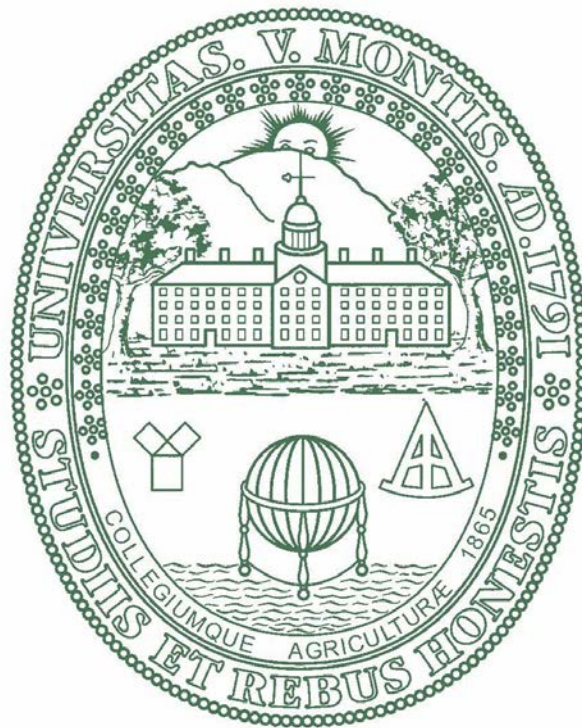


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# The University of Vermont



## Undergraduate Catalogue 2020-2021

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## UNDERGRADUATE CATALOGUE

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, mode of delivery, degree requirements, charges, regulations, and procedures contained herein as educational, financial, and health, safety, and welfare considerations require, or as necessary to be compliant with governmental, accreditation, or public health directives.

Mode and method of instruction for any given course, including, but not limited to, in-person vs. remote instruction (synchronous or asynchronous), use of mixed formats, and alternative scheduling, is at the discretion of the University.

## UNDERGRADUATE CATALOGUE ADDENDUM

### June 9, 2020

The following program was approved by the board of Trustees on May 15, 2020 and will be available to students in Fall 2020:

- A certificate in Place-Based Education in the College of Education and Social Services

The following Articulation Agreements have been revised:

- Community College of Vermont (CCV) to the University of Vermont College of Engineering and Mathematical Sciences Guaranteed Admission Pathway: <https://www.uvm.edu/registrar/ccv2uvm-gap-cems> (<https://www.uvm.edu/registrar/ccv2uvm-gap-cems/>)
- University of Vermont – Vermont Law School 3+2 Program: <https://www.uvm.edu/registrar/uvm-vls-program> (<https://www.uvm.edu/registrar/uvm-vls-program/>)
- University of Vermont to Vermont Law School Guaranteed Admission Agreement: <https://www.uvm.edu/registrar/articulation-agreements#vls-gaa> (<https://www.uvm.edu/registrar/articulation-agreements/#vls-gaa>)

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## COURSES

### TO VIEW THE COURSE LIST, SELECT 'MENU' AND THEN 'COURSE LIST'

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

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

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

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

## ABOUT UVM COURSES

Courses numbered from 001-099 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.

Course subjects are alphabetized by names. Course prefixes appear in major and minor requirement descriptions.

## SPECIAL TOPICS COURSE POLICY - INFORMATION FOR FACULTY

A course offered under the Special Topics course rubric (i.e., X95/X96) may be presented up to three times within a ten-year period before it must be submitted for review as a permanent course offering listed under a unique course number in the Catalogue.

## DIVERSITY COURSES

All undergraduate degree students matriculating in Fall 2008 or later 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 (the Diversity of Human Experience). These requirements will apply as well to undergraduate transfer students receiving bachelor's degrees from May 2012 onward.

The following courses meet the diversity requirement.

Code	Title	Hours
ANTH 160	D1: North American Indians	3
ANTH 164	D1:Indians of the NE: Vermont	3
ANTH 169	D1: Latinos in the US	3
ANTH 187	D1: Race and Ethnicity	3
BIOL 086	D1:Intro to Forensic Biology	3
CDAE 004	D1:US Food, Social Equity &Dev	3
CRES 011	D1: Race/Racism Across Disciplines	3
CRES 061	D1: Asian-American Experiences	3
CRES 065	D1:Sociology of Race	3
CRES 075	D1:Diversity:Cont US Theatre	3
DNCE 150	D1:Jazz in American Dance	3
EC 053	D1:Political Economy of Race	3
ECLD 056	D1:Lang Policy Issues,Race&Sch	3
EDFS 001	D1:Race and Racism in the U.S.	3
ENGR 010	D1:Dvrsty Issues:Math/Sci/Egr	3
ENGS 031	D1:Topics in Afr-Am Lit & Cult	3
ENGS 033	D1:Topics in Native Amer Lit	3

ENGS 057	D1:Race&Ethnic Lit Stds:Intro	3
ENGS 111	D1:Race & Ethnic in Lit Stds	0,3
ENGS 176	D1:Afr Am Lit Since Harlem Ren	3
ENGS 177	D1:Topics 20C Afr Am Lit & Cul	3
ENVS 181	D1:Environmental Justice	3
GEOG 060	D1:Geography/ Race&Ethnic in US	3
HDFS 141	D1:Interrogatng White Identity	3
HLTH 155	D1:Racism & Health Disparities	3
HST 017	D1: North American Indian Hist	3
HST 187	D1:Afr Amer Hst:1619-Civil War	3
LING 085	D1:Linguistic Diversity in US	3
LING 176	D1: African American English	3
MU 005	D1: Intro to Jazz History	3
MU 010	D1: Blues & Related Traditions	3
MU 012	D1:Music & Culture:New Orleans	3
NR 006	D1:Race & Culture in NR	0,3
NR 207	D1: Power, Privilege & Envrnmt	1
POLS 129	D1:Const Law:Civil Rights Amer	3
PSYS 276	D1:Cross-Cultrl Psyc:Clin Pers	3
REL 128	D1: Religion in America	3
REL 164	D1:Religion and Race in US	3
REL 165	D1: Islam and Race	3
SOC 019	D1: Race Relations in the US	3
SOC 119	D1: Race & Ethnicity	3
SOC 219	D1: Race Relations	3
SPAN 264	D1: Border Literatures	3
SWSS 060	D1:Racism & Contemporary Issue	3



SWSS 140	D1:SW w/ Indigenous: VT Abenaki	3
THE 075	D1:Diversity:Cont US Theatre	3
VS 164	D1:Indians of the NE: Vermont	3
WLIT 116	D1:Latino Writers US:Cont Pers	3

Code	Title	Hours
ANTH 021	D2:SU: Cultural Anthropology	3
ANTH 024	D2:SU: Prehistoric Archaeology	3
ANTH 026	D2:Biological Anthropology	3
ANTH 028	D2: Linguistic Anthropology	3
ANTH 059	D2:SU: Culture and Environment	3
ANTH 076	D2:Religion, Health, & Healing	3
ANTH 085	D2:Food and Culture	3
ANTH 089	D2:SU:Global Health Devl & Div	3
ANTH 104	D2:Archaeology of the Americas	2-3
ANTH 165	D2: Peoples of South Asia	3
ANTH 172	D2:Gender Sex Race & the Body	3
ANTH 173	D2: Fndns of Global Health	3
ANTH 174	D2:Culture, Health and Healing	3
ANTH 179	D2: Environmental Anthropology	3
ARTH 008	D2: Asian Art	3
ARTH 146	D2: Egypt & the Ancient Near E	3
ARTH 184	D2: Islamic Art	3
ARTH 185	D2: Japanese Art	3
ARTH 186	D2: The Hindu Temple	3
ARTH 187	D2: Chinese Painting	3
ARTH 188	D2: Indian Painting	3
ARTH 192	D2:Inter Spec Topics Asian Art	3
ARTH 285	D2: Seminar in Asian Art	3

ASL 120	D2: Understanding Deaf Culture	3
BSAD 127	D2: International Management	3
BSAD 258	D2: Intn'l Market Analysis	3
CDAE 002	D2:SU:World Food,Pop & Develop	3
CDAE 003	D2:Intr to Dev Carib & Cent Am	3
CLAS 145	D2: Comparative Epic	3
CLAS 148	D2:Ancient Egypt Thr the Ages	3
CSD 025	D2:Comm Diff & Dis in Media	3
CSD 274	D2: Culture of Disability	3
CSD 287	D2:Mindfulness&Helping Skills	3
DNCE 005	D2:Intro to World Dance Cult	3
DNCE 006	D2:Intro Asian Theatre & Dance	3
DNCE 031	D2: African Forms	3
DNCE 033	D2: Brazilian Dance	3
DNCE 037	D2: Capoeira	3
DNCE 155	D2: Sex, Gender & Social Dance	3
EC 040	D2:SU:Econ of Globalization	3
EC 045	D2: Latin American Development	3
ECSP 202	D2:EI for Infants and Toddlers	3
EDHE 050	D2: Bullying & Discrimination	3
EDSP 005	D2:Iss Aff Persons W/ Disabil	3
EDSP 201	D2:Foundations of Special Ed	3
EDSP 274	D2:Culture of Disability	3
ENGS 043	D2:Top in Gender/ Sexuality Lit	3
ENGS 060	D2:Topics in Post- Colonial Lit	3
ENGS 061	D2:Intro to African Literature	3
ENGS 062	D2:Topics in Caribbean Lit	3
ENGS 179	D2: Topics in African Lit	3



ENGS 182	D2:Colonial/Post-Col World Lit	3	HS 119	D2: Modern Jewish History	3
ENVS 154	D2:Trad Ecological Knowledge	3	HSCI 103	D2: Fndns of Global Health	3
ENVS 167	D2: Global Env History	3	HSOC 089	D2:SU:Global Health Devl & Div	3
ENVS 179	D2: Ecofeminism	3	HSOC 103	D2: Fndns of Global Health	3
ENVS 182	D2:Religion and Ecology	3	HST 009	D2: Global History to 1500	0,3
GEOG 050	D2:SU:Global Envmnts& Cultures	3	HST 010	D2: Global History since 1500	3
GEOG 150	D2:Geography of Africa	3	HST 041	D2: Africa C-1870 to Present	3
GEOG 151	D2: Geography of India	3	HST 045	D2: Hst Islam&Middle E to 1258	3
GRS 001	D2:SU:Intro to Global Studies	3	HST 046	D2: Hst Islam&Mid E since 1258	3
GRS 157	D2:Int'l Politics Middle East	3	HST 055	D2: History of China and Japan	0,3
GRS 167	D2:Terrorism&Count	3	HST 063	D2:Modern Latin Amer History	3
GRS 200	D2:Seminar in Global Studies	3	HST 067	D2: Global Env History	3
GSWS 001	D2:Gender Sexuality Wmn's Stdy	3	HST 112	D2: History of Zionism to 1948	3
GSWS 100	D2: Gender and Feminism(s)	3	HST 119	D2: Modern Jewish History	3
GSWS 105	D2: LGBT Politics and History	3	HST 141	D2: History of Southern Africa	3
GSWS 131	D2: Sex in Modern History	3	HST 142	D2:Nigeria: Giant of Africa	3
GSWS 165	D2:Gender Sex Race & the Body	3	HST 144	D2: Rel & Pol in Islamic Hist	3
GSWS 179	D2: Ecofeminism	3	HST 146	D2: Hist of Modern Middle East	3
GSWS 280	D2: Queer Lives: LGBT History	3	HST 148	D2:Ancient Egypt Thru the Ages	3
HDFS 167	D2:Sexual & Gender Identities	3	HST 150	D2: Modern China	3
HLTH 092	D2:Mongolian Medicine & Cultr	3	HST 151	D2: Modern Japan	3
HLTH 093	D2:CAM Therapies in Cuban Hlth	3	HST 160	D2: Sex in Modern History	3
HLTH 105	D2:Cultural Health Care	3	HST 240	D2: Comparative Slavery	3
HLTH 145	D2:Women's Hlth & Spirituality	3	HST 250	D2: Seminar in East Asian Hst	3
HLTH 210	D2: Health and Culture: Oaxaca	3	HST 252	D2: Seminar on China	3
HLTH 241	D2:Exploring Healthcare Systms	3	HST 280	D2: Queer Lives: LGBT History	3
HS 112	D2: History of Zionism to 1948	3	LING 161	D2:Contact Langs & Slave Trade	3

MMG 230	D2:SU:Adv St Emerg Infec Dis	3	REL 133	D2: Islam and Modernity	3
MU 007	D2: Intro World Music Cultures	3	REL 141	D2: Religion in Japan	3
MU 014	D2: Music of Latin Am & Carib	3	REL 145	D2: Religion in China	3
MU 107	D2: World Music Cultures	3	REL 234	D2:Buddhism in Sri Lanka	3
NFS 050	D2:Cheese and Culture	3	RMS 188	D2:Org&Ldrship in AthTrn&Ex Sc	3
NFS 063	D2:Obesity:What,Why,What to Do	3	SOC 112	D2: Global Deviance	3
NFS 073	D2:SU:Farm to Table: Food Sys	3	SOC 155	D2:Culture, Health and Healing	3
NH 180	D2:Social Justice and Sport	3	SOC 171	D2:Soc Chng&Dev Persp Gl South	3
NR 175	D2:Rural Lives in Global World	3	SOC 212	D2: Int'l Migration & U.S. Soc	3
PHIL 121	D2: Chinese Philosophy I	3	SOC 218	D2:Disability as Deviance	3
PHIL 221	D2: Topics in Chinese Phil	3	SOC 272	D2: Soc of African Societies	3
POLS 119	D2: LGBT Politics and History	3	SPAN 145	D2:LatAm:Colonialism	3
POLS 157	D2:Int'l Politics Middle East	3	SPAN 146	D2:LatAm:Revolutn&Globalizatn	3
POLS 162	D2:Global Gender Inequality	3-4	SPAN 269	D2:Latin Amer City in Lit/Film	3
POLS 167	D2:Terrorism&Count	3	SPAN 294	D2:Modern Latin Amer Cultures	3
POLS 174	D2: Latin American Politics	3	STAT 052	D2:QR: Stat & Social Justice	3
POLS 176	D2:Govt & Politics of Japan	3	SWSS 147	D2: Theories in Social Work I	3
POLS 177	D2: Pol Sys of Trop Africa	3	SWSS 148	D2: Theories in Social Work II	3
POLS 270	D2: Mexican Politics	3	SWSS 229	D2:Soc Work&Disability Rights	3
PSYS 070	D2:TAP: Meanings of Madness	3	THE 077	D2:Intro Asian Theatre & Dance	3
REL 020	D2: Comparing Religions	3	WLIT 020	D2: Literatures of Globalizatn	3
REL 021	D2: Religions in Asia	3	WLIT 025	D2:Tales from the Global City	3
REL 023	D2: What is the Bible?	3	WLIT 109	D2:Japanese Lit-Premodern	3
REL 026	D2:Religions in Africa	3	WLIT 110	D2:Clsscl Chinese Lit in Trans	3
REL 029	D2:Religion and Globalization	3	WLIT 119	D2:Japanese Literature-Modern	3
REL 030	D2: Introducing Islam	3	WLIT 129	D2: Japanese Contemp Fiction	3
REL 031	D2: Introducing Hinduism	3	WLIT 145	D2: Comparative Epic	3
REL 040	D2:Religion, Health, & Healing	3			
REL 132	D2: Buddhist Traditions	3			

## FOUNDATIONAL WRITING AND INFORMATION LITERACY COURSES

All undergraduate degree students matriculating in Fall 2014 or later are required to successfully complete a three-credit course which provides instruction and practice with foundational writing and information literacy.

The following courses meet the foundational writing and informational literacy requirement:

All Teacher-Advisor Program (TAP) Seminars		3
ENGS 001	FW: Written Expression	3
ENGS 002	FW: Written Expression: Theme	3
HCOL 085 & HCOL 086	FW: Honors Coll First Year Sem and Honors College First Year Sem	6

## RECOMMENDED ENROLLMENT:

### College of Arts and Sciences Students

Teacher-Advisor Program (TAP) Seminars

### Honors College Students

HCOL 085 and HCOL 086

### Students in all other colleges

ENGS 001

### Speakers of Other Languages

An 'A' section of ENGS 001: 'Written Expression: Internatl'

### Transfer Students

ENGS 002

## QUANTITATIVE REASONING COURSES

All undergraduate degree students matriculating in Fall 2017 or later must meet a General Education requirement in quantitative reasoning. To meet this requirement, students must complete a course, curriculum, or co-curriculum prior to graduation that has been approved by the Faculty Senate's Quantitative Reasoning Curriculum Review Committee.

The following special topics courses and permanent courses meet the quantitative reasoning requirement.

