 100-level ecology course. *Credits: 4*

232 Ichthyology Biology of fishes. Focus is on form and function, morphology, physiology, behavior, life history, and ecology of modern fishes. Prerequisites: Biology 1, 2 or equivalent; junior standing. Alternate years. *Credits: 3*

271 Wetlands Wildlife Breeding biology, behavior, habitat management, and population ecology of wetland wildlife with emphasis on waterfowl. Prerequisites: WFB 174, NR 103. *Credits: 2*

272 Wetlands Wildlife Laboratory Laboratory and field assessment of the ecology and management of wetland habitats and their associated wildlife populations. Prerequisites: Previous or concurrent enrollment in WFB 271 or NR 260. *Credits: 1*

273 Terrestrial Wildlife Integration of ecological principles, wildlife biology, land use, and human dimensions in wildlife. Emphasis on development and maintenance of terrestrial wildlife habitat, and population regulation of terrestrial species. Prerequisite: 174. *Credits: 3*

274 Terrestrial Wildlife Lab Laboratory and field experience related to terrestrial species and management of their habitat. Field project required. Prerequisite: Previous or concurrent enrollment in 273. *Credits: 1*

275 Wildlife Behavior Behavior and social organization of game and nongame species as they pertain to population management. Prerequisites: One year of biology, an ecology course, 74 or 174 recommended. *Credits: 3*

279 Marine Ecology Structure and function of major marine communities, including open ocean, benthos, coral reefs, and estuaries. Emphasis on unique ecological insights gained in the marine environment. Prerequisites: Biology 1 and 2, an ecology course, or instructor permission. *Credits: 3*

285 Advanced Special Topics *Credits: 1-6*

287 Advanced Special Projects Advanced readings and discussions or special field and/or laboratory investigations dealing with a topic beyond the scope of existing formal courses. Prerequisite: Senior standing or permission. Credit arranged. *Credits: 1-6*

299 Wildlife & Fisheries Honors Honors project dealing with wildlife or fisheries biology. Prerequisite: By application only; see program chair. *Credits: 3-6*

Women's & Gender Studies WGST

073 D2:Intro to Women's&Gender Std Survey of feminist theory and its application to specific areas of inquiry, including analysis of the intersections among race, class, and gender. *Credits: 3*

075 D2:Intr Sexuality/Gnder Identy Overview of the history, development, and contemporary literature on lesbian, gay, bisexual, transgender, questioning, queer, ally identities as explored through different academic and cultural lenses. *Credits: 3*

076 Women in Literature (See English 42.) *Credits: 3*

078 History of Costume (See Theatre 41.) *Credits: 3*

084 Mothers and Daughters Interdisciplinary exploration of historical, social, and cultural definitions of the mother/daughter experience informed by contemporary feminist perspectives. *Credits: 3*

095 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

096 Introductory Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

101 D2:Women & Gender in Society Examination of the construction of gender in women's lives with an emphasis on the relationship between gender, race, sexuality and class in contemporary society. Pre/co-requisites: Three hours of sociology or WGST 73. Cross-listing: SOC 122. *Credits: 3*

111 Wmns Spirit:Challenge Inst Rel Women's experience of the sacred and the self in Eastern and Western religious traditions. Analysis of political and cultural structures alienating women from their experience. *Credits: 3*

115 Studies in Gender & Religion (See Religion 173.) Prerequisite: Three hours in religion or instructor's permission. *Credits: 3*

116 D2:Women & Religion in Africa This course examines the relationships between women and religious institutions, practices, and communities in a variety of settings in sub-Saharan Africa. Prerequisites: 3 hours in Religion. Cross-listing: REL 163 *Credits: 3*

117 Women in Christianity to 1500 Women's roles in early and medieval Christianity, including women's religious orders, religious identities, mystical writings, devotional practices, and their relationships to structures of ecclesiastical authority. Prerequisites: 3 hours of Religion or instructor's permission. Cross-listing: REL 125 *Credits: 3*

121 Lit Genre:Wmn Writing Autobiog Prerequisite: Three hours in English or Women's & Gender Studies. *Credits: 3*

122 19th Century Women's Writing (See English 158.) Prerequisite: Three hours in English or Women's & Gender Studies. *Credits: 3*