## SPECIAL TOPICS COURSES

HCOL 086 - when the topic is Knowledge and the Age of Big Data

## PERMANENT COURSES

Code	Title	Hours
ANTH 113	QR: Introduction to Semantics	3
CS 008	QR: Intro to Web Site Dev	0,3

CS 020	QR: Programming for Engineers	0,3
CS 021	QR: Computer Programming I	0,3
CS 064	QR: Discrete Structures	3
CS 087	QR: Intro to Data Science	3
CS 106	QR: Embedded Pgmng in C	2-3
CS 110	QR: Intermediate Programming	0,4
CS 120	QR: Advanced Programming	3
CS 121	QR: Computer Organization	0,3
CS 124	QR: Data Struc & Algorithms	3
CS 125	QR: Computability & Complexity	3
CS 142	QR: Advanced Web Design	0-3
CS 145	QR: Web Client Programming	3
CS 148	QR: Database Design for Web	0,3
CS 166	QR: Cybersecurity Principles	3
CS 187	QR: Basics of Data Science	3
CS 201	QR: Operating Systems	0,3
CS 204	QR: Database Systems	3
CS 205	QR: Software Engineering	3
CS 206	QR: Evolutionary Robotics	3
CS 222	QR: Computer Architecture	3
CS 224	QR: Algorithm Design & Analysis	3
CS 225	QR: Programming Languages	3
CS 226	QR: Software Verification	3
CS 228	QR: Human-Computer Interaction	3
CS 237	QR: Intro to Numerical Analysis	3
CS 243	QR: Theory of Computation	3

CS 253	QR:Reinforcement Learning	3	MATH 022	QR: Calculus II	4
CS 254	QR: Machine Learning	3	MATH 023	QR: Transitional Calculus	5
CS 265	QR: Computer Networks	3	MATH 030	QR: Algebra for Educators	3
CS 266	QR:Network Secrt&Cryptography	3	MATH 052	QR:Fundamentals of Mathematics	3
CS 275	QR:Mobile App Development I	3	MATH 121	QR: Calculus III	4
CS 287	QR: Data Science I	3	MATH 122	QR: Applied Linear Algebra	3
CS 288	QR: Statistical Learning	3	MATH 124	QR: Linear Algebra	3
CSYS 266	QR:Chaos,Fractals&D Syst	3	MATH 141	QR:Real Anlys in One Variable	3
CSYS 268	QR:Mathematical Biology&Ecol	3	MATH 151	QR: Groups and Rings	3
EC 170	QR:Economic Methods	3	MATH 166	QR: Intro to Complex Systems	3
EC 200	QR:Econometrics &Applications	3	MATH 173	QR: Basic Combinatorial Theory	3
EC 202	QR: Economic Forecasting	3	MATH 183	QR: Fndmntls of Financial Math	3
EC 222	QR: Adv Macroeconomic Theory	3	MATH 230	QR:Ordinary Diffrentl Equation	3
EDSC 157	QR:Intro to Teaching Math	3	MATH 235	QR:Mathematical Models&Anlysis	3
EDSC 257	QR:Tchg Math in Sec Schls	3	MATH 237	QR:Intro to Numerical Analysis	3
EE 106	QR:Embedded Programming in C	2-3	MATH 240	QR:Fourier Series&Intgrl Trans	3
LING 075	QR:Math Foundations of Lang	3	MATH 241	QR:Anyl in Several Real Vars I	3
LING 163	QR:Introduction to Semantics	3	MATH 242	QR:Anyl Several Real Vrbes II	3
MATH 009	QR: College Algebra	3	MATH 251	QR: Abstract Algebra I	3
MATH 010	QR: Pre-Calculus Mathematics	3	MATH 252	QR: Abstract Algebra II	3
MATH 015	QR: Elementary School Math	3	MATH 255	QR:Elementary Number Theory	3
MATH 016	QR:Fund Cncpts Elm School Math	3	MATH 259	QR: Cryptography	3
MATH 017	QR:Applications of Finite Math	3	MATH 260	QR: Foundations of Geometry	3
MATH 018	QR: Basic Mathematics	3	MATH 266	QR:Chaos,Fractals&Dymcal Syst	3
MATH 019	QR: Fundamentals of Calculus I	3	MATH 268	QR:Mathematical Biology&Ecol	3
MATH 020	QR:Fundamentals of Calculus II	3	MATH 271	QR:Adv Engineering Mathematics	3
MATH 021	QR: Calculus I	4	MATH 272	QR: Applied Analysis	3
			MATH 273	QR:Combinatorial Graph Theory	3

ME 265	QR: Integrated Product Dev	3
MMG 232	QR: Advanced Bioinformatics	3
PHIL 013	QR: Introduction to Logic	3
SOC 157	QR: Population Health Research	3
STAT 051	QR: Probability With Statistics	3
STAT 052	D2:QR: Stat & Social Justice	3
STAT 087	QR: Intro to Data Science	3
STAT 111	QR: Elements of Statistics	3
STAT 141	QR: Basic Statistical Methods I	3
STAT 143	QR: Statistics for Engineering	3
STAT 151	QR: Applied Probability	3
STAT 183	QR: Basic Statistical Methods 2	3
STAT 187	QR: Basics of Data Science	3
STAT 200	QR: Med Biostat&Epidemiology	3
STAT 201	QR: Stat Computing&Data Anlysis	3
STAT 211	QR: Statistical Methods I	3
STAT 221	QR: Statistical Methods II	3
STAT 223	QR: Appld Multivariate Analysis	3
STAT 224	QR: Stats for Quality&Productvty	3
STAT 229	QR: Survivl/Logistic Regression	3
STAT 231	QR: Experimental Design	3
STAT 235	QR: Categorical Data Analysis	3
STAT 241	QR: Statistical Inference	3
STAT 251	QR: Probability Theory	3
STAT 261	QR: Statistical Theory	3
STAT 287	QR: Data Science I	3

STAT 288	QR: Statistical Learning	3
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## SUSTAINABILITY COURSES

All undergraduate degree students matriculating in Fall 2015 or later must meet a General Education requirement in sustainability. To meet this requirement, students must complete a course, curriculum, or co-curricular module prior to graduation that has been approved by the Faculty Senate's Sustainability Curriculum Review Committee.

The following special topics courses and permanent courses meet the sustainability requirement.

## SPECIAL TOPICS COURSES

ENGS 005 - when the topic is Writing Science, Nature, and Sustainability

ENGS 051 - when the topic is Writing Science, Nature, and Sustainability

HCOL 185 - when the topic is Sustainable Energy Resources, or Ecological History of Civilization

HCOL 186 - when the topic is One Health, or The Global Transportation System.

WLIT 017 - when the topic is Ulrich Grober's Sustainability: A Cultural History

Code	Title	Hours
ANTH 021	D2:SU: Cultural Anthropology	3
ANTH 024	D2:SU: Prehistoric Archaeology	3
ANTH 025	SU:Buried Cities,Forgotten Pst	3
ANTH 059	D2:SU: Culture and Environment	3
ANTH 089	D2:SU:Global Health Devl & Div	3
BCOR 102	SU:Ecology and Evolution	0,4
BSAD 010	SU:The Business Enterprise I	0,3
BSAD 263	SU:Environmntl & Social Rprtng	3
CDAE 002	D2:SU:World Food,Pop & Develop	3
CDAE 061	SU:Principles of Comm Dev	3
CDAE 105	SU: Food Waste to Value	3
CDAE 168	SU:Marketing:Com Entrepreneurs	3
CE 003	SU:Intro to Civil & Envir Engr	0,2
CE 132	SU: Environmental Systems	3

CE 151	SU: Water & Wastewater Engr	3	GRS 111	SU:Race,Identity&Mig Labor	3
CE 185	SU: Capstone Design I	3	HLTH 107	SU:Human Health & the Envirnmnt	3
CE 186	SU: Capstone Design II	3	HSCI 230	SU:Reading and Eval. Research	3
CEMS 033	SU: Sustainable Energy Sources	3	HSOC 089	D2:SU:Global Health Devl & Div	3
CIS 001	SU: Cybersecurity Law & Policy	3	ME 042	SU: Applied Thermodynamics	3
CLAS 150	SU:Sustainability Cultural Hst	3	MMG 002	SU:Unseen Wrlds:Microbes & You	3
EC 040	D2:SU:Econ of Globalization	3	MMG 230	D2:SU:Adv St Emerg Infec Dis	3
EC 133	SU:Economics Envirnmntl Policy	3	NFS 073	D2:SU:Farm to Table: Food Sys	3
EDEL 157	SU:Social Educ & Social Stdies	3	NR 009	SU:VT: Natural & Cultural Hst	0,4
EDTE 061	SU:Foundations of PBE	3	NR 061	SU:Foundations of PBE	3
EDTE 074	SU:Science of Sustainability	3	NR 102	SU:Water as a Natural Resource	3
ENSC 001	SU: Intro Environmental Sci	3	NR 107	SU:Human Health & the Envirnmnt	3
ENSC 274	SU:Climate Chg: Sci & Percept	3	NR 205	SU:Ecosys Mgt:Intg Sci,Soc&Pol	3
ENVS 001	SU:Intro to Envvrnmtl Studies	0,4	NURS 200	SU: Health and Sustainability	3
ENVS 002	SU:Solutions in Env Studies	0,4	PBIO 004	SU: Intro to Botany	0,4
ENVS 107	SU: Human Health & Envirnmnt	3	PBIO 006	SU: The Green World	3
ENVS 188	SU:Sustainability Science	3	PBIO 133	SU:How Plants Can Save World	3
ENVS 212	SU:Advanced Agroecology	0-4	PHYS 009	SU: Energy and the Environment	3
FOR 001	SU: Forest Conservation	3	POLS 180	SU:Comparative Envir Pol	3
GEOG 050	D2:SU:Global Envmnts& Cultures	3	PSS 021	SU: Intro to Agroecology	3
GEOG 070	SU: Society, Place, and Power	3	PSS 161	SU:Fundmntls of Soil Science	0,4
GEOG 145	SU: Geography of Water	3	PSS 212	SU: Advanced Agroecology	0,4
GEOL 007	SU: Earth Hazards	0,3	SOC 001	SU: Introduction to Sociology	3
GEOL 110	SU: Earth Materials	0,4	SOC 121	SU:Sociology of Disaster	3
GEOL 161	SU:Field Methods in Geophysics	0-4	SPAN 080	SU: Intermediate II	3
GERM 052	SU: Intermediate	3	SPAN 111	SU:Race,Identity&Migrant Labor	3
GRS 001	D2:SU:Intro to Global Studies	3			



WFB 074

SU: Wildlife  
Conservation

3

## COURSE LIST

### AGRICULTURE & LIFE SCIENCE (CALS)

#### Courses

**CALS 001. Foundations: Communication Meth. 0 or 3 Credits.**

Foundational course to acclimate College of Agriculture & Life Science First-Year students to college life and develop individual and group public speaking skills through giving and critically analyzing presentations.

**CALS 002. Foundation: Information Tech. 0 or 3 Credits.**

Foundational course to acclimate College of Agriculture & Life Science First-Year students to college life and develop information technology skills through use of computer hardware and software and internet applications.

**CALS 085. Computer Applications. 0 or 3 Credits.**

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.

**CALS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CALS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CALS 095. Introductory Special Topics. 0.5-18 Credits.**

See Schedule of Courses for specific titles.

**CALS 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CALS 125. Teaching Assistant Development. 3 Credits.**

TAs develop skills in areas of leadership, group dynamics, interpersonal effectiveness, and assertiveness as group facilitators in Beginnings course. Prerequisite: Sophomore standing only; Instructor permission.

**CALS 183. Communication Methods. 0 or 3 Credits.**

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

**CALS 190. Internship. 0.5-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CALS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CALS 195. Special Topics. 0.5-18 Credits.**

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

**CALS 196. Special Topics. 1-18 Credits.**

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

**CALS 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CALS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CALS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CALS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CALS 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CALS 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CALS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## AMERICAN SIGN LANGUAGE (ASL)

#### Courses

**ASL 001. American Sign Language I. 4 Credits.**

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.

**ASL 002. American Sign Language II. 4 Credits.**

Discusses concepts and principles: advanced vocabulary, grammar patterns, use of space/modulation of signs for time/location. Further explores Deaf Culture. Prerequisites: ASL 001 or CMSI 001 or equivalent.

**ASL 051. American Sign Language III. 4 Credits.**

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.

**ASL 052. American Sign Language IV. 4 Credits.**

Expansion of ASL III. Intended to refine competence in receptive and expressive abilities through exposure to stylistic and regional ASL renditions. Deaf Community involvement. Prerequisites: ASL 051 or CMSI 051 or equivalent.

**ASL 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ASL 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ASL 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ASL 101. American Sign Language V. 3 Credits.**

Designed to increase students' ASL proficiency. Emphasis on grammatical and linguistic aspects of ASL, including ASL morphology, ASL syntax, pronominalization, classifiers, agreement verbs, pluralization, time concepts, and sociolinguistic aspects of Deaf people. Prerequisite: ASL 052.

**ASL 102. American Sign Language VI. 3 Credits.**

A continuation of ASL V. Focus on grammatical and linguistic aspects of ASL and the use of ASL discourses in formal settings. Prerequisite: ASL 101.

**ASL 120. D2: Understanding Deaf Culture. 3 Credits.**

Provides students a comprehensive orientation to Deaf communities as linguistic and cultural minorities. Students will explore various aspects of American Deaf culture.

**ASL 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ASL 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ASL 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ASL 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ASL 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ASL 220. ASL Literature. 3 Credits.**

Introduces students to ASL literature by exploring and examining a wide range of videos produced by Deaf artists. ASL literature covers classic and modern Deaf folklores, ASL storytelling/narratives, ASL poetry, Deaf humor, theatre, cinema, and other genres. Prerequisite: ASL 051.

**ASL 280. Advanced Seminar. 3 Credits.**

Serves as an interdisciplinary exploration of ASL and Deaf culture. Students will apply knowledge of ASL and Deaf culture to another discipline to create new and meaningful knowledge that could make a significant contribution to both disciplines. Prerequisites: ASL 102; ASL 120 or ASL 220.

**ASL 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ASL 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ASL 295. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**ASL 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ASL 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## ANATOMY & NEUROBIOLOGY (ANNB)

### Courses

**ANNB 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ANNB 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ANNB 096. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**ANNB 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ANNB 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ANNB 193. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ANNB 195. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ANNB 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ANNB 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Prerequisite: Department Permission.

**ANNB 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Prerequisite: Department permission.

**ANNB 200. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ANNB 202. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ANNB 203. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ANNB 205. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Undergraduate only.

**ANNB 206. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Undergraduate only.

**ANNB 208. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small tea research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ANATOMY/PHYSIOLOGY (ANPS)****Courses****ANPS 019. Ugr Hum Anatomy & Physiology. 4 Credits.**

Two-semester lecture course with credit given upon completion of each semester. Structure and function of human body will be presented in a three 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 permission.

**ANPS 020. Ugr Hum Anatomy & Physiology. 4 Credits.**

Two-semester lecture course with credit given upon completion of each semester. Structure and function of human body will be presented in a three 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 permission. Prerequisite: ANPS 019.

**ANPS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ANPS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ANPS 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ANPS 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ANPS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ANPS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ANPS 193. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ANPS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ANPS 198. Undergraduate Research. 1 or 18 Credit.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Prerequisite: Department permission.



**ANPS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ANPS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ANPS 293. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ANPS 295. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**ANPS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ANIMAL BIOSCIENCES (ABIO)****ANIMAL SCIENCE (ASCI)****Courses****ASCI 001. Introductory Animal Sciences. 0 or 3 Credits.**

An overview of the genetics, nutrition, reproduction, and management of livestock and recreation species; introduction to animal behavior, animal disease, and biotechnology. Prerequisite: Animal Science major or Instructor permission.

**ASCI 005. Intro to the Horse. 3 Credits.**

Starting with evolution and domestication and progressing to current breeds, colors, uses, health, and management of horses, students gain a basic understanding of one of our most beloved domestic animals. No prior horse experience or knowledge is required.

**ASCI 006. Companion Animal Care & Mgmt. 3 Credits.**

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

**ASCI 007. ABCs of Biosecurity. 3 Credits.**

Covers the acronyms of relevant agencies, organizations, and preparedness strategies for agrosecurity, biosecurity, and communication to protect food and agriculture from disaster. Introduces food and agriculture threats, vulnerabilities, and disease disaster mitigation strategies.

**ASCI 021. Horse Barn Cooperative. 1 Credit.**

Develops skills in the practical aspects of equine management of individual horses and horses maintained in a group setting using hands-on experiences and peer teaching. Students care for their own horse or an Animal Science horse. Prerequisites: For students currently accepted into the UVM Horse Barn Cooperative Program or currently enrolled in ASCI 121; Instructor permission.

**ASCI 030. Beginner Horseback Riding. 1 Credit.**

Instruction in the basics of balanced seat horseback riding, including both ground skills (grooming, tacking and untacking) and mounted skills (mounting, dismounting, walking, trotting, cantering). Emphasizes safety and control.

**ASCI 038. Understanding & Speaking Dog. 3 Credits.**

With dogs as a model, explores the impact of genetic modification and selection, neonatal to adult development of the brain, the science of how the brain learns, human involvement and its impact, and the factual language of dogs. Prerequisite: Animal Science major or minor, Psychological Science major.

**ASCI 043. Intro to Animal Nutrition. 3 Credits.**

Comprehensive study of specific nutrients in terms of their digestion, availability, function, and utilization in animals. Prerequisite: ASCI 001 or BIOL 001 or BCOR 011.

**ASCI 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ASCI 095. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ASCI 097. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ASCI 098. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ASCI 108. Equine Enterprise Management. 3 Credits.**

Provides guidelines for understanding risks, liabilities and other pertinent topics necessary for running a successful equine-related business. Prerequisite: ASCI 001 or ASCI 005.

**ASCI 110. Animal Nutrit, Metab & Feeding. 0 or 4 Credits.**

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

**ASCI 111. Animal Anatomy. 0 or 4 Credits.**

A comprehensive overview of anatomical structure of vertebrate animals with emphasis on domestic animals. Taught from a systematic anatomy approach and incorporating microscopic and developmental anatomy, comparative vertebrate anatomy, and applied/clinical anatomy. Some basic physiology will be introduced to reinforce the link with anatomy. Prerequisites: BIOL 001 or BCOR 011 and CHEM 031 and CHEM 032 or CHEM 023 and CHEM 026 or Instructor permission.

**ASCI 117. Horse Health and Disease. 3 Credits.**

After an introduction to equine anatomy and physiology, students are presented with common diseases and their corresponding description, cause, clinical signs, diagnosis, treatment, prognosis and prevention. Weekly small-group case studies highlight core principles. Optional hands-on opportunities at UVM Horse Barn. Prerequisite: ASCI 001 or ASCI 005.

**ASCI 118. Appl Animal Health. 0 or 3 Credits.**

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

**ASCI 119. Equine Training Techniques. 0 or 3 Credits.**

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. Prerequisite: ASCI 001 or ASCI 005.

**ASCI 120. General Physiology. 3 Credits.**

A comprehensive review of the physiology of mammalian animals. Prerequisites: ASCI 001 and ASCI 111.

**ASCI 121. Equus. 2-4 Credits.**

A hands-on equine management experience. Students perform horse duties, recordkeeping, and make financial and management decisions on a horse boarding operation. Prerequisites: ASCI 001 or ASCI 005.

**ASCI 122. Animals in Soc/Animal Welfare. 3 Credits.**

Designed to heighten awareness and understanding of human-animal relationships in society, agriculture, and science. Prerequisites: Animal Science major; Sophomore standing.

**ASCI 125. Equine Instructing Techniques. 0 or 2 Credits.**

Examines philosophies, concepts and teaching-learning strategies needed for the development of sound equine instructing skills. Students gain hands-on horseback riding teaching experience during the second half of the semester in a supported environment. Prerequisite: ASCI 001 or ASCI 005.

**ASCI 129. Horse Barn Coop Exec Committee. 1 Credit.**

Student leaders, chosen by their Horse Barn Cooperative peers and Horse Barn Faculty Advisor(s), oversee the management of the UVM Horse Barn, including facilities, schedule, events, horse care, and student responsibilities. Students are supported by the Horse Barn Faculty Advisor(s). Prerequisites: ASCI 021 and Instructor permission.

**ASCI 130. Intermediate Horseback Riding. 1 Credit.**

Students gain further experience with balanced seat horseback riding, including ground skills (grooming, tacking and untacking) and mounted skills (walking, trotting and cantering). Emphasizes safety and control. Prerequisites: Instructor permission. Student should be able to walk, trot and canter off the lunge line.

**ASCI 134. CREAM. 4 Credits.**

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

**ASCI 135. CREAM. 4 Credits.**

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

**ASCI 141. Anat&Physiol Domestic Animals. 0 or 4 Credits.**

A comprehensive review of the structure and function of domestic animals, emphasizing those of economic importance. Differences between mammalian and avian species are discussed. Prerequisite: ASCI 001, BIOL 001, or BCOR 011. BIOL 002 or BCOR 012 recommended.

**ASCI 143. Forage and Pasture Mgmt. 4 Credits.**

Forage crops and grasslands play a central role in sustainable and diversified agriculture. Covers the scientific principles and practical applications of the production, management, and utilization of perennial and annual forage crops used by livestock and equine. Pre/co-requisite: BIOL 001 or BIOL 002 or BCOR 011 or BCOR 012 or PBIO 004 or PBIO 006 or Instructor permission. Cross-listed with: PSS 143.

**ASCI 154. Canine Behavior. 3 Credits.**

Identify, assess and treat/manage canine behavior issues. Learn bite prevention, interviewing and communication skills. Formulate and implement treatment plan or alternative options. Analyze efficacy of plan. Theoretical hands-on practice. Prerequisite: ASCI 038.

**ASCI 156. Dairy Management Seminar. 2 Credits.**

Seminar course addresses research, policy, and production topics in the dairy industry and develops leadership roles through guest speakers, field trips, and group projects. Prerequisites: Minimum Junior standing or with Instructor permission any student interested in dairy industry.

**ASCI 168. Animal Genetics. 3 Credits.**

The study of DNA with an emphasis in genetics of animal species, included but not limited to livestock and companion animals. Topics include patterns of inheritance, molecular genetics, gene regulation, biotechnology, genomics, population and quantitative genetics. Prerequisite: BIOL 001 or BIOL 002 or BCOR 011 or BCOR 012.

**ASCI 171. Zoos, Exotics & Endang Species. 3 Credits.**

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.

**ASCI 177. Animal Plagues & Global Health. 3 Credits.**

Introduction to domestic animal and wildlife infectious disease ecology and epidemiology, emerging and zoonotic disease. Ecological and social issues of infectious disease control explored from a One Health perspective that considers environmental and agricultural sustainability. Prerequisites: BIOL 001 or BCOR 011; and BIOL 002 or BCOR 012.

**ASCI 181. Animal Science Career Seminar. 1 Credit.**

Discussion and workshop activities exploring careers in animal and food science. Includes resume preparation and interview training. Prerequisite: Animal Science major.

**ASCI 187. Intro to Biochemistry: Lab. 1 Credit.**

Introduction to techniques used to explore fundamental biochemistry concepts including enzyme kinetics, lipids, carbohydrate chemistry, and gene expression. Includes spectrophotometry, gel electrophoresis, and mass spectrometry. Pre-Co-requisites: PBIO 185, BIOC 201, or NFS 183. Cross-listed with: NFS 187, PBIO 187.

**ASCI 191. Intermediate Special Topics. 0.5-15 Credits.**

See Schedule of Courses for specific titles.

**ASCI 192. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ASCI 193. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ASCI 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ASCI 195. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**ASCI 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Junior standing; Department Chair permission.

**ASCI 208. Equine Industry Issues. 3 Credits.**

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. Prerequisite: ASCI 108 or ASCI 121 or ASCI 122.

**ASCI 215. Physiology of Reproduction. 3 Credits.**

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

**ASCI 216. Endocrinology. 3 Credits.**

Physiology of endocrine and autocrine/paracrine systems and growth factors. Prerequisites: BIOL 001 or BCOR 011 and ASCI 141 or ANPS 019 or ANPS 020.

**ASCI 217. Topics in Applied Reproduction. 1 Credit.**

Laboratory for fundamental principles of the physiology of reproduction with emphasis on, but not limited to, farm animals. Must be taken concurrently with ASCI 215. Prerequisites: ASCI 141 or Instructor permission. Co-requisite: ASCI 215.

**ASCI 220. Lactation Physiology. 3 Credits.**

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

**ASCI 221. Lameness in Horses. 0 or 4 Credits.**

Focuses on normal equine anatomy related to movement and what happens when horses are injured. Students learn common causes of lameness, as well as how to diagnose, treat, and prevent those causes. Labs are hands-on with horses. Prerequisites: ASCI 117.

**ASCI 234. Advanced Dairy Management. 15 Credits.**

An intensive, residential program at the Miner Institute providing an in-depth experiential program in the management of the dairy herd. Prerequisite: Junior standing or Farms 2+2 enrollment.

**ASCI 242. Advanced Animal Nutrition. 0 or 4 Credits.**

This course will discuss the principles of meeting the nutrient requirements of animals, including an introduction to feedstuffs, animal metabolism and feed formulation for domestic or captive vertebrate animals. Prerequisites: ASCI 043 and ASCI 120 or Instructor permission.

**ASCI 252. FARMS Senior Project. 1-18 Credits.**

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; Senior standing.

**ASCI 263. Clin Top: Companion Animal Med. 3 Credits.**

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

**ASCI 264. Clin Topics: Livestock Medicine. 3 Credits.**

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

**ASCI 265. Clin Topics Equine Med & Surg. 3 Credits.**

Students work through medical and surgical cases from chief complaint to treatment, prognosis and prevention. Diagnostic techniques and treatment options prioritized. Hands-on opportunities include physical, orthopedic, and neurologic exams, as well as field trips to local equine facilities and the UVM Morgan Horse Farm. Prerequisite: ASCI 117.

**ASCI 272. Adv Top: Zoo, Exotic, Endang Spec. 3 Credits.**

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.

**ASCI 277. Animal and Human Parasitology. 3 Credits.**

This course will emphasize the morphology, life cycles, and pathogenesis of representative taxa from the parasitic protozoa, helminthes, and arthropods of humans and domestic animals. Prerequisite: BIOL 001, BIOL 002 or BCOR 011, BCOR 012, and 100 level ASCI course or equivalent or instructor permission.

**ASCI 278. Molecular Epidemiol Infect Dis. 3 Credits.**

Provides a foundation of knowledge on the use of molecular biology tools to study infectious disease problems; explores how biologists and health scientists link epidemiological methods and molecular biology techniques to address global health issues. Prerequisites: Minimum Junior standing, one 100-level course in BioCore, Biology, Health, Health Sciences, or Microbiology and Molecular Genetics or ASCI 118 or ASCI 177 or Graduate student standing or Instructor permission.



**ASCI 279. One Health: Antimicrob Resist. 3 Credits.**

Provides a foundation of knowledge on the problem of antimicrobial resistance and factors that contribute to the emergence and spread of resistant micro-organisms. Considers antimicrobial resistance from a One Health perspective, integrating animal, environmental and human health. Prerequisites: Minimum Junior standing, one 100-level course in BioCore, Biology, Health, Health Sciences, or Microbiology and Molecular Genetics or ASCI 118 or ASCI 177 or Graduate student standing or Instructor permission.

**ASCI 293. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ASCI 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ASCI 295. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ASCI 296. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ASCI 297. Advanced Special Topics. 1-18 Credits.**

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

**ASCI 298. Advanced Special Topics. 1-18 Credits.**

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

**ANTHROPOLOGY (ANTH)****Courses****ANTH 014. Languages of the World. 2-3 Credits.**

An exploration of the incredible inventory of the world's languages, addressing language universals and the breadth of language variation. Students investigate how linguists group and compare languages and the complex relations between global processes, world languages, and political/cultural boundaries. Cross-listed with: LING 014.

**ANTH 015. Writing Systems. 3 Credits.**

Survey of how human languages are represented orthographically, both historically and in the present day. We examine the origins of writing, writing system change over time, and the connections between spoken and written language. Cross-listed with: LING 088.

**ANTH 021. D2:SU: Cultural Anthropology. 3 Credits.**

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.

**ANTH 024. D2:SU: Prehistoric Archaeology. 3 Credits.**

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.

**ANTH 025. SU:Buried Cities,Forgotten Pst. 3 Credits.**

Introductory examination of the rise and collapse of some of the earliest civilizations in many parts of the world, ranging from Southwest Asia and northern Africa to China and the Americas.

**ANTH 026. D2:Biological Anthropology. 3 Credits.**

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

**ANTH 028. D2: Linguistic Anthropology. 3 Credits.**

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

**ANTH 040. Parenting and Childhood. 2-3 Credits.**

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.

**ANTH 059. D2:SU: Culture and Environment. 3 Credits.**

Integrated Social Science Program seminar exploring the importance of anthropological and cultural perspectives for critical understanding of global environmental issues.

**ANTH 076. D2:Religion, Health, & Healing. 3 Credits.**

Comparative and cross-cultural exploration of the relationships between religion, health, and healing. Cross-listed with: REL 040.

**ANTH 085. D2:Food and Culture. 3 Credits.**

Examination of the cultivation, preparation, and consumption of food as rich symbolic processes through which humans interact with our natural and social environments.

**ANTH 089. D2:SU:Global Health Devl & Div. 3 Credits.**

An anthropological exploration of connections between global health, economic development, and cultural diversity in contemporary times. Considers ways in which informed global citizens can make a positive difference in human health, taking socioeconomic and cultural diversity into account. Cross-listed with: HSOC 089.

**ANTH 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ANTH 093. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**ANTH 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ANTH 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ANTH 103. Political Anthropology. 3 Credits.**

This course explores the cultural aspects of political institutions, structures, and processes in societies from around the world.

Prerequisite: ANTH 021.

**ANTH 104. D2: Archaeology of the Americas. 2-3 Credits.**

Archaeological overview of North and South America from the peopling of the New World to European contact in the sixteenth century. Prerequisite: Minimum Sophomore standing.

**ANTH 105. Introduction to the Major. 1 Credit.**

Seminar-style introduction to the Anthropology major focusing on skill-building, course selection, internships, service learning, research or teaching assistantships, study abroad, fieldwork, senior projects/theses, and grant opportunities. Prerequisites: Anthropology major and one of the following: ANTH 021, ANTH 024, ANTH 026, or ANTH 028.

**ANTH 106. Preserving the Past. 3 Credits.**

Explores approaches to cultural heritage worldwide and the political, economic, and legal contexts that influence the preservation and destruction of cultural resources such as archaeological sites and architecture. Prerequisite: ANTH 021 or ANTH 024.

**ANTH 112. Introduction to Syntax. 3 Credits.**

Introduction to the syntax of natural languages and a rigorous approach to the analysis of sentence structure. Pre/co-requisite: LING 080 or ANTH 028. Cross-listed with: LING 166.

**ANTH 113. QR: Introduction to Semantics. 3 Credits.**

Students will engage with language as a logical system and explore how it is that linguistic utterances mean what they mean. They will learn to express linguistic constituents as logical expressions. Other topics include modification, entailments, quantification, negation, and idioms. Prerequisite: LING 080 or ANTH 028. Cross-listed with: LING 163.

**ANTH 124. People, Poison, Place. 3 Credits.**

Focus on social inequality, toxin exposure, and human health impacts within the context of place, culture, history, and political economy. Examination of the interaction of political economy, toxic waste, history, culture, and place, and how constellations of inequality translate into exposure to various toxins. Prerequisite: ANTH 021.

**ANTH 126. Topics in Cultural Anthro. 3 Credits.**

Explores intermediate level topics in cultural anthropology. May be repeated for credit with different content. Sample topics include: Cultural Anthropology in the Media, Indigenous Cultures and Social Change, Economic Anthropology. Prerequisite: ANTH 021.

**ANTH 135. Prehistory of the US Southwest. 3 Credits.**

Archaeological overview of the American Southwest, from the peopling of the New World to European contact in the sixteenth century. Prerequisite: ANTH 024.

**ANTH 136. Topics in Archaeology. 3 Credits.**

Explores intermediate level topics in archaeology. May be repeated for credit with different content. Sample topics include: Archaeology of Disaster, Ruins, Archaeology in the Media. Prerequisite: ANTH 024.

**ANTH 140. Primates and Anthropology. 3 Credits.**

A survey of behavior and anatomy of nonhuman primates (monkeys, apes and prosimians) from an anthropological perspective.

Prerequisite: ANTH 021 or ANTH 026.

**ANTH 141. Death, Burial, and Culture. 3 Credits.**

An examination of how different cultures approach issues and customs surrounding death. Drawing on evidence from cultural and biological anthropology and archaeology, students will explore widely, examining how death illuminates life in different cultures around the world and through time. Prerequisite: ANTH 021 or ANTH 024 or ANTH 026 or ANTH 028.

**ANTH 143. Forensic Anthropology. 3 Credits.**

Examines forensic anthropological and archaeological methodologies in medico-legal contexts. Topics include search and recovery, biological profiles, skeletal trauma, pathological conditions, and taphonomic factors, as well as legal and ethical issues and anthropologists' roles amongst law enforcement and other forensic practitioners. Prerequisites: ANTH 024 or ANTH 026 or BCOR 101.

**ANTH 146. Topics in Biological Anthro. 3 Credits.**

Explores intermediate level topics in biological anthropology. May be repeated for credit with different content. Sample topics include: Bioarchaeology of Identities, Biological Anthropology of Race and Gender, Human Variation. Prerequisite: ANTH 026.

**ANTH 160. D1: North American Indians. 3 Credits.**

Ethnographic survey of major Native American cultures the United States against background of aboriginal culture history and problems of contact with European cultures. Alternate years. Prerequisite: ANTH 021 or 3 credits in a social science.

**ANTH 164. D1: Indians of the NE: Vermont. 3 Credits.**

Native peoples of Vermont 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 021 or ANTH 024. Cross-listed with: VS 164.

**ANTH 165. D2: Peoples of South Asia. 3 Credits.**

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

**ANTH 169. D1: Latinos in the US. 3 Credits.**

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

**ANTH 172. D2: Gender Sex Race & the Body. 3 Credits.**

Cross-cultural study of gender, sex, sexuality, and race including exploring the cultural construction of categories and cultural practices related to the body and gender, sex, sexuality, and race. Prerequisite: ANTH 021 or GSWS 001. Cross-listed with: GSWS 165.