125 The Politics of Sex The evolution of sexual politics within the United States. Includes examinations of shifting debates over marriage, reproduction, abortion, LGBT rights, sex education, and teen sexuality. Pre/co-requisites: POLS 021 or WGST 073 or WGST 075. Cross-listed with POLS 120. *Credits: 3*

130 Sociology of Heterosexuality (See Sociology 130.) Prerequisites: Three hours of Sociology, preferably Sociology 1, or WGST 73 or 75. *Credits: 3*

131 Contemporary Feminist Art *Credits: 3*

141 Gender and Law Feminist jurisprudence and legal theory. Topics include economic consequences of reproduction, sexuality, divorce, custody; sexual harassment, employment discrimination; surrogate motherhood, domestic violence, rape, pornography, prostitution. *Credits: 3*

151 Feminism:Theories and Issues (See Philosophy 170.) Prerequisite: One course in philosophy or instructor's permission. *Credits: 3*

157 Greek Feminism (See Classics 157.) *Credits: 3*

161 History of Women in U.S. (See History 182.) Prerequisite: History 11 or 12, or three hours in Women's & Gender Studies. *Credits: 3*

165 Women, Society and Culture (See Anthropology 172.) Prerequisite: Anthropology 21 or instructor's permission. *Credits: 3*

170 Gender, Space & Environment (See Geography 178.) Prerequisite: Six hours in geography or Women's & Gender Studies, or instructor's permission. *Credits: 3*

172 Women and Depression The exploration of the impact of gender socialization, sexual oppression, discrimination, self-esteem, and body image on women's mental health in our society. *Credits: 3*

174 Women, Science & Nature The position of women in relation both to science and nature is considered historically, culturally, and in terms of current feminist perspectives. *Credits: 3*

179 D2: Ecofeminism (See Environmental Studies 179.) Pre-requisite: 73 or Environmental Studies 1, 2. Sophomore standing. *Credits: 3*

181 Women in American Politics Examines the intersections of race, gender, and class in shaping women's participation in American politics and their approaches to public policy issues dealing with sex and gender. Prerequisite: POLS 021 or one course in Women's & Gender Studies. *Credits: 3*

182 Women and Development (See Political Science 197.) Pre-requisite: Political Science 71 or Women's & Gender Studies 73. *Credits: 3*

185 Economics of Gender (See Economics 156.) Prerequisites: EC 11, 12 or instructor's permission. *Credits: 3*

187 Scandinavia:Gender & Equality This course examines the history of women's rights in the Scandinavian countries, Scandinavian feminist literature, and the cultural and political mindset of Scandinavia. Prerequisite: WGST 073. *Credits: 3*

191 Internship Approved programs of learning outside the classroom. Students work at local women's agencies, in consultation with faculty sponsors. Prerequisites: A contract must be obtained from and returned to the Women's & Gender Studies Program office during registration; permission of Director of Women's & Gender Studies. *Credits: 3-6*

192 Internship Approved programs of learning outside the classroom. Students work at local women's agencies, in consultation with faculty sponsors. Prerequisites: A contract must be obtained from and returned to the Women's & Gender Studies Program office during registration; permission of Director of Women's & Gender Studies. *Credits: 3-6*

195 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

196 Intermediate Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

201 Sociology of Reproduction (Cross listed with Sociology 223.) Prerequisite: Six hours of sociology to include one of 29, 122, or 129; or instructor's permission. *Credits: 3*

205 Women Dev Third Wrld Countries (Cross listed with Sociology 213.) Prerequisite: Six hours of sociology or instructor's permission. *Credits: 3*

235 Gender And Law Examination of the interaction between gender and law in American society. Topics covered include workplace law, family law, and personal autonomy. Prerequisites: POLS 21, 3 hours at 100-level, or instructor permission. Cross-listed with POLS 235. *Credits: 3*

254 Psychology of Gender Examines psychological theories, methods, and research about gender. Explores social, situational, individual, and biological explanations of gender similarities and differences and their development. Prerequisite: One PSYC course at the 100 level or above. Cross-listed with PSYC 264. *Credits: 3*