**ANTH 173. D2: Fndns of Global Health. 3 Credits.**

Explores global health and global health challenges affecting people primarily in developing or resource-constrained countries. Prerequisite: Minimum Sophomore standing. Cross-listed with: HSCI 103, HSOC 103.

**ANTH 174. D2: Culture, Health and Healing. 3 Credits.**

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. Prerequisite: ANTH 021 or ANTH 089 or three hours of Sociology. Cross-listed with: SOC 155.

**ANTH 178. Sociolinguistics. 3 Credits.**

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.

**ANTH 179. D2: Environmental Anthropology. 3 Credits.**

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. Prerequisite: ANTH 021, ANTH 023, or ANTH 024 or Instructor permission.

**ANTH 187. D1: Race and Ethnicity. 3 Credits.**

Description and analysis of ethnic, racial, and religious groups in the United States. Examination of social/cultural patterns in the larger society and in these groups themselves. Prerequisite: Three hours of Anthropology or Sociology. Cross-listed with: SOC 119.

**ANTH 190. LASP-SSS Thesis. 3 Credits.**

Independent design, research, and writing of a thesis in the Liberal Arts Scholars Program (LASP) under the Social Sciences Scholars (SSS) designation. Prerequisites: LASP-SSS students only; Instructor permission.

**ANTH 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**ANTH 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**ANTH 193. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**ANTH 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ANTH 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ANTH 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**ANTH 200. Field Work in Archaeology. 1-6 Credits.**

Methods and techniques of archaeological investigation in field situations and the laboratory analysis of data. Prerequisites: ANTH 024, and one 100-level course in Anthropology or History, or Instructor permission.

**ANTH 205. Advanced Proseminar in Anthro. 1 Credit.**

Designed to be taken in conjunction with any 200-level class, this capstone pro-seminar in Anthropology will provide a forum for majors to build and package anthropological skill sets and to identify, explore, and plan for future educational and career opportunities. Prerequisites: Minimum Junior standing; Anthropology major. Pre/co-requisite: Any three-credit 200-level Anthropology course.

**ANTH 210. Archaeological Theory. 3 Credits.**

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

**ANTH 240. Human Osteology. 0 or 4 Credits.**

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 024, ANTH 026, one 100-level Anthropology course in archaeology or biological anthropology (see major requirements for subdisciplinary designations), or Instructor permission.

**ANTH 241. Human Diversity and Evolution. 3 Credits.**

Advanced seminar integrating perspectives from biology and biological anthropology to investigate human evolution and diversity. Through critical analysis, reflective and analytical writing, and discussion, we will engage with a broad range of readings from both disciplines. Prerequisites: BCOR 101 or (ANTH 026 and one 100-level Anthropology course); Minimum Junior standing. Cross-listed with: BIOL 241.

**ANTH 242. Research in Hum Biol Diversity. 4 Credits.**

Lab-based course that explores methods from biology and biological anthropology to study human evolution and diversity through skeletal anatomy and genetic analyses. Heavy focus on research design and proposal development, literature research, data collection and interpretation, and dissemination of results. Prerequisites: BCOR 101 or (ANTH 026 and one 100-level Anthropology course); Minimum Junior standing. Cross-listed with: BIOL 242.

**ANTH 245. Laboratory Archaeology Topics. 3 Credits.**

Exploration of laboratory methods for analyzing excavated materials, such as ceramics, chipped stone, or fauna. May be repeated for credit when material and emphasis vary. Prerequisites: ANTH 024, one 100-level course in Anthropology.



**ANTH 250. Museum Anthropology. 3 Credits.**

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: Three credits in Anthropology at the 100-level; Anthropology major or minor; minimum Sophomore standing. Alternate years.

**ANTH 283. Colonialism. 3 Credits.**

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

**ANTH 285. Anthropology of Food and Labor. 3 Credits.**

Through investigating the ways that people work through, around, and with food in the public sphere, we will unpack the political, cultural, and economic dimensions of both local and global food systems. Prerequisites: ANTH 021; one course at the 100-level in cultural anthropology.

**ANTH 288. Anthro Research Global Health. 3 Credits.**

Examines core concepts, approaches, and findings of discipline of medical anthropology in examining problems of global health in resource-poor settings and considers the contributions of anthropology to interdisciplinary global health research. Trains students in critical review of related scholarly literature, research design, and proposal writing. Prerequisites: ANTH 021 or ANTH 026 or ANTH 089; ANTH 173 or ANTH 174.

**ANTH 290. Ethnographic Field Methods. 3 Credits.**

Examination of theoretical and ethical premises of field work methodology with practical experience in research design, proposal writing, participant observation, interviewing, and qualitative data analysis. Prerequisite: ANTH 021, one course at the 100-level in cultural anthropology.

**ANTH 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**ANTH 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**ANTH 293. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**ANTH 295. Advanced Special Topics. 1-18 Credits.**

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

**ANTH 296. Advanced Special Topics. 1-18 Credits.**

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

**ANTH 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Minimum Junior standing; Instructor permission.

**ARABIC (ARBC)****Courses****ARBC 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ARBC 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ARBC 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ARBC 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ARBC 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ARBC 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ARBC 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ARBC 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ARBC 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ARBC 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ARBC 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ARBC 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ARBC 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ARBC 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ARBC 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ARBC 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ART EDUCATION (EDAR)****Courses****EDAR 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EDAR 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**EDAR 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDAR 177. Curriculum & Pract in Elem Art. 4 Credits.**

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

**EDAR 178. Curriculum&Pract Middle/HS Art. 4 Credits.**

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

**EDAR 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EDAR 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDAR 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**EDAR 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDAR 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDAR 283. Current Issues in Art & Ed. 3 Credits.**

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

**EDAR 284. Current Issues in Art & Ed. 3 Credits.**

Service-learning internship experience in the community providing a broader model for art education. Students work with galleries, museums, community centers, or other advocacy or outreach programs. Prerequisites: Art Education major; minimum Junior standing or Instructor permission.

**EDAR 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EDAR 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDAR 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**EDAR 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDAR 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ART HISTORY (ARTH)****Courses****ARTH 005. Western Art: Ancient - Medieval. 3 Credits.**

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

**ARTH 006. Western Art: Renaissance-Modern. 3 Credits.**

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

**ARTH 008. D2: Asian Art. 3 Credits.**

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

**ARTH 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. A contract must be obtained from and returned to the Department of Art and Art History before the end of the course add period. Prerequisites: Six hours of Art History courses at the 100-level; Junior standing; departmental permission.

**ARTH 095. Introduction to Special Topics. 1-18 Credits.**

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

**ARTH 096. Introduction to Special Topics. 1-18 Credits.**

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

**ARTH 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ARTH 140. Hist of Optical Media as Art. 3 Credits.**

Theory and development of the art of optical media: photography, film, and video. Emphasis on discovery and explication of technical, aesthetic, and expressive properties. Prerequisites: one of the following: ARTH 006, FTS 007, FTS 008.

**ARTH 146. D2: Egypt & the Ancient Near E. 3 Credits.**

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

**ARTH 148. Greek Art. 3 Credits.**

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

**ARTH 155. Topics in Medieval Art. 3 Credits.**

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 permission. Prerequisite: ARTH 005.

**ARTH 158. Northern European 1400-1600. 3 Credits.**

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: ARTH 005.

**ARTH 163. Italian High and Late Ren Art. 3 Credits.**

Painting, sculpture, architecture, and decorative arts in Italy from 1500 to 1600. High Renaissance, Mannerism, Late Renaissance, and Early Baroque art in Italy. Topics include the Reformation, Counter-Reformation, court cities, foreign rule, and artistic exchanges between Italy and other countries. Prerequisites: ARTH 005 or ARTH 006.

**ARTH 165. Topics European Art 1600-1800. 3 Credits.**

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 different content. Prerequisite: ARTH 006.

**ARTH 170. Topics in Modern Art. 3 Credits.**

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 permission. Prerequisite: ARTH 006 or FTS 007 or FTS 008 or FTS 010.

**ARTH 174. 20th-Century Art. 3 Credits.**

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. Prerequisite: ARTH 006 or FTS 007 or FTS 008 or FTS 010.

**ARTH 178. Methods and Theories. 3 Credits.**

Introduction to the foundational texts in Art History, Cultural Theory, and Aesthetics, with an emphasis on contemporary responses. Material and emphasis vary with instructor. Prerequisite: ARTH 006 or FTS 007 or FTS 008 or FTS 010.

**ARTH 179. Issues in Contemporary Art. 3 Credits.**

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: ARTH 006 or FTS 007 or FTS 008 or FTS 010.

**ARTH 184. D2: Islamic Art. 3 Credits.**

An overview of the major architectural monuments and artistic traditions of the lands where Islam took root and flourished. Prerequisite: three credits of Art History or REL 021.

**ARTH 185. D2: Japanese Art. 3 Credits.**

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: HST 151, REL 021, REL 132, REL 141. Alternate years.

**ARTH 186. D2: The Hindu Temple. 3 Credits.**

The Hindu temple, the focal point of the great architectural tradition in South Asia, is examined from religious, artistic, and political perspectives. Prerequisites: three credits of Art History or REL 021.

**ARTH 187. D2: Chinese Painting. 3 Credits.**

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 permission. Alternate years.

**ARTH 188. D2: Indian Painting. 3 Credits.**

Mural, manuscript, and miniature painting of India from the 5th to the 19th centuries. Topics include: religious and literary themes, courtly culture, portraiture, regional and individual artistic styles. Prerequisite: Three hours of Art History.



**ARTH 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisites: Six hours in Art History at the 100-level; Art History or Art Education major; minimum Junior standing; faculty sponsor permission and contract required.

**ARTH 192. D2:Inter Spec Topics Asian Art. 3 Credits.**

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

**ARTH 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion. Prerequisite: Six hours in Art History at the 100-level; Art History or Art Education major; minimum Junior standing; faculty sponsor permission and contract required.

**ARTH 195. Intermediate Special Topics. 1-18 Credits.**

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

**ARTH 196. Intermediate Special Topics. 1-18 Credits.**

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

**ARTH 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. A contract must be obtained from and returned to the Department of Art and Art History before the end of the course add period. Prerequisites: Six hours of Art History courses at the 100-level; Junior standing; Departmental permission.

**ARTH 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Six hours in Art History at the 100-level; Art History or Art Education major; minimum Junior standing; faculty sponsor permission and contract required.

**ARTH 199. Topics:Gender,Race,Ethn in Art. 3 Credits.**

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 permission. Prerequisite: Three hours in Art History.

**ARTH 282. Seminar in Western Art. 3 Credits.**

Selected topics in Western Art. See Schedule of Courses for specific offerings each semester. Prerequisites: Six hours of 100-level Art History, including three hours in the area of the seminar; Minimum Junior standing.

**ARTH 285. D2: Seminar in Asian Art. 3 Credits.**

Selected topics in Asian Art. Prerequisites: ARTH 008 or ARTH 184 or ARTH 185 or ARTH 186 or ARTH 187 or ARTH 188 or ARTH 192, and three additional hours in Art History or Asian Studies at the 100-level or above.

**ARTH 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. A contract must be obtained from and returned to the Department of Art and Art History before the end of the course add period. Prerequisites: Six hours of Art History courses at the 100-level; Junior standing; departmental permission.

**ARTH 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ARTH 295. Adv Special Topics:Art History. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ARTH 296. Adv Special Topics:Art History. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ARTH 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. A contract must be obtained from and returned to the Department of Art and Art History before the end of the course add period. Prerequisites: Six hours of Art History courses at the 100-level; Junior standing; departmental permission.

**ARTH 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Department permission.

**ART STUDIO (ARTS)****Courses****ARTS 001. Drawing. 3 Credits.**

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.

**ARTS 003. Three-Dimensional Studies. 3 Credits.**

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

**ARTS 012. Perspectives on Art Making. 3 Credits.**

Introduction to contemporary art practice in various media. Explores method and meaning in art making, the role of experimentation, and the translation of experience into artwork.

**ARTS 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. A contract must be obtained from and returned to the Department of Art and Art History before the end of the course add period. Prerequisites: Six hours of Studio Art courses at the 100-level; Junior standing; departmental permission.

**ARTS 095. Introduction to Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ARTS 096. Introduction to Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ARTS 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ARTS 113. Clay: Hand Building. 3 Credits.**

Investigation of surfaces and three-dimensional forms. Focus on variety of construction methods, surface treatment, and firing techniques. Related clay and glaze technology. Prerequisite: ARTS 012.

**ARTS 114. Clay: Wheel Throwing. 3 Credits.**

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: ARTS 012.

**ARTS 115. Intermediate Drawing. 3 Credits.**

Intensive investigation of drawing and elements related to the discipline. Focus on expanding techniques and developing strategies for making drawings. Prerequisites: ARTS 001.

**ARTS 121. Painting: Observation & Image. 3 Credits.**

Exploration of the formal and conceptual practices of painting. Introduction of historical genres and issues in painting such as still life, figuration, and abstraction. Prerequisites: ARTS 001.

**ARTS 122. Painting: Color and Invention. 3 Credits.**

Exploration of the role of color in painting. Projects will foster comprehension of color vocabulary and a critical understanding necessary for the effective use of color. Prerequisite: ARTS 001.

**ARTS 132. Printmaking: Silkscreen. 3 Credits.**

Studio class focusing on procedures in stencil printing that use photo-silkscreen technology. Prerequisites: ARTS 001 or ARTS 012.

**ARTS 134. Color Structures in Silkscreen. 3 Credits.**

A mixed-level class in silkscreen with emphasis on color and color printing techniques. Prerequisites: ARTS 001 or ARTS 012.

**ARTS 137. Photography. 3 Credits.**

Introduction to making black-and-white photographs, emphasizing craft and conceptual problem solving. Students gain skill in camera operation, printing, and producing work of an individual nature. Prerequisites: ARTS 012 or FTS 007 or FTS 008 or FTS 010.

**ARTS 138. Color Photography. 3 Credits.**

Use of digital cameras, Adobe Photoshop, and inkjet printing processes as means for description, analysis, and expression of experience. Prerequisite: ARTS 012.

**ARTS 139. Animation. 3 Credits.**

Methods of frame-by-frame moving picture making. Emphasizes the aesthetic, expressive, and conceptual qualities of manual techniques. Prerequisites: ARTS 001 or FTS 007 or FTS 008 or FTS 010.

**ARTS 141. Sculpture. 3 Credits.**

Introduction to making and critiquing sculpture. Using visual elements of sculpture and concepts of 3D design, students establish a foundation for individualized inquiry and experimentation. Conceptual, practical, and analytical skills are developed through presentations, research, writing, problem solving, and critiques. Prerequisites: ARTS 001 or ARTS 012.

**ARTS 144. Digital Art. 3 Credits.**

Exploration of the computer as an artistic medium, focusing on a variety of approaches for creating and displaying imagery. Prerequisites: ARTS 001 or 012.

**ARTS 145. Graphic Design. 3 Credits.**

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. Prerequisites: ARTS 001 or ARTS 012.

**ARTS 148. Introduction to Video Art. 3 Credits.**

Study of the conceptual and technical aspects of experimental and avant-garde film and video through exercises, viewing, reading and discussion, and creating films. Prerequisites: ARTS 012 or FTS 007 or FTS 008 or FTS 010.

**ARTS 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisites: Six hours in Studio Art at the 100-level; Studio Art or Art Education major; minimum Junior standing; faculty sponsor permission and contract required.

**ARTS 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion. Prerequisite: Six hours in Studio Art at the 100-level; Studio Art or Art Education major; minimum Junior standing; faculty sponsor permission and contract required.

**ARTS 195. Intermediate Special Topics. 1-18 Credits.**

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

**ARTS 196. Intermediate Special Topics. 1-18 Credits.**

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

**ARTS 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Six hours in Studio Art at the 100-level; Studio Art or Art Education major; minimum Junior standing; faculty sponsor permission and contract required.

**ARTS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ARTS 213. Advanced Ceramics. 3 Credits.**

Advanced investigations of methods exploring content, form, surface, and color of ceramics and elements related to the discipline. Prerequisite: ARTS 113 or ARTS 114; minimum Junior standing.

**ARTS 215. Advanced Drawing. 3 Credits.**

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: ARTS 115 or ARTS 116; minimum Junior standing.

**ARTS 221. Projects in Painting. 3 Credits.**

Further exploration of formal and conceptual concerns through studio work and critique. Each student will develop a coherent body of paintings. Prerequisite: ARTS 012, and ARTS 121 or ARTS 122; minimum Junior standing.

**ARTS 230. Projects in Printmaking. 3 Credits.**

Students conceive, research, develop, and realize their own projects in the print studio. Prerequisites: ARTS 131 or ARTS 132 or ARTS 134; minimum Junior standing.

**ARTS 237. Advanced Photography. 3 Credits.**

Continuation of ARTS 137 and ARTS 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 ARTS 138; minimum Junior standing.

**ARTS 241. Advanced Sculpture. 3 Credits.**

Advanced investigation of sculpture. Students develop a personal and disciplined approach to making art through independent exploration within a structured environment. Students design individual projects that include aspects of research and writing. Group discussion and analysis of work are ongoing. Prerequisite: ARTS 141; minimum Junior standing.

**ARTS 244. Advanced Digital Art. 3 Credits.**

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. Prerequisites: ARTS 138 or ARTS 144 or ARTS 145; minimum Junior standing.

**ARTS 248. Advanced Film/Video Projects. 3 Credits.**

Advanced study of the principles, properties, and potentials of film and video through production viewing, reading, and discussion. Includes self-directed individual and collective projects. Prerequisites: ARTS 148 or FTS 141; minimum Junior standing.

**ARTS 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. A contract must be obtained from and returned to the Department of Art and Art History before the end of the course add period. Prerequisites: Six hours of Studio Art courses at the 100-level; Junior standing; departmental permission.

**ARTS 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ARTS 295. Special Topics in Studio Art. 1-18 Credits.**

Advanced course or seminar on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: 100-level Art Studio course in the studio area of the special topic.

**ARTS 296. Special Topics in Studio Art. 1-18 Credits.**

Advanced work in existing departmental offerings. Prerequisite: Instructor permission only.

**ARTS 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Six hours in Studio Art at the 100-level; Studio Art or Art Education major; minimum Junior standing; faculty sponsor permission and contract required.

**ARTS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**A&S INTERDISCIPLINARY (AS)****Courses****AS 020. Academic Success Strategies. 1 Credit.**

Overview of core skills needed to help students achieve academic success, at any point in their educational journey. Students will have the opportunity to both strengthen and practice essential academic skills including time-management, note taking, testing, effective listening, goal setting, and study skills.

**AS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**AS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.



**AS 095. Intro Interdisc Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. May be repeated for credit with different content.

**AS 096. Intro Interdisc Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. May be repeated for credit with different content.

**AS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded.

**AS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**AS 195. Intmd Interdisc Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. May be repeated for credit with different content.

**AS 196. Intmd Interdisc Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. May be repeated for credit with different content.

**AS 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**AS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**AS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**AS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**AS 295. Advcd Interdisc Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. May be repeated for credit with different content.

**AS 296. Advcd Interdisc Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. May be repeated for credit with different content.

**AS 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**AS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## ASTRONOMY (ASTR)

### Courses

**ASTR 005. Exploring the Cosmos. 3 Credits.**

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

**ASTR 023. Astr Lab I: Measuring the Sky. 1 Credit.**

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

**ASTR 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ASTR 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ASTR 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ASTR 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ASTR 153. Moons & Planets. 3 Credits.**

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.

**ASTR 155. The Big Bang. 3 Credits.**

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.

**ASTR 157. Stars & Galaxies. 3 Credits.**

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.

**ASTR 177. Spacecraft Astronomy. 3 Credits.**

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.

**ASTR 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ASTR 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ASTR 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ASTR 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ASTR 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ASTR 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ASTR 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ASTR 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ASTR 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ASTR 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ASTR 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ASTR 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## ATHLETIC TRAINING (AT)

### Courses

**AT 091. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**AT 093. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**AT 161. Practicum in Athletic Trng III. 1 Credit.**

Course three in a series of practicum courses that sequentially develop clinical skills in a laboratory learning environment.

**AT 162. Practicum in Athletic Trng IV. 1 Credit.**

Course four in a series of practicum courses that sequentially develop clinical skills in a laboratory learning environment.

**AT 168. Directed Obsv. in Athl Trng. 1 Credit.**

Students will be expected to complete 60 hours of directed observation experience in the athletic training setting, or as assigned by the Instructor.

**AT 171. Clinical Experience in AT III. 1 Credit.**

Students gain clinical experiences under the direct supervision of an ATEP approved preceptor.

**AT 172. Clinical Experience in AT IV. 1 Credit.**

Students gain clinical experiences under the direct supervision of an ATEP approved preceptor.

**AT 173. Clinical Experience in AT V. 6-12 Credits.**

The senior clinical experience shall consist of supervised fieldwork designed to give students a culminating experience for their professional development. These traditionally consist of both on and off-campus experiences in various settings including high-school, college, orthopedic clinics, and research. Prerequisites: Senior standing in Athletic Training Education Program.

**AT 174. Clinical Experience in AT VI. 6-12 Credits.**

The senior clinical experience shall consist of supervised fieldwork designed to give students a culminating experience for their professional development. These traditionally consist of both on and off-campus experiences in various settings including high-school, college, orthopedic clinics, and research. Prerequisites: Senior standing in Athletic Training Education Program.

**AT 187. Rehabilitation Techniques. 3 Credits.**

Post-injury and post-operative rehabilitation and conditioning techniques involved in returning an active individual to normal and athletic activity. Pre/co-requisite: AT 157, AT 158, AT 184.

**AT 189. Recog & Tx of Med Cond in AT. 3 Credits.**

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. Prerequisites: Junior standing; Athletic Training Major.

**AT 190. Senior Seminar in AT I. 2 Credits.**

This seminar serves to promote professional development and demonstration of ATEP proficiency skills through assignments and discussion. This includes creating individualized development plans, resume building, graduate school application/job searching, and preparation for the Board of Certification (BOC) exam for ATs. Prerequisite: Senior standing in Athletic Training Education Program.



**AT 191. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**AT 192. Senior Seminar in AT II. 2 Credits.**

This seminar serves as a capstone senior course with a primary focus on preparation for the Board of Certification (BOC) exam for ATs. Students also present a case study or debate a current professional topic in preparation for professional matriculation. Prerequisites: AT 159, AT 160, AT 161, AT 162, AT 184, AT 185, AT 187, AT 189, AT 190, RMS 188, RMS 244.

**AT 193. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**AT 196. Special Topics. 1-6 Credits.****AT 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**AT 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**AT 220. Evidence-Based Practice in AT. 3 Credits.**

Teaches basic evidence-based practice knowledge and skills, and apply findings to practice as a health care professional. Topics addressed include EBP research methods, research study design, statistics, and evaluation of research evidence as they apply to athletic training clinical practice and decision making. Prerequisites: Minimum Junior standing; Athletic Training major.

**AT 291. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**AT 293. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**AT 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**AT 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BIOCHEMISTRY (BIOC)****Courses****BIOC 001. Biochem: Modern Perspect I. 1 Credit.**

This is Part I of a sequence to help students develop an understanding of what the field of biochemistry is, its core principles, and what biochemists do. Prerequisites: Biochemistry major, First-year standing.

**BIOC 002. Biochem: Modern Perspect II. 1 Credit.**

This is Part 2 of a sequence to help students develop an understanding of what the field of biochemistry is, its core principles, and what biochemists do. Prerequisites: Biochemistry major, First-year standing.

**BIOC 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BIOC 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BIOC 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOC 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOC 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BIOC 191. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Written report due at end of each semester. Prerequisite: Instructor permission. Credit as arranged, up to four hours per semester.

**BIOC 192. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Written report due at end of each semester. Prerequisite: Instructor permission.

**BIOC 193. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BIOC 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**BIOC 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOC 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOC 201. Fundamentals of Biochemistry. 3 Credits.**

Provides a broad introduction to the field of biochemistry.

Students will explore the molecular basis and chemical principles of biochemistry pertinent to living systems. This course is taught by LCOM faculty and emphasizes the relevance of biochemistry to health, disease, physiology and medicine. Prerequisites: CHEM 026, CHEM 042, CHEM 048, CHEM 142, or equivalent; BIOL 002, BCOR 012, BCOR 103, or equivalent.

**BIOC 205. Biochemistry I. 3 Credits.**

Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisite: CHEM 048 or CHEM 142 or CHEM 144. Cross-listed with: CHEM 205 and MMG 205.

**BIOC 206. Biochemistry II. 3 Credits.**

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, CHEM 205, or MMG 205. Cross-listed with: CHEM 206, MMG 206.

**BIOC 207. Biochemistry Lab. 3 Credits.**

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

**BIOC 240. Macromol Struct Prot&Nucl Acid. 3 Credits.**

Introduction to structural biology and macromolecular structure with an emphasis on protein-protein and protein-nucleic acids interactions. Prerequisites: BIOL 002 or BCOR 012, and CHEM 142; Junior standing. Cross-listed with: MMG 240. Alternate years.

**BIOC 263. Nutritional Biochemistry. 3 Credits.**

Comprehensive study of the metabolism of the macro-nutrients by humans with emphasis on hormonal control of biochemical pathways, nutritional and metabolic interrelationships and dietary disorders. The biochemistry of the micronutrients and vitamins will also be studied. Prerequisite: BIOC 205 or PBIOL 185.

**BIOC 275. Adv Biochem of Human Disease. 3 Credits.**

The course takes a deep dive into five distinct areas of biochemistry related to a disease or group of diseases primarily through group learning. Key biochemical principles are reviewed and extended. Additionally students will read and discuss a primary literature article with each area. Prerequisites: NSF 183, BIOC 201, or BIOC 205.

**BIOC 284. Biochemistry Senior Seminar. 1 Credit.**

Oral and written presentation of a subject of current biochemical interest. Prerequisite: Senior standing.

**BIOC 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BIOC 292. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BIOC 293. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BIOC 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**BIOC 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOC 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOCORE (BCOR)****Courses****BCOR 011. Exploring Biology. 0 or 4 Credits.**

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.

**BCOR 012. Exploring Biology. 0 or 4 Credits.**

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.

**BCOR 021. Accelerated Biology. 0-4 Credits.**

Selected topics from the full year of introductory biology, compressed into one semester. For students with demonstrated mastery of basic biology (e.g., AP credit). Permission required. Credit not given for BCOR 021 and BIOL 001 or BCOR 011. Pre/co-requisite: Concurrent enrollment or credit in CHEM 031, CHEM 035, or CHEM 051.

**BCOR 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BCOR 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BCOR 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BCOR 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BCOR 101. Genetics. 0 or 3 Credits.**

The basis of inheritance, covering topics from classical genetics to modern molecular studies. Analysis of genetic data emphasized, from prokaryotic, animal, and plant systems. Prerequisites: [(BCOR 011 or BIOL 001) and (BCOR 012 or BIOL 002)], or BCOR 021; and also CHEM 031, or CHEM 035, or CHEM 051.

**BCOR 102. SU:Ecology and Evolution. 0 or 4 Credits.**

Ecosystem and community structure, population growth, species interactions and niche dynamics, population and chromosomal genetics, speciation in fossil records, ecology of animal behavior, applied ecology. Prerequisites: BIOL 001 and BIOL 002, or BCOR 011 and BCOR 012, or BCOR 021; MATH 019 or MATH 021.

**BCOR 103. Molecular and Cell Biology. 0 or 4 Credits.**

Explores the fundamental processes of life. Topics include cellular metabolism; structure and function of organelles; cell cycle; signal transduction; biology of cancer. May not be taken concurrently with, or following receipt of, BIOL 106. Prerequisites: BIOL 001 or BCOR 011, and BIOL 002 or BCOR 012; or BCOR 021; and also CHEM 031 or CHEM 035 or CHEM 051, and CHEM 032 or CHEM 036 or CHEM 052. CHEM 141, BCOR 101 recommended.

**BCOR 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BCOR 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BCOR 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BCOR 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BCOR 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**BCOR 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BCOR 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BCOR 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BCOR 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BCOR 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BCOR 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**BCOR 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BIOENGINEERING (BIOE)****Courses****BIOE 295. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOE 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOLOGICAL SCIENCES (BSCI)****Courses****BSCI 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BSCI 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BSCI 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BSCI 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BSCI 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.



**BSCI 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BSCI 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BSCI 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Research advisor and Department Chair permission. Credit as approved with maximum of six hours for undergraduate program.

**BSCI 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BSCI 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**BSCI 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BSCI 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BSCI 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Arrangements are made with individual faculty members and Biological Sciences Program Director approval. Pre/co-requisites: BSCI 198 or Advisor permission.

**BIOLOGY (BIOL)****Courses****BIOL 001. Principles of Biology. 0 or 4 Credits.**

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.

**BIOL 002. Principles of Biology. 0 or 4 Credits.**

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 BIOL 002 and BCOR 012.

**BIOL 003. Human Biology. 3 Credits.**

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

**BIOL 004. The Human Body. 0 or 3 Credits.**

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.

**BIOL 006. Evolutionary Biology. 3 Credits.**

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.

**BIOL 010. First-year Life Sci Seminar. 1 Credit.**

Supports first-year Life Science students in their transitions to a college-level science curriculum through exposure to resources, promotion of beneficial study habits, and the establishment of a classroom community.

**BIOL 013. Human Biology Laboratory. 1 Credit.**

For nonscience majors. Optional virtual laboratory available for BIOL 003. Selected biological concepts and topics relevant to humans, such as cancer, human genetics, environmental toxicants.

**BIOL 014. The Human Body Laboratory. 1 Credit.**

For nonscience majors. Optional virtual laboratory for BIOL 004. Introduction to basic human anatomy and organ system physiology emphasizing normal and diseased homeostatic mechanisms.

**BIOL 016. Evolutionary Biology Lab. 1 Credit.**

Laboratory that accompanies BIOL 006. Co-requisite: BIOL 006.

**BIOL 086. D1: Intro to Forensic Biology. 3 Credits.**

Covers crime scene investigation, methods of evidence collection and analysis, cause of death, and DNA identification in the context of biases that can influence the processing, interpretation, and use of evidence in the US court system.

**BIOL 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BIOL 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BIOL 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOL 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOL 098. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BIOL 108. Molecular and Cell Biology. 3 Credits.**

Explores the fundamental processes of life. Topics include cellular metabolism; structure and function of organelles; cell cycle; signal transduction; biology of cancer. CHEM 141, BCOR 101 recommended. May not be taken concurrently with, or following receipt of credit for BCOR 103. Prerequisites: BIOL 001 or BCOR 011 and BIOL 002 or BCOR 012; or BCOR 021; also CHEM 031. Pre/Co-requisite: CHEM 032.

**BIOL 188. Soundscapes and Behavior Rsch. 3 Credits.**

Students will participate in all aspects of a research project while learning to navigate the messiness of real-world data. Students will develop research questions on topics related to marine soundscape ecology, marine animal bioacoustics, and cetacean ecology, behavior, and conservation. Prerequisites: BIOL 002 or BCOR 012 or BCOR 021.

**BIOL 189. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**BIOL 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BIOL 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BIOL 195. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOL 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOL 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Pre/co-requisites: Junior/Senior standing; Department permission.

**BIOL 199. Introduction to Marine Science. 3 Credits.**

An overview of concepts and process in oceanography, geology, ecology, evolution, organismal biology, and conservation. Some of the topics we will discuss in class include tsunamis, ocean chemistry and physics, and bioluminescence. Prerequisites: (BIOL 001 or BCOR 011) and (BIOL 002 or BCOR 012); or BCOR 021.

**BIOL 204. Adv Genetics Laboratory. 4 Credits.**

Laboratory experiments to provide experience with modern genetic techniques. Bench work and data analysis emphasized. Prerequisite: BCOR 101.

**BIOL 205. Adv Genetics & Proteomics Lab. 4 Credits.**

Laboratory experiments to provide experience with modern genetic and proteomics techniques. Bench work and data analysis are emphasized. Prerequisites: BCOR 101, BCOR 103.

**BIOL 209. Field Zoology of Arthropods. 0 or 4 Credits.**

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

**BIOL 212. Comparative Histology. 0 or 4 Credits.**

Anatomy of tissues, chiefly vertebrate. Tissue similarities and specializations of organs among the various groups of animals in relation to function. Prerequisite: BCOR 103.

**BIOL 217. Mammalogy. 0 or 4 Credits.**

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

**BIOL 219. Compar/Func Vertebrate Anatomy. 4 Credits.**

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

**BIOL 223. Developmental Biology. 3 Credits.**

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

**BIOL 241. Human Diversity and Evolution. 3 Credits.**

Advanced seminar integrating perspectives from biology and biological anthropology to investigate human evolution and diversity. Through critical analysis, reflective and analytical writing, and discussion, we will engage with a broad range of readings from both disciplines. Prerequisites: BCOR 101 or (ANTH 026 and one 100-level Anthropology course); Minimum Junior standing. Cross-listed with: ANTH 241.

**BIOL 242. Research in Hum Biol Diversity. 4 Credits.**

Lab-based course that explores methods from biology and biological anthropology to study human evolution and diversity through skeletal anatomy and genetic analyses. Heavy focus on research design and proposal development, literature research, data collection and interpretation, and dissemination of results. Prerequisites: BCOR 101 or (ANTH 026 and one 100-level Anthropology course); Minimum Junior standing. Cross-listed with: ANTH 242.

**BIOL 254. Population Genetics. 0-4 Credits.**

Methods of detecting and investigating genetic variation, as well as its causes and consequences. Applications from medicine, forensics, and environmental biology are emphasized. Prerequisite: BCOR 101 or BCOR 102.

**BIOL 255. Comparative Physiology. 0 or 4 Credits.**

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

**BIOL 261. Neurobiology. 3 Credits.**

Focus on molecular and cellular aspects of the nervous system. Electrical signaling, synaptic transmission, signal transduction, neural development, plasticity, and disease. Prerequisite: BCOR 103 or NSCI 111.