273 Seminar in Feminist Theory An interdisciplinary examination of theories accounting for women's position in culture and society. Special emphasis on the relationship between gender, race, class, ethnicity, and sexuality. Prerequisites: 73, six additional hours in Women's & Gender Studies, and admission to the Women's & Gender Studies major or minor program. *Credits: 3*

295 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

296 Advanced Special Topics See Schedule of Courses for specific titles. *Credits: 1-18*

297 Independent Study Selection and development of topic for investigation using assigned faculty member as preceptor.

Prerequisites: 73, approval of Director of Women's & Gender Studies. *Credits: 3*

298 Independent Study Selection and development of topic for investigation using assigned faculty member as preceptor. Prerequisites: 73, approval of Director of Women's & Gender Studies. *Credits: 3*

World Literature WLIT

011 French Lit in Translation Selected topics in French literature. Readings and discussion of representative works in English translation. No knowledge of French required. *Credits: 3*

012 Francophone Lit in Translation Selected topics in the literature of the French-speaking world (excluding France). Readings and discussion of representative works in English translation. No knowledge of French required. *Credits: 3*

013 Italian Lit in Translation Selected topics in the literature of Italy. Readings and discussion of representational work in English translation. No knowledge of Italian is necessary. *Credits: 3*

014 Spanish Lit in Translation Selected topics in Spanish literature. Readings and discussion of representative works in English translation. No knowledge of Spanish required. *Credits: 3*

015 Span-Amer Lit in Translation Selected topics in Spanish-American literature. Readings and discussion of representative works in English translation. No knowledge of Spanish required. *Credits: 3*

016 Latino Writers US:Cont Pers Study of texts written by Latinos since the 1960s. Topics: construction of "ethnic identities," representation of race/gender relations; writers and their communities. *Credits: 3*

017 German Lit in Translation Selected topics in German literature. Individual courses might focus on particular genres (e.g. the German film, Proverbs), literary movements (e.g. German Romanticism), or periods (e.g. Enlightenment, Holocaust). *Credits: 3*

018 Russian Lit in Translation Topics such as Russian author(s) (e.g. Dostoevsky, Tolstoy), genre (e.g. the Russian novel), literary school (e.g. Russian Formalism), or period (19th or 20th century literature). *Credits: 3*

020 D2:Literatures of Globalizatn How writers imagine themselves and their relationship with others in a globalizing world. *Credits: 3*

024 Myths & Legends of Trojan War (See Classics 24.) *Credits: 3*

035 The End of the Roman Republic (See Classics 35.) *Credits: 3*

037 Early Roman Emp:Lit&Translat'n Literature in Translation (See Classics 37.) *Credits: 3*

042 Mythology (See Classics 42.) *Credits: 3*

095 Special Topics Special topics in literary studies. Individual courses might include comparative study of particular literary genres, periods, authors or works from varied international literatures. *Credits: 1-6*

096 Special Topics Special topics in literary studies. Individual courses might include comparative study of particular literary genres, periods, authors or works from varied international literatures. *Credits: 1-6*

109 D2:Japanese Lit-Premodern WLIT 109 introduces students to premodern Japanese literary works in translation, including poetry, prose, and drama, from the 8th to mid 19th century. Prerequisites: sophomore standing *Credits: 3*

110 Classical Chinese Lit in Trans Selected topics in Chinese Literature. Reading and discussion are in English. No knowledge of Chinese language is required. *Credits: 3*

111 French Lit in Translation *Credits: 3*

112 Francophone Lit in Translation Selected topics in the literature of the French-speaking world (excluding France). Readings and discussion of representative works in English translation. No knowledge of French required. Prerequisite: Sophomore standing or instructor permission. *Credits: 3*

113 Italian Lit in Translation Readings and discussion of representational work in English translation. No knowledge of Italian is necessary. Prerequisite: Sophomore standing or instructor permission. *Credits: 3*

114 Spanish Lit in Translation Selected topics in Spanish literature. Readings and discussion of representative works in English translation. No knowledge of Spanish required. Prerequisite: Sophomore standing or instructor permission. *Credits: 3*

115 Span-Amer Lit in Translation Selected topics in Spanish-American literature. Readings and discussion of representative works in English translation. No knowledge of Spanish required. Prerequisite: Sophomore standing or instructor permission. *Credits: 3*