**BIOL 264. Community Ecology. 3 Credits.**

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

**BIOL 265. Developmental Molecular Genetics. 3 Credits.**

Current topics in developmental genetics explored through lectures and discussions of current literature; emphasis on molecular approaches. Prerequisite: BCOR 101.

**BIOL 266. Neurodevelopment. 3 Credits.**

Current topics in developmental neurobiology through lectures and discussions of primary literature. The course is designed for advanced undergraduate life science majors and graduate students in the biological sciences. Pre/co-requisites: BCOR 101 and BCOR 103.

**BIOL 269. Plant-Animal Interactions. 3 Credits.**

Ecological and evolutionary interactions among plants and animals. Topics include herbivory, pollination, seed predation, ant-plant interactions, biological control, and anthropogenic effects on plant-animal interactions including the effects of GMOs and global climate change. Prerequisites: BCOR 102.

**BIOL 271. Evolution. 3 Credits.**

Basic concepts in evolution will be covered, including the causes of evolutionary change, speciation, phylogenetics, and the history of life. Pre/co-requisites: BCOR 102 or permission of the Instructor.

**BIOL 274. Marine Mammal Biology. 4 Credits.**

Travel course that introduces students to the biology of aquatic mammals and gets them involved in field research. Prerequisites: BCOR 102 or WFB 150.

**BIOL 275. Human Genetics. 3 Credits.**

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.

**BIOL 276. Behavioral Ecology. 3 Credits.**

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

**BIOL 277. Sociobiology. 3 Credits.**

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.

**BIOL 288. Seminar in Forensic Biology. 1 Credit.**

Capstone course in seminar format for undergraduates concentrating in Forensic Biology in the Biology major; discussions, readings, guest speakers. Pre/co-requisite: BCOR 101 or ANTH 026.

**BIOL 289. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**BIOL 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BIOL 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BIOL 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOL 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BIOL 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Pre/co-requisites: Minimum Junior standing; Department permission.

## BIOMEDICAL AND HEALTH SCIENCES (BHSC)

### Courses

**BHSC 034. Human Cell Biology. 0 or 4 Credits.**

Lecture and laboratory experiences about molecular and cellular structure, function and physiology using human cells as the model.

**BHSC 054. Principles of Microbiology. 3 Credits.**

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

**BHSC 056. Principles of Microbiology Lab. 1 Credit.**

Laboratory experiences dealing with the structure, physiology, and control of microorganisms, particularly those of medical importance. Co-requisite: BHSC 054.

**BHSC 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BHSC 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BHSC 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BHSC 098. Intro to Scientific Writing. 3 Credits.**

Introduction to the principles and practices of research and writing in the biomedical and health sciences. Using scientific data and literature as a foundation, students will write in multiple genres through regular assignments applicable to future course work and health science professions. Pre/Co-requisites: ENGS 001 or a TAP course or equivalent or Instructor permission; Radiation Medical Science, Medical Laboratory Sciences, and Health Sciences majors only.

**BHSC 110. Phlebotomy. 1 Credit.**

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. Prerequisite: Medical Laboratory Science and Medical Laboratory Science Post-Baccalaureate Certificate students only.

**BHSC 140. Radiation Science. 4 Credits.**

Provides a broad based understanding of the fundamentals of radiation science including the ways in which radiation is produced and utilized, the principles of radioactive decay, radiation exposure, absorbed dose, shielding and detection of radiation. Prerequisite: MATH 019 or MATH 021.

**BHSC 141. Advanced Radiation Science. 3 Credits.**

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: MATH 009, MATH 010, MATH 019 or MATH 021.

**BHSC 175. Cross Sectional Imaging. 3 Credits.**

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: ANPS 020.

**BHSC 188. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**BHSC 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BHSC 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BHSC 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BHSC 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Department Permission.

**BHSC 242. Immunology. 3 Credits.**

Deals with cells, organs, development, interactions and the functioning (infectious process, immunodeficiency, hypersensitivity reactions, transplantation and tumor immunology) of the innate and the adaptive immune system. Prerequisites: One semester of biochemistry, one semester of organic chemistry.

**BHSC 244. Immunology Lab. 1 Credit.**

Laboratory experience dealing with cellular and humoral immunity, B cells and T cells, autoimmunity, immunodeficiency. Laboratory covers immunological techniques and applications. Prerequisites: One semester of biochemistry, one semester of organic chemistry. Co-requisites: BHSC 242 or MMG 223.

**BHSC 281. Applied Molecular Biology. 3 Credits.**

Introduces students to the nucleic acid and protein-based molecular diagnostics technology through class presentation, reading, and discussions. Focuses on diagnostic applications for understanding molecular mechanisms of disease. Prerequisite: CHEM 042 or CHEM 141.

**BHSC 282. Applied Molecular Biology Lab. 1 Credit.**

Laboratory experiences include practical concepts of molecular applications. Introduces basic methods used in DNA and Protein technology including plasmid isolation, polymerase chain reaction, restriction enzyme use, and related assays. Prerequisite: CHEM 042 or CHEM 141. Co-requisite: BHSC 281.

**BHSC 288. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**BHSC 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BHSC 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BHSC 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Department permission.

**BHSC 297. Leadership & Mgt in Hlth Care. 3 Credits.**

Familiarizes students with operational aspects of health care management, leadership and policy. Explores current techniques in process improvement, management methodologies, and healthcare policy with a special focus on disparities in health and healthcare. Prerequisites: Minimum Junior standing; College of Nursing and Health Sciences majors.

**BHSC 298. Undergraduate Research. 1-18 Credits.**

Individual research performed under the supervision of a faculty mentor. A written report and seminar is required. Prerequisite: Department Permission.

## BIOMEDICAL ENGINEERING (BME)

### Courses

#### **BME 001. Intro to Biomedical Eng Design. 0 or 2 Credits.**

Introduction to the biomedical engineering profession. Hands-on experiences that emphasize interdisciplinary teamwork, technical communications, and project design methodologies. Co-requisite: ENGR 002.

#### **BME 010. BME Design 0. 0 or 2 Credits.**

Introduction to the biodesign methodology. Hands-on design experiences that emphasize inter-disciplinary teamwork, technical communication, and engineering ethics.

#### **BME 011. Core 1: Biomechanics & Sensing. 0 or 6 Credits.**

Studio-style course that fuses lecture with project-based learning and laboratory exercises. Covers force and torque vectors, systems in equilibrium, physical properties of human body segments and biological systems, kinematics and kinetics of particles and rigid bodies, stress and strain of solid materials, circuits and instrumentation.

#### **BME 012. Core 2: Materials & Transport. 0 or 6 Credits.**

Studio-style course that fuses lecture with project-based learning and laboratory exercises. Covers materials related to medical devices, the biological reaction to implanted medical devices, and associated failure mechanisms. Diffusive and convective mass transport in biochemical interactions, oxygen transport, cell adhesion/signaling, drug and macromolecule transport. Prerequisite: BME 011.

#### **BME 013. BME Design 1. 0 or 1 Credits.**

Introduction to ISO standards, FDA, quality control, and regulatory processes. Case studies of BME Capstone Design I teams. Prerequisite: BME 001 or equivalent.

#### **BME 014. BME Design 2. 0 or 1 Credits.**

Introduction to verification/validation testing. Case studies of BME Capstone Design II teams. Prerequisite: BME 013.

#### **BME 081. Biomedical Eng Lab I. 0 or 2 Credits.**

Laboratory experiments pertaining to biomedical instrumentation and biomechanics. Computer-based modeling of biological networks.

#### **BME 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

#### **BME 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

#### **BME 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

#### **BME 111. Core 3: Systems & Signals. 0 or 6 Credits.**

Studio-style course that fuses lecture with project-based learning and laboratory exercises. Covers linear modeling of biological systems with mechanical, electrical, fluidic, and thermal elements, continuous/discrete-time descriptions of signals and linear systems, fourier and Laplace analysis and feedback systems, collection and processing of signals and images. Prerequisite: BME 012.

#### **BME 112. BME Design 3. 0 or 2 Credits.**

Industry-standard biodesign and project management processes. Application of principles to small-scale team-based design projects in collaboration with existing BME Capstone Design teams and to identify future Capstone projects. Shop training. Prerequisite: BME 014.

#### **BME 151. Fall BME Workshop. 0 or 1 Credits.**

Seminars and lab tours to provide biomedical context to concurrently taken engineering courses. Professional development including guidance and review of resume, cover letter, and personal statement.

#### **BME 152. Spring BME Workshop. 0 or 1 Credits.**

Guest speakers and seminars to provide biomedical design examples, ethics, and insight to the biomedical engineering design process including regulatory processes.

#### **BME 181. Biomedical Eng Lab II. 0 or 2 Credits.**

Laboratory experiments including those related to biomedical sensing and instrumentation, biomechanics, tissue engineering, and/or computer-based modeling of biological networks. Prerequisite: BME 081.

#### **BME 185. BME Capstone Design I. 0 or 3 Credits.**

Teams apply industry-standard biodesign and project management processes to design, build, and test a functional prototype that meets their client's requirements. Prerequisite: BME 112.

#### **BME 186. BME Capstone Design II. 0 or 3 Credits.**

Teams refine their functional prototype from BME Capstone Design I and explore approaches for manufacturing at scale, regulatory strategy, clinical strategy, IP strategy, health-economics and reimbursement. Prerequisite: BME 185.

#### **BME 187. Capstone Design I. 3 Credits.**

Project-based course. Multidisciplinary teams apply their knowledge to design, analyze, build and test a functional prototype that meets client's requirements and solves unique problems. Teams follow engineering design and project management processes such as periodic reports, presentations, meetings, reviews and demonstrations using standard industry tools. Prerequisite: EE 120 or EE 171, and EE 184 or Instructor permission; or Senior standing in Mechanical or Biomedical Engineering. Cross-listed with: EE 187, ME 185.

#### **BME 188. Capstone Design II. 3 Credits.**

Project-based course. Multidisciplinary teams apply their knowledge to design, analyze, build and test a functional prototype that meets client's requirements and solves their problems. Teams follow engineering design and project management processes such as periodic reports, presentations, meetings, reviews and demonstrations using standard industry tools. Prerequisite: Senior standing. Cross-listed with: EE 188, ME 186.



**BME 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BME 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BME 193. College Honors. 3-6 Credits.**

Honors studies leading to a thesis. Prerequisite: CEMS 101.

**BME 194. College Honors. 3-6 Credits.**

Honors studies leading to a thesis. Prerequisite: BME 193.

**BME 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BME 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**BME 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BME 199. Cooperative Ed Experience. 12 Credits.**

On-site, full-time, supervised work experience in biomedical engineering or related field appropriate for sophomore or junior levels that also satisfies the overall educational objectives defined by the CEMS Engineering Co- op Program. Prerequisite: Sophomore or Junior; Biomedical Engineering major.

**BME 206. Biomechanics of Human Motion. 3 Credits.**

Biomechanics of Human Motion will describe the typical processes-from small scale protein interactions to large scale joint torques-that result in human locomotion. Clinical problems and athletic performance will be discussed. Students will learn about musculoskeletal tissues related to force generation/transmission and will perform kinematic/kinetic analyses. Prerequisite: Senior or Graduate student standing in Engineering, Instructor permission. Cross-listed with: ME 206.

**BME 227. Biomedical Instrumentation. 3 Credits.**

Measurement techniques for biomedical engineering research and industry, and health care institutions. Integrated biomedical monitoring, diagnostic, and therapeutic instrumentation. Prerequisite: EE 100 or EE 004. Co-requisite: EE 120, ANPS 020, or Instructor permission. Cross-listed with: EE 227.

**BME 240. Wearable Sensing. 3 Credits.**

Covers current state-of-the-art in wearable sensors and the biomechanical and physiological phenomena they are being used to measure. Emphasis will be given to applications related to human health and medicine. Prerequisite: ME 111 or EE 171 or equivalent with Instructor permission.

**BME 241. Biomedical Signal Processing. 3 Credits.**

Covers several important physiological signals often monitored in biomedical contexts (e.g. EMG, ECG, PPG). Content will include the physiology that generates the signals as well as the signal processing techniques (e.g., LTI filters, empirical mode and wavelet decomposition) and algorithms used for analysis. Prerequisite: ME 111 or EE 171 or equivalent with Instructor permission.

**BME 250. Nanobiomaterials. 3 Credits.**

Covers the classes of nanomaterials used biomedically, the biological response, and material testing. Content includes applications of nanomaterials in drug delivery, nano-topography of surfaces, sensors, and imaging as well as the topic of nanotoxicity. Prerequisite: ME 101 or equivalent with instructor permission.

**BME 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**BME 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BME 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**BME 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**BME 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BIOSTATISTICS (BIOS)****BUSINESS ADMINISTRATION (BSAD)****Courses****BSAD 002. Prof. Development Series I. 1 Credit.**

Seminar series focusing on engagement, career preparedness, and information literacy. Prerequisite: First-Year Business Administration major.

**BSAD 009. Personal Finance & Investing. 3 Credits.**

Analyze the process for making personal financial decisions; develop personal financial goals in view of an individual's background and emotions related to money, debt, spending habits, risk taking etc.; assess economic factors that influence financial planning.

**BSAD 010. SU:The Business Enterprise I. 0 or 3 Credits.**

This fundamental course provides instruction in how businesses work and what is required to excel and lead in today's work environment. Prerequisite: First-Year Business Administration major.

**BSAD 015. Business Communications. 3 Credits.**

Provides students a basic understanding of professional business communications. Prerequisite: Business Administration major; First-year/Sophomore standing.

**BSAD 020. The Business Enterprise II. 3 Credits.**

Provides an understanding of what managers do on a daily basis and the issues they face in running a business; including a basic introduction to the functional areas of business and the types of decisions involved. Prerequisite: BSAD 010.

**BSAD 025. Sustainable Bus Strategies. 3 Credits.**

Focus on the basics of strategic management to understand business choices and the sustainability of business organizations and their stakeholders. Prerequisites: EC 011, EC 012; MATH 019 or MATH 021; Business Administration major or minor; minimum Sophomore standing.

**BSAD 030. Decision Analysis. 3 Credits.**

Introduces students to the tools and techniques necessary for effective decision-making in business organizations operating in a complex and dynamic environment. Prerequisites: MATH 019 or MATH 021; STAT 141 or STAT 143 or EC 170; or PSYS 053 and PSYS 054; Business Administration, Computer Science and Information Systems, and Engineering Management majors; Business Administration Minor; Minimum Sophomore standing.

**BSAD 040. Information Technology. 3 Credits.**

An overview of the functional areas of business and the importance of information technology to the success of the organization with coverage of essential communication, problem solving and productivity tools employed in the modern enterprise. Prerequisites: Business Administration major.

**BSAD 060. Financial Accounting. 3 Credits.**

Introduction to the accounting system and generally accepted accounting principles that govern income determination and financial position presentation. Credit will be granted for only one of BSAD 060 or BSAD 065. Prerequisites: EC 011 or EC 012; MATH 019 or MATH 021; Business Administration, Computer Science & Information Systems, Dietetics, Nutrition & Food Science, Engineering Management major, Business Administration, Accounting minor; minimum Sophomore standing.

**BSAD 061. Managerial Accounting. 3 Credits.**

Introduction to use of accounting for planning, cost behavior, budgeting, analysis, and decision making. Prerequisites: BSAD 060; Business Administration, Engineering Management, Dietetics, Nutrition and Food Sciences, Computer Science & Information Systems major, Business Administration, Accounting minor; minimum Sophomore standing.

**BSAD 092. Independent Study. 1-3 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BSAD 094. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisites: Concurrent Internship; Instructor Permission.

**BSAD 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: Business Administration Major; minimum Sophomore standing.

**BSAD 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Minimum Sophomore standing.

**BSAD 101. Business Savvy. 3 Credits.**

Introduces non-business majors to the fundamentals of accounting, finance, marketing, operations, management, strategy. May be used by Business Administration minors to fulfill three credits of upper-level Business Administration electives. Prerequisites: Non-Business Administration major.

**BSAD 102. Prof. Development Series II. 1 Credit.**

Seminar series focusing on engagement, career preparedness and professional development. Prerequisites: BSAD 002; Business Administration major; minimum Sophomore standing.

**BSAD 117. Business Law I. 3 Credits.**

Concepts of law as related to business, including law of contracts, sales, bailments, and negotiable instruments, business and laws of agency, partnerships, and corporations. This course is not a prerequisite for BSAD 118. Prerequisites: EC 011, EC 012; Business Administration major or minor; minimum Sophomore standing.

**BSAD 118. Business Law II. 3 Credits.**

Concepts of law as related to business, including law of contracts, sales, bailment, and negotiable instruments, business and law agency, partnerships, and corporations. BSAD 117 is not a prerequisite for BSAD 118. Prerequisites: EC 011, EC 012; Business Administration major or minor; Minimum Sophomore standing.

**BSAD 119. Real Estate Law. 3 Credits.**

Provides an understanding of basic concepts of the laws that apply to the purchase, development, lease, management, and transfer of real property. Prerequisites: EC 011 and EC 012; Business Administration major or minor; minimum Sophomore standing.

**BSAD 120. Leadership & Org Behavior. 3 Credits.**

How people in organizations think and behave. Focuses on how leadership and motivation affect individuals and teams in the workplace and a global business context. Prerequisites: BSAD 010 or BSAD 020 or EC 011 or EC 012 or Instructor permission; Business Administration, Computer Science & Information Systems, Engineering Management, Dietetics, Nutrition & Food Sciences major; Business Administration minor, Sports Management minor or Instructor permission; minimum Junior standing.



**BSAD 124. Strat Corp Soc Responsibility. 3 Credits.**

Examines the interaction between corporations and society. As firms create wealth, their actions impact a variety of societal stakeholders who, in turn, shape the rules and expectations that businesses are expected to fulfill. Prerequisites: BSAD 120; Business Administration major or minor; or Instructor permission; minimum Junior standing.

**BSAD 125. Collaborate for Sustainability. 3 Credits.**

Provides a strategic perspective of identifying collaboration skills, challenges, and advantages that assist with the sustainability of businesses. Students will receive an introduction to collaboration theory and inter-firm collaboration for the purpose of sustainability. Prerequisites: BSAD 120, Business Administration majors and minors, minimum Sophomore standing.

**BSAD 127. D2: International Management. 3 Credits.**

Exploration of international business environments and management issues corporations encounter in these environments. Topics include cross-cultural differences, international corporate strategy and structure, cross-cultural communication, negotiation, and human resource management. Prerequisites: BSAD 120; Senior standing; Business Administration major or minor.

**BSAD 129. Ethics & Social Resp in Mgt. 3 Credits.**

Engages students in reflections on the role and purpose of business organizations in society and questions the sense of human action in these business organizations in order to face future global challenges in a socially responsible and sustainable way. Prerequisites: BSAD 010 or BSAD 120; Business Administration majors; Business Administration minors with Instructor permission; minimum Sophomore standing.

**BSAD 132. Political Envir of Business. 3 Credits.**

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. Prerequisites: EC 011, EC 012, BSAD 060; MATH 019 or MATH 021; STAT 141 or STAT 143 or EC 170 or PSYS 053 and PSYS 054; Minimum Junior standing; Business Administration, Engineering Management, Computer Science & Information Systems major; Business Administration minor.

**BSAD 137. Entrepreneurial Leadership. 3 Credits.**

Experiential course suitable for students aiming for leadership roles in an existing organization or for those who want to launch a new venture. Prerequisites: BSAD 120; Business Administration, Engineering Management major; Business Administration minor; Sports Management minor by permission; minimum Junior standing.

**BSAD 141. Info, Technology & Bus Systems. 3 Credits.**

Introduces business information systems and how they enable better managerial decision-making. Discusses problems in analyzing, designing, and implementing such systems. Prerequisites: EC 011, EC 012; MATH 019 or MATH 021; BSAD 030 or BSAD 040; STAT 141 or STAT 143 or EC 170 or PSYS 053 and PSYS 054; Business Administration, Engineering Management, Computer Science, Computer Science & Information Systems major; Business Administration minor; minimum Junior standing.

**BSAD 144. Database Management. 3 Credits.**

Covers the foundational knowledge of how databases are designed, built, and optimized for performance. Students will work with an enterprise database platform to understand how commercially available database products are used in the modern enterprise. Prerequisites: BSAD 040 or BSAD 141; Business Administration, Engineering Management, Computer Science & Information Systems major, Business Administration minor by permission; minimum Junior standing.

**BSAD 147. Green IT & Virtualization. 3 Credits.**

Analyzes the environmental, managerial, and economic benefits of emerging IT platforms for data center, systems continuity, remote workforce, and e-waste management. Prerequisites: BSAD 040 or BSAD 141; Business Administration, Engineering Management, Computer Science & Information Systems major; Business Administration minor by permission; minimum Junior standing.

**BSAD 148. Bus. Driven Decision Making. 3 Credits.**

Using Microsoft Excel and Tableau software, students will solve realistic business scenarios in areas related to finance, accounting, production and operations, sales and marketing, producing interactive data visualizations focused on business intelligence. Prerequisites: BSAD 040 or BSAD 141 or CS 021; Business Administration or Computer Science and Information Systems Majors, Business Administration minors; Minimum Junior standing.

**BSAD 150. Marketing Management. 3 Credits.**

The place of marketing in our economy. Analysis of the market structure by function, institutions, and commodities. Consumer and organizational activities reviewed. Prerequisites: EC 011, EC 012; MATH 019 or MATH 021; STAT 141 or STAT 143 or EC 170 or PSYS 053 and PSYS 054; Business Administration, Computer Science & Information Systems, Engineering Management majors; Business Administration minor; Sports Management minor with Instructor permission; minimum Junior standing.

**BSAD 153. Consumer Behavior. 3 Credits.**

Exploration and analysis of research evidence from marketing and behavioral science relevant to a theory of consumer behavior. Emphasis also given to research methodologies. Prerequisites: BSAD 150; Business Administration major or minor; minimum Junior standing.

**BSAD 155. Marketing Communications. 3 Credits.**

Emphasizes the coordination of advertising and sales promotion into cohesive promotional programs. Stresses the need to integrate promotional activity into the overall marketing strategy. Prerequisites: BSAD 150; Business Administration major or minor; minimum Junior standing.

**BSAD 156. Product Management. 3 Credits.**

Course provides an overview of product management. Key perspectives that shape the field including the new product development process will be emphasized. Prerequisites: BSAD 150; Business Administration major or minor; Minimum Junior standing.

**BSAD 161. Corporate Financial Reporting1. 3 Credits.**

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. Prerequisites: BSAD 060, BSAD 061; Business Administration major; Business Administration or Accounting minor; minimum Junior standing.

**BSAD 162. Corporate Financial Reporting2. 3 Credits.**

Continuation of Corporate Financial Reporting1, with emphasis on accounting and reporting of liabilities, owners' equity and related effect on income determination of an enterprise. Prerequisites: BSAD 161; Business Administration major, Business Administration or Accounting minor; minimum Junior standing.

**BSAD 169. Individual Taxation. 3 Credits.**

Highlights federal income tax concepts and rules applicable to individuals. Examines how the federal tax system accounts for items of income and expense in computing taxable income, considering both personal and business transactions. Prerequisites: BSAD 060 and BSAD 061; Business Administration majors; Accounting and Business Administration minors; minimum Junior standing.

**BSAD 173. Operations Management. 3 Credits.**

Introduces decisions related to the design, management, and improvement of activities that create and deliver a firm's products and services. Prerequisites: BSAD 030, BSAD 060; MATH 019 or MATH 021; STAT 141 or STAT 143 or EC 170 or PSYS 053 and PSYS 054; Minimum Junior standing; Business Administration, Engineering Management, Computer Science & Information Systems major; Business Administration minor.

**BSAD 180. Managerial Finance. 3 Credits.**

The financial function in the corporation. Techniques for evaluating current use of resources and proposed resource acquisitions or dispositions. Prerequisites: BSAD 060, STAT 141 or STAT 143 or EC 170 or PSYS 053 and PSYS 054; Business Administration, Computer Science & Information Systems, Engineering Management majors; or Business Administration minor; minimum Sophomore standing.

**BSAD 181. Intermediate Financial Mgmt. 3 Credits.**

Examines key areas of financial decision making. With cases and problems, issues such as capital budgeting, leasing, mergers, and acquisitions examined. Prerequisites: BSAD 180; Business Administration major or minor; Minimum Junior standing.

**BSAD 183. International Finance Mgmt. 3 Credits.**

Theories and practices of international financial management examined. Topics investigated include: systems of international exchange, spot and forward markets, and expropriation and exchange risk. Prerequisites: BSAD 180; Minimum Junior standing; Business Administration major or minor.

**BSAD 184. Free Markets & Free Enterprise. 3 Credits.**

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. Prerequisites: BSAD 180; Business Administration major or minor; minimum Junior standing.

**BSAD 187. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**BSAD 192. Business Process Improvement. 3 Credits.**

Familiarizes students with the basic conceptual issues of continuously improving business processes to compete more effectively on quality, time, and cost. Prerequisites: BSAD 040 or BSAD 141; Business Administration, Engineering Management, Computer Science & Information Systems major; Business Administration minor by permission; minimum Junior standing.

**BSAD 193. Honors Rsch Methods Seminar. 3 Credits.**

Prepares students for thesis requirement. Upon completion, students will be fully versed in the research process and understand different research methodologies. Prerequisites: Honors College Business Administration student; Junior standing.

**BSAD 194. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisites: BSAD 094; concurrent internship; Instructor permission.

**BSAD 195. Special Topics. 1-18 Credits.**

Specialized or experimental courses offered as resources permit. Prerequisite: Business Administration major or minor; Minimum Junior standing.

**BSAD 196. Special Topics. 1-18 Credits.**

Specialized or experimental courses offered as resources permit. Prerequisite: Business Administration major or minor; Minimum Junior standing.

**BSAD 198. Independent Study. 1-18 Credits.**

Tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Business Administration major; Instructor permission; Minimum Junior standing.

**BSAD 199. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BSAD 202. Prof. Development Series III. 1 Credit.**

Seminar series focusing on engagement and professional development with a focus on transitioning from University life to the work world. Prerequisites: BSAD 102; Business Administration major; minimum Junior standing.

**BSAD 222. Human Resource Management. 3 Credits.**

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. Prerequisites: BSAD 120; Business Administration major or minor; Master of Accountancy Graduate students; minimum Junior standing.

**BSAD 230. Tech, Entr & Commercialization. 3 Credits.**

Provides future business and technology professionals with insights into the processes of transferring research from the university to the marketplace, and transforming new technologies into sustainable products or services that create new economic, social and environmental value. Prerequisites: BSAD 150 or EMGT 201; Business Administration major or minor; Computer Science and Information Systems major; Engineering Management major; others by permission; minimum Junior standing.

**BSAD 235. Entrepreneurial Family Firms. 3 Credits.**

Students will learn to work effectively in and with family enterprises - the predominant organizational form in the world. By understanding their unique advantages and challenges, students will learn to develop strategic solutions to improve the family and business performance. Prerequisites: BSAD 120; Business Administration, Engineering Management major; Business Administration minor; minimum Junior standing.

**BSAD 246. Taxation of Social Enterprises. 3 Credits.**

Explores the balance that organizations try to achieve between the for-profit (business) and nonprofit (charitable) separation of the tax world. Prerequisites: BSAD 161 or BSAD 180; Business Administration majors, Business Administration or Accounting minors, Master of Accountancy Graduate Students; Senior standing.

**BSAD 251. Marketing Research. 3 Credits.**

The role of research in a marketing information framework. Emphasis on survey research, data collection, and analysis. Experimental designs also examined. Prerequisites: BSAD 150; Business Administration major or minor; Senior or Graduate standing.

**BSAD 252. Marketing Research Practicum. 3 Credits.**

Market research field project. Students design survey instruments, collect and analyze data, and present results to clients in a business environment. Prerequisites: BSAD Prerequisites: BSAD 251; Business Administration major or minor; Instructor permission; Minimum Junior standing.

**BSAD 255. Digital Marketing. 3 Credits.**

Teaches the ways in which digital tools and multiple platforms have created a wide range of marketing options for organizations. Theoretical strategy, professional engagements, and hands-on practice will illustrate the strategic reasons for utilizing digital marketing and how to use the tools most effectively. Prerequisites: BSAD 150; Business Administration majors or minors; minimum Junior standing.

**BSAD 256. Retail Management. 3 Credits.**

Provides an overview of retail management. Key perspectives that shape the field including strategic planning, merchandising, and competitive advantage are emphasized. Prerequisites: BSAD 150; Business Administration major or minor; Master of Accountancy Graduate Students; minimum Junior standing.

**BSAD 258. D2: Intn'l Market Analysis. 3 Credits.**

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: BSAD 150, Business Administration major or minor; Minimum Junior standing.

**BSAD 259. Sustainable Marketing. 3 Credits.**

This course on sustainable marketing engenders an appreciation for the twin global challenges of global poverty and environmental sustainability and delves deeper into what businesses can do to respond to these challenges. Prerequisites: BSAD 150; Business Administration major or minor; Senior standing.

**BSAD 260. Financial Statement Analysis. 3 Credits.**

Study of the concepts and techniques underlying corporate financial statement analysis, with an emphasis on equity valuation models. Prerequisites: BSAD 180; Business Administration major or minor; Senior standing.

**BSAD 263. SU:Environmntl & Social Rprtnng. 3 Credits.**

An examination of voluntary and mandatory reporting of issues related to corporate social responsibility including environmental, social and governance. Knowledge is gained through readings, written assignments and discussion. Coverage includes GRI, SASB and integrated reporting guidelines and standards. Prerequisites: BSAD 161 or BSAD 180; Senior or Graduate student standing or Instructor permission.

**BSAD 264. Corporation Taxation. 3 Credits.**

A survey of the tax consequences for C corporations and their shareholders of womb-to-tomb transactions, which might include formations, acquisitions, divisions, consolidations, and international operations as well as the reporting of book/tax differences. Prerequisites: BSAD 161; Senior standing; Business Administration major, Master of Accountancy student, Business Administration minor, Accounting minor.

**BSAD 265. Accounting Information Systems. 3 Credits.**

Examination of how accounting information is collected, stored and made available to decision makers with an emphasis on internal control implementation. Prerequisites: BSAD 161 or BSAD 180; Senior standing; Business Administration major, Master of Accountancy student, Business Administration minor, Accounting minor.

**BSAD 266. Advanced Accounting. 3 Credits.**

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

**BSAD 267. Auditing. 3 Credits.**

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. Prerequisites: BSAD 162, BSAD 265; Senior standing; Business Administration major, Master of Accountancy student, Business Administration minor, Accounting minor.

**BSAD 268. Adv Topics in Management Acctg. 3 Credits.**

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 161 or BSAD 180; Senior standing; Business Administration major, Master of Accountancy student, Business Administration minor, Accounting minor.



**BSAD 269. Gov't and NFP Accounting. 3 Credits.**

Provides a study of the theory and practical application of accounting principles and auditing standards to governmental entities and not-for-profit organizations. Prerequisites: BSAD 161; Business Administration major or minor, Accounting minor, Master of Accountancy Graduate student; minimum Junior standing.

**BSAD 270. Quant Anal for Managerial Dec. 3 Credits.**

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: BSAD 030, BSAD 173; Business Administration major or minor; Engineering Management major, Master of Accountancy Graduate students; other majors or minors by Instructor permission; minimum Junior standing.

**BSAD 271. Current Topics Fin Reporting. 3 Credits.**

Focuses on the development and use of two sets of financial reporting standards: International Financial Reporting Standards (IFRS) and US generally accepted accounting principles (GAAP). Prerequisites: BSAD 161, BSAD 162; Business Administration majors and minors, Accounting minors, Master of Accountancy Graduate students; Senior standing.

**BSAD 273. Supply Chain Management. 3 Credits.**

Explores how firms can organize supply chains to more effectively align supply with the demand for products. Prerequisites: BSAD 173; Business Administration major or minor; Engineering Management major, or Graduate Master of Accountancy student; minimum Junior standing or graduate standing; other majors or minors by Instructor permission.

**BSAD 280. Green Mountain Investment Fund. 1 Credit.**

Involves practical and real time operation of an investment fund. Covers the steps necessary to fill a role as an analyst or portfolio manager of a traditional long-only money management operation. May repeated with Instructor permission; only counts once toward Business Administration major or minor. Prerequisites: BSAD 180; Business Administration major or minor; minimum Junior standing.

**BSAD 281. Fixed Income Security Analysis. 3 Credits.**

Focuses on the valuation and analysis of fixed income securities and the management of fixed income investment portfolios. Prerequisites: BSAD 180; Business Administration major or minor, Master of Accountancy Graduate student; minimum Junior standing.

**BSAD 282. Security Val & Portfolio Mgmt. 3 Credits.**

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: BSAD 180; Business Administration major or minor; Minimum Junior standing. Co-requisite: BSAD 280.

**BSAD 285. Options and Futures. 3 Credits.**

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: BSAD 180; Minimum Junior standing; Business Administration major or minor.

**BSAD 287. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**BSAD 288. Wall Street Seminar. 3 Credits.**

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. May be repeated; only counts once toward Business Administration major or minor. Prerequisites: BSAD 181; Business Administration major or minor and Instructor permission; minimum Junior standing.

**BSAD 289. Real Estate Finance. 3 Credits.**

This course is an introduction of real estate finance and investments. Topics include urban economics, appraisal, investment value analysis, financing, and development. Prerequisites: BSAD 180; Business Administration major or minor; minimum Junior standing.

**BSAD 290. Strategic Theme Capstone. 3 Credits.**

Integrative, capstone course concerned with issues and decisions facing senior management. Three thematic areas are available: Entrepreneurship, Global Business, Sustainable Business. Title will change based on Theme and students can only earn repeated credit when taking sections with different titles. Prerequisites: BSAD 025, BSAD 120, BSAD 150, BSAD 173, BSAD 180.