116 D1:Latino Writers US:Cont Pers Study of texts written by Latinos since the 1960s. Topics: construction of "ethnic identities," representation of race/gender relations; writers and their communities. Prerequisite: Sophomore standing or instructor permission. *Credits: 3*

117 German Lit in Translation Topics such as German author(s), genre, literary movement, or theme such as Goethe, proverbs, Expressionism, Faust, Holocaust, or the German film. Prerequisite: Sophomore standing or instructor permission. *Credits: 3*

118 Russian Lit in Translation Topics such as Russian author(s) (e.g. Dostoevsky, Tolstoy), genre (e.g. the Russian novel), literary school (e.g. Russian Formalism), or period (19th or 20th century literature). Prerequisite: Sophomore standing. *Credits: 3*

119 D2:Japanese Literature-Modern WLIT 119 introduces students to modern and contemporary Japanese literary works in translation, from the late 19th to early 21st century. Prerequisites: sophomore standing *Credits: 3*

122 Dante's Comedy A study of Dante's Comedy in Modern English translation. *Credits: 3*

145 D2: Comparative Epic (See Classics 145) Prerequisite: Sophomore standing. *Credits: 3*

153 Greek Drama (See Classics 153.) Three hours. *Credits: 3*

154 Stories and Histories Prerequisite: Sophomore standing, three hours in Classics. *Credits: 3*

155 Ancient Epic (See Classics 155.) Three hours. *Credits: 3*

156 Greek & Roman Satiric Spirit (See Classics 156.) Three hours. *Credits: 3*

157 Greek Feminism (See Classics 157.) *Credits: 3*

188 Studies in Comparative Lit Courses comparing literary works from different countries, cultures, or language groups. May be repeated for credit with different topic. Pre/co-requisite: Sophomore Standing. *Credits: 3*

195 Intermediate Special Topics Special topics in literary studies. Individual courses might include comparative study of particular literary genres, periods, authors or works from varied international literatures. Prerequisite: Sophomore standing or instructor permission. *Credits: 1-6*

196 Intermediate Special Topics Special topics in literary studies. Individual courses might include comparative study of particular literary genres, periods, authors or works from varied international literatures. Prerequisite: Sophomore standing or instructor permission. *Credits: 1-6*

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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, Jr. 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. Dr. 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 MacLewilyn Bryan Sr. 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 **Elliot W. Shipman Professorship of Ophthalmology** was established in 1934 by a bequest from Dr. Elliot W. Shipman, M.D., 1885.

- 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. Dr. Lokangaka Losambe 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 **Sanders Professorship** was established in 1968 by UVM alumni, honoring the Rev. Daniel Clarke Sanders, first president of the University. Dr. Pramodita Sharma is the Sanders 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.

- The **Ernest Hiram Buttles Chair in Pathology** was established in 1984 to honor Ernest Hiram Buttles, Professor of Pathology and Bacteriology, 1921 to 1946. John Henry Lunde, 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 David 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 **Nicole Maria Stata Professorship in Management** was established in 1994 by Ray and Maria Stata in honor of their daughter Nicole '91.

- 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.

- 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. Roger F. Soll, 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. Richard J. Solomon, M.D. is the Patrick Chair in Nephrology.

- The **Robert F. and Genevieve B. Patrick Endowed Chair** was established in 2000 from the estate of Genevieve Patrick. Dr. William Breck Bowden is the Patrick Chair in Watershed Science and Planning.

- 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.
- 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.
- 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.
- The **Endowed Professorship in Radiation Therapy** was established in the College of Nursing and Health Sciences in 2003 by an anonymous donor. Dr. M. Ahmad Chaudhry is the Endowed Professor in Radiation Therapy.
- The **Irwin H. Krakoff, M.D. Green & Gold Professorship in the Vermont Cancer Center** was established in 2003 in honor of Dr. Krakoff, first director of the Vermont Cancer Center. It supports outstanding senior or promising junior faculty members in the VCC in cancer research. Claire F. Verschraegen, M.D. is the Irwin H. Krakoff, M.D. Green and Gold Professor in the Vermont Cancer Center.
- 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 Charles Hebert, M.D. is the Mackay-Page Professor.
- The **Keller Family Professorships in Finance** were established in 2004 by Judith and James Keller '72.
- 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. Dr. 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. Christopher Filippi, M.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. Christopher Gene Filippi, 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 **Richard and Pamela Ader Green and Gold Professor** was established in 2006 by Richard H. Ader '63 to be awarded to a faculty member in the College of Arts & Sciences or School of Business Administration. Dr. William E. Mierse is the Ader Green and Gold Professor.
- The **Raul Hilberg Distinguished Professorship of Holocaust Studies** was established in 2006 by Leonard '51 and Carolyn Miller in the College of Arts & Sciences Holocaust Studies Program. Dr. Frank Nicosia is the Raul Hilberg Distinguished Professor of Holocaust Studies.
- The **Leonard and Carolyn Miller Distinguished Professor of Holocaust Studies** was established in 2006 by Leonard '51 and Carolyn Miller in the College of Arts & Sciences Holocaust Studies Program. Prof. Alan E. Steinweis is the Miller Distinguished Professor of Holocaust Studies.
- The **Richard A. Dennis University Professorship** was established in 2006 by family and friends of Richard A. Dennis '57 as a university-wide professorship, assigned at the discretion of the Provost, to recruit or retain a faculty member embodying the ideals to which Dick Dennis dedicated his life. Mr. Major Jackson is the Richard A. Dennis University Professor.
- The **Jerold F. Lucey, M.D. 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.
- The **Robert L. Bickford, Jr. Professorship** was established in the College of Agriculture & Life Sciences in 2007 by Robert L. Bickford, Jr. '43 and Oletha T. Bickford '41 to advance the teaching and research of a distinguished professor whose research efforts are at the intersection of nutrition, biochemistry and human health. Dr. Rachel K. Johnson is the Robert L. Bickford, Jr. Green & Gold Professor.
- In July 2008, David and Roxanne Breazzano established the **Breazzano Family Green & Gold Professorship** to support an endowed faculty position in the College of Arts and Sciences. Dr. James Vigoreaux is the Breazzano Family Green & Gold Professor.
- The **Robert B. Lawson Green and Gold Professorship in Psychology** was established in 2010 by the Segal & Davis Family Foundation of Charlestown, W.V., in honor of Dr. Robert B. Lawson, who retired in May of 2010 from UVM's Department of Psychology. The professorship was founded to support teaching, service and research in the Department of Psychology. Dr. Mark Bouton has been named as the first Lawson Green and Gold Professor in Psychology.

Our Common Ground

The University of Vermont is an educationally purposeful community seeking to prepare students to live in a diverse and changing world. We who work, live, study, teach, do research, conduct business, or participate in the University of Vermont are members of this community. As members, we believe in the transforming power of education and agree to help create and foster an environment where we can discover and reach our true potential.

We aspire to be a community that values:

RESPECT. We respect each other.

We listen to each other, encourage each other and care about each other. We are strengthened by our diverse perspectives.

INTEGRITY. We value fairness, straightforward conduct, adherence to the facts, and sincerity. We acknowledge when things have not turned out the way we had hoped. As stewards of the University of Vermont, we are honest and ethical in all responsibilities entrusted to us.

INNOVATION. We want to be at the forefront of change and believe that the best way to lead is to learn from our successes and mistakes and continue to grow. We are forward-looking and break new ground in addressing important community and societal needs.

OPENNESS. We encourage the open exchange of information and ideas from all quarters of the community. We believe that through collaboration and participation, each of us has an important role in determining the direction and well-being of our community.

JUSTICE. As a just community, we unite against all forms of injustice, including, but not limited to, racism. We reject bigotry, oppression, degradation, and harassment, and we challenge injustice toward any member of our community.

RESPONSIBILITY. We are personally and collectively responsible for our words and deeds. We stand together to uphold our common ground.

*Aspirations and shared values for the UVM Community,
endorsed by the UVM Board of Trustees*

The University of Vermont Equal Opportunity

In Educational Programs and Activities Policy

The University of Vermont and State Agricultural College is committed to a policy of equal educational opportunity. The University therefore prohibits discrimination on the basis of unlawful criteria, such as race, color, religion, national or ethnic origin, age, sex, sexual orientation, marital status, or disability, as those terms are defined under applicable law, in admitting students to its programs and facilities and in administering its admissions policies, educational policies, scholarships and loan programs, athletic and other institutionally administered programs or activities made available to students at the University. The University also prohibits unlawful harassment defined in 16 V.S.A.£11(a)(26) as verbal or physical conduct based on a student's race, creed, color, national origin, sex, sexual orientation, marital status, or disability and which has the purpose or effect of substantially interfering with a student's educational performance or creating an intimidating, hostile, or offensive environment.

Questions regarding this policy statement or compliance with its provisions may be directed to Tom Gustafson, Vice President for Student Affairs, University of Vermont, 41–43 South Prospect Street, Burlington, VT 05405 (802-656-3380) or Kathryn Friedman, Executive Director, Office of Affirmative Action and Equal Opportunity, University of Vermont, 428 Waterman Building, Burlington, VT 05405 (802-656-3368). Questions may also be directed to government agencies having oversight and enforcement authority with respect to the referenced laws. A complete listing of those agencies may be obtained from the Office of Affirmative Action and Equal Opportunity.

Sources: Title VI of the Civil Rights Act of 1964; Title IX of the Education Amendments of 1972; the Age Discrimination Act of 1975; Section 504 of the Rehabilitation Act of 1973; the Americans with Disabilities Act of 1990; the Vermont Public Accommodations Act; and such other federal, state and, local nondiscrimination laws as may apply.

For more information on this policy, please refer to:

<http://www.uvm.edu/policies/student/equaledu.pdf>

Equal Employment Opportunity and Affirmative Action Policy

The University of Vermont and State Agricultural College is committed to a policy of equal employment opportunity and to a program of affirmative action in order to fulfill that policy. The University will accordingly recruit and hire into all positions the most qualified persons in light of job-related requirements, and applicants and employees shall be treated in employment matters without regard to unlawful criteria including race, color, religion, national origin, sex, sexual orientation, disability, age, or status as a disabled or Vietnam-Era Veteran, as these terms are defined under applicable law. In addition, The University of Vermont recognizes that sexual harassment is a form of unlawful sex discrimination, and it is therefore the policy of the University that sexual harassment will not be tolerated.

Questions regarding this policy statement or compliance with its provisions may be directed to Kathryn Friedman, Executive Director, Office of Affirmative Action and Equal Opportunity, University of Vermont, 428 Waterman Building, Burlington, VT 05405 (802) 656-3368. Questions may also be directed to government agencies having oversight and enforcement authority with respect to the referenced laws. A complete listing of such agencies may be obtained from the Office of Affirmative Action and Equal Opportunity.

Sources: Titles VI and VII of the Civil Rights Act of 1964; Title IX of the Education Amendments of 1972; the Equal Pay Act of 1963; the Age Discrimination Act of 1975; Sections 503 and 504 of the Rehabilitation Act of 1973; the Americans with Disabilities Act; Section 402 of the Vietnam-Era Veterans Readjustment Assistance Act of 1974; Executive Order 11246 as amended; the Vermont Fair Employment Practices Act; and such other federal, state, and local non-discrimination laws as may apply.

Note: These Policy Statements are official University of Vermont Equal Employment Opportunity/Affirmative Action and Equal Opportunity in Educational Programs and Activities Policy Statements and supersede all prior policy statements regarding their subject matter. They may be modified only by written statement issued by the President as Chief Executive Officer of the University or formal action by the University of Vermont and State Agricultural College Board of Trustees. These Policy Statements are designed to express the University's intent and commitment to comply with the requirements of federal, state, and local nondiscrimination laws. They shall be applied co-extensively with such laws, and shall not be interpreted as creating any rights, contractual or otherwise, greater or lesser than exist under such nondiscrimination laws. Persons seeking to participate in educational and employment opportunities offered by the University must consult position and program descriptions to determine criteria for eligibility. All such criteria shall be established in a manner consistent with the legal requirements herein referenced.

For more information on this policy, please refer to: http://www.uvm.edu/policies/general_html/affirm.pdf.