**BSAD 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BSAD 294. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**BSAD 295. Special Topics. 1-18 Credits.**

Advanced courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles and prerequisites. Prerequisite: Senior Business Administration major or minor.

**BSAD 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**BSAD 299. Business Admin Honors Thesis. 3-6 Credits.**

Honors thesis dealing with business administration topics. Honors College students only. Prerequisites: BSAD 193; Senior standing; Business Administration Honors College student.

**CELL BIOLOGY (CLBI)****Courses****CLBI 295. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Credit as arranged.



## CHEMISTRY (CHEM)

### Courses

**CHEM 023. Outline of General Chemistry. 0 or 4 Credits.**

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 025, CHEM 031, or CHEM 035.

**CHEM 025. Outline of General Chemistry. 3 Credits.**

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 023, CHEM 031 or CHEM 035.

**CHEM 026. Outline of Organic & Biochem. 0 or 4 Credits.**

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 028, CHEM 042 or CHEM 044.

Prerequisite: CHEM 023 or CHEM 031.

**CHEM 028. Outline of Organic & Biochem. 3 Credits.**

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 026, CHEM 042 or CHEM 044. Prerequisite: CHEM 023, CHEM 025, or CHEM 031.

**CHEM 031. General Chemistry 1. 0 or 4 Credits.**

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 023, CHEM 025 or CHEM 035.

**CHEM 032. General Chemistry 2. 0 or 4 Credits.**

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 036. Prerequisite: CHEM 031 or CHEM 035.

**CHEM 042. Intro Organic Chemistry. 0 or 4 Credits.**

Properties and reactivity of basic organic compounds of technological and biological significance. Not recommended for pre-medical students. No concurrent credit with, or credit following, credit for CHEM 026, CHEM 028, CHEM 044, CHEM 047, CHEM 141, or CHEM 143. Prerequisite: CHEM 023 or CHEM 032.

**CHEM 044. Intro Organic Chemistry. 3 Credits.**

Properties and reactivity of organic molecules of technological and biological significance. NO LABORATORY. Not recommended for pre-medical students. No concurrent credit with, or credit following, credit for CHEM 026, CHEM 028, CHEM 042, CHEM 047, CHEM 141, or CHEM 143. Prerequisite: CHEM 023 or CHEM 025 or CHEM 032.

**CHEM 047. Organic Chemistry for Majors 1. 0 or 4 Credits.**

An exploration of the basic principles of Organic Chemistry including structure, bonding, conformational analysis, stereochemistry and reactivity. Designed for Chemistry and Biochemistry majors who have a strong high school chemistry background.

**CHEM 048. Organic Chemistry for Majors 2. 0 or 4 Credits.**

A survey of the reactivity of organic functional groups from a mechanistic standpoint. Organic synthesis will be emphasized.

Prerequisite: CHEM 047 or instructor permission.

**CHEM 051. Exploring Chemistry 1. 1 Credit.**

Discovery-based laboratory addressing foundational chemical principles and experimental methods. For first-year Chemistry and Biochemistry majors also enrolled in CHEM 047. Co-requisite: CHEM 047.

**CHEM 052. Exploring Chemistry 2. 1 Credit.**

Second semester of a discovery-based laboratory laboratory addressing foundational chemical principles and experimental methods. For first-year Chemistry and Biochemistry majors also enrolled in CHEM 048. Prerequisites: CHEM 047 and CHEM 051. Co-requisite: CHEM 048.

**CHEM 071. Contemporary Chemical Topics. 3 Credits.**

Subjects vary by semester. Background in science is helpful, but generally not required. Representative topics: Environmental Risk; Chemistry of Honeybees. May be repeated for credit with different content.

**CHEM 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CHEM 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CHEM 095. Intro Special Topics. 0-18 Credits.**

See Schedule of Courses for specific titles.

**CHEM 096. Intro Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CHEM 098. Chemistry Scholars Workshop. 1 Credit.**

For qualified first-year Chemistry majors. Students discuss how to design a hypothesis, learn how research is performed in various chemistry subfields, and listen to faculty research talks. By the end of the semester, students select research advisors and plan future research projects. Prerequisite: Instructor permission.

**CHEM 114. Advanced Synthesis Techniques. 3 Credits.**

Laboratory for Chemistry majors that covers advanced inorganic and organic techniques in synthesis, purification, and spectroscopic characterization. Prerequisite: CHEM 048 or CHEM 142.

**CHEM 121. Quantitative Analysis. 0 or 4 Credits.**

Theory and practice of volumetric and gravimetric analysis. Theoretical discussion of indicators, buffers, pH, etc. Introduction to data analysis, spectrophotometry, and chromatography. Prerequisite: CHEM 032 or CHEM 036 or CHEM 052.

**CHEM 131. Inorganic Chemistry. 3 Credits.**

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. Prerequisite: CHEM 047 or CHEM 141 or CHEM 143.

**CHEM 141. Organic Chemistry 1. 0 or 4 Credits.**

Properties and reactivity of organic compounds with consideration of bonding, stereochemistry, and reaction mechanisms. For premedical and biological sciences students. No credit if taken concurrently with, or following receipt of, credit for CHEM 042, CHEM 044, CHEM 047, CHEM 143. Prerequisite: CHEM 032 or CHEM 036.

**CHEM 142. Organic Chemistry 2. 0 or 4 Credits.**

Reactivity of organic compounds and applications to synthesis. Spectroscopy is discussed in relation to compound characterization. For premedical and biological sciences students. May not be taken concurrently with, or following receipt of, credit for CHEM 048 or CHEM 144. Prerequisite: CHEM 047 or CHEM 141 or CHEM 143.

**CHEM 143. Organic Chemistry for Majors 1. 0 or 4 Credits.**

Principles and reactivity of organic compounds with consideration of bonding, stereochemistry, and reaction mechanisms. To be replaced by CHEM 047. May not be taken concurrently with, or following receipt of credit for, CHEM 042, CHEM 044, or CHEM 141. Prerequisite: CHEM 032 or CHEM 036.

**CHEM 144. Organic Chemistry for Majors 2. 0 or 4 Credits.**

Reactivity of organic compounds and applications to synthesis. Spectroscopy is discussed in relation to compound characterization. To be replaced by CHEM 048. May not be taken concurrently with, or following receipt of credit for, CHEM 142. Prerequisite: CHEM 141 or CHEM 143.

**CHEM 146. Advanced Organic Laboratory. 2 Credits.**

Laboratory for chemistry majors that covers advanced techniques used in organic chemistry research. Hands-on practice in multi-step synthesis, purification, identification, and spectroscopy. Prerequisite: Prerequisite: CHEM 048 or CHEM 142 or CHEM 144.

**CHEM 165. Intro Physical Chemistry. 3 Credits.**

An introduction to physical chemistry concepts in quantum chemistry, thermodynamics, and kinetics, suitable for students from most science disciplines. Background in calculus and physics is required. Prerequisites: CHEM 032 or CHEM 036 or CHEM 052; MATH 020 or MATH 022 or MATH 023; PHYS 011 or PHYS 031 or PHYS 051.

**CHEM 166. Physical Chemistry Lab. 1 Credit.**

Laboratory course accompanying CHEM 165. Topics include quantum chemistry and thermodynamics. Prerequisites: CHEM 048 or CHEM 142; CHEM 165.

**CHEM 167. Physical Chemistry Preparation. 1 Credit.**

Review of relevant mathematical and physical concepts as applied to physical chemistry. Prerequisites: CHEM 032 or CHEM 036 or CHEM 052; MATH 022.

**CHEM 181. 2nd Year Seminar: Writing. 1 Credit.**

Development of chemical information literacy skills through critical analysis and written reporting on areas of current chemical interest. Emphasizes scientific writing. Prerequisite: CHEM 032 or CHEM 052.

**CHEM 182. 2nd Year Seminar: Presentation. 1 Credit.**

Presentation on a subject of current chemical interest, building on chemical information literacy skills. Emphasizes oral presentation techniques. Prerequisite: CHEM 181.

**CHEM 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CHEM 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CHEM 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CHEM 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CHEM 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CHEM 198. Undergraduate Research. 1-18 Credits.**

Undergraduate students work on research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CHEM 199. Professional Development. 1 Credit.**

Skills necessary for senior Chemistry majors to transition to postgraduate careers, including resume and proposal writing, presentations, and other techniques. Prerequisite: CHEM 182.

**CHEM 205. Biochemistry I. 3 Credits.**

Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisite: CHEM 048 or CHEM 142 or CHEM 144. Cross-listed with: BIOC 205 and MMG 205.

**CHEM 206. Biochemistry II. 3 Credits.**

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, CHEM 205, or MMG 205. Cross-listed with: BIOC 206 and MMG 206.

**CHEM 207. Biochemistry Lab. 3 Credits.**

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

**CHEM 214. Polymer Chemistry. 3 Credits.**

Polymer synthesis and characterization. Kinetic models for polymerization and copolymerization. Physical properties, characterization of polymers in the solid state and in solution. Prerequisite: CHEM 048 or CHEM 142 or CHEM 144, and CHEM 165.

**CHEM 219. Instrumental Analysis Lab. 1 Credit.**

Laboratory component to CHEM 221, for undergraduates. Application of chemical and physical principles to qualitative and quantitative chemical problems. Study of the interplay of data, hypotheses, and hypothesis-driven experimentation through application of the scientific method. Prerequisites: CHEM 221.

**CHEM 221. Instrumental Analysis. 3 Credits.**

Systematic survey of modern methods of chemical analysis. Fundamental principles and applications of spectroscopy, electrochemistry, and separation techniques. Prerequisite: CHEM 121. Credit for or concurrent enrollment in CHEM 165 strongly recommended.

**CHEM 223. Mass Spectrometry. 3 Credits.**

An in-depth treatment of modern mass spectrometry, instrumentation, and techniques with discussion of biological and chemical applications. Prerequisites: CHEM 048 or CHEM 142 or CHEM 144; CHEM 221; or Instructor permission.

**CHEM 225. Electroanalytical Chemistry. 3 Credits.**

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

**CHEM 226. Analytical Spectroscopy. 3 Credits.**

Principles of optical spectroscopic methods of analysis. Emphasis on theory and practice of atomic spectroscopy and new molecular spectroscopic methods. Prerequisite: CHEM 221. Alternate years.

**CHEM 231. Advanced Inorganic Chemistry. 3 Credits.**

Molecular symmetry and group theory with an emphasis on applications (vibrational and electronic spectra, bonding and reactivity); introduction to transition metal processes; bioinorganic chemistry. Prerequisite: CHEM 165; CHEM 047, CHEM 141, or CHEM 143.

**CHEM 234. Organometallic Chemistry. 3 Credits.**

Synthesis, structure, bonding, properties, reactions, and applications of organometallic systems; mechanisms of organometallic reactions including oxidative addition and insertion reactions with applications in catalysis. Prerequisite: CHEM 131 or CHEM 231.

**CHEM 236. Physical Inorganic Chemistry. 3 Credits.**

Determination of molecular and electronic structure of inorganic complexes using spectroscopic techniques. Introduction to magnetism. Interpretation of spectroscopic data within the frameworks of group theory and electronic structure calculations. Prerequisites: CHEM 131 and CHEM 165; or CHEM 231.

**CHEM 241. Advanced Organic Chemistry 1. 3 Credits.**

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

**CHEM 242. Advanced Organic Chemistry 2. 3 Credits.**

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

**CHEM 260. Advanced Physical Chemistry. 3 Credits.**

Builds on the concepts from Introductory Physical Chemistry (CHEM 165). The three major areas of quantum chemistry, thermodynamics, and kinetics are extended in greater depth, and at a higher level of mathematical rigor. Prerequisite: CHEM 165. Co-requisites: CHEM 167 or MATH 121.

**CHEM 267. Topics in Physical Chemistry. 1-3 Credits.**

Selected topics of current interest in physical chemistry. See Schedule of Courses for specific titles. May be repeated for credit with different content. Prerequisite: CHEM 260.

**CHEM 282. Senior Seminar. 1 Credit.**

Oral and written presentation of a subject of current chemical interest. Pre/Co-requisite: Audit of CHEM 381.

**CHEM 285. Special Topics. 1-3 Credits.**

Selected topics of current interest that do not fall into one of the traditional areas of chemistry.

**CHEM 286. Special Topics. 1-3 Credits.**

Selected topics of current interest that do not fall into one of the traditional areas of chemistry.

**CHEM 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is Offered at department discretion.

**CHEM 291. Undergraduate Research. 1-18 Credits.**

Undergraduate students work on research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Departmental permission.

**CHEM 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CHEM 293. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.



**CHEM 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CHEM 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CHINESE (CHIN)****Courses****CHIN 001. Elementary Chinese I. 4 Credits.**

A study of Mandarin Chinese designed to give students the fundamentals of the sound and writing systems for developing modern Chinese communicative skills. No prior knowledge expected.

**CHIN 002. Elementary Chinese II. 4 Credits.**

A continuation of CHIN 001 designed to give students basic Chinese grammar and vocabulary for daily communication purposes. Prerequisite: CHIN 001 or equivalent.

**CHIN 020. Chinese Characters. 1 Credit.**

Understand the Chinese writing system and learn to recognize and write basic Chinese characters.

**CHIN 051. Intermediate Chinese I. 4 Credits.**

A continuation of CHIN 002 designed to give students more basic Chinese grammar and vocabulary for daily communication purposes. Prerequisite: CHIN 002 or equivalent.

**CHIN 052. Intermediate Chinese II. 4 Credits.**

A continuation of CHIN 051 designed to help students finish learning basic Chinese grammar and gain more vocabulary for daily communication purposes. Prerequisite: CHIN 051 or equivalent.

**CHIN 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CHIN 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CHIN 095. Special Topics. 1-18 Credits.**

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

**CHIN 096. Special Topics. 1-18 Credits.**

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

**CHIN 101. 3rd Year College Chinese I. 3 Credits.**

A continuation of CHIN 052 designed with structured readings with emphasis on complex sentence structures, vocabulary expansion, and increased fluency in self-expression. Prerequisite: CHIN 052 or equivalent.

**CHIN 102. 3rd Year College Chinese II. 3 Credits.**

A continuation of CHIN 101 designed with more structured readings with emphasis on complex sentence structures, vocabulary expansion, and increased fluency in self-expression. Prerequisite: CHIN 101 or equivalent.

**CHIN 121. 3rd Year Conversation I. 1-3 Credits.**

To develop students' communicative skills in Chinese by discussing Chinese texts and similar real-life situations in the United States. Prerequisite: CHIN 052.

**CHIN 122. 3rd Year Conversation II. 1-3 Credits.**

Continuation of CHIN 121. Continues to develop students' communicative skills in Chinese by discussing Chinese texts and similar real-life situations in the United States. Prerequisite: CHIN 121.

**CHIN 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CHIN 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CHIN 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CHIN 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CHIN 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CHIN 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CHIN 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**CHIN 201. 4th Year College Chinese I. 3 Credits.**

A continuation of CHIN 102 designed to improve oral and written proficiency through reading, discussing, and writing about modern Chinese prose writings. Prerequisites: CHIN 102 or equivalent.

**CHIN 202. 4th Year College Chinese II. 3 Credits.**

A continuation of CHIN 201 designed to improve oral and written proficiency through reading, discussing, and writing about more modern Chinese prose writings. Prerequisites: CHIN 201 or equivalent.

**CHIN 251. Adv Reading & Writing I. 3 Credits.**

To improve reading comprehension and writing skills by learning rhetoric and enlarging vocabulary through reading and discussing literary works by modern Chinese writers. Prerequisite: CHIN 202.



**CHIN 252. Adv Reading & Writing II. 3 Credits.**

Continues to improve reading comprehension and writing skills by learning rhetoric and enlarging vocabulary through reading and discussing literary works by modern Chinese writers. Prerequisite: CHIN 251.

**CHIN 290. Internship. 1-28 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CHIN 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CHIN 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CHIN 295. Advanced Special Topics. 1-18 Credits.**

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

**CHIN 296. Advanced Special Topics. 1-18 Credits.**

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

**CHIN 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CIVIL & ENVIRONMENTAL ENGR (CE)****Courses****CE 001. Statics. 0 or 3 Credits.**

Fundamentals of statics; composition and resolution of forces; the analysis of force systems in two and three dimensions; and centroids and moments of inertia. Prerequisites: MATH 022 or MATH 023; PHYS 031.

**CE 003. SU: Intro to Civil & Envir Engr. 0 or 2 Credits.**

Introduction to Civil and Environmental Engineering, sustainability, ethics, systems thinking, teamwork in engineering, laboratories, computational exercises, and project-based.

**CE 010. Geomatics. 0 or 4 Credits.**

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). Project-based. Prerequisites: MATH 010, MATH 019, or MATH 021; Sophomore standing.

**CE 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CE 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CE 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CE 100. Mechanics of Materials. 0 or 3 Credits.**

Stress, strain, temperature relationships, torsion, bending stresses, and deflections. Columns, joints, thin-walled cylinders. Combined stresses and Mohr's circle. Prerequisite: CE 001 with a grade of C- or better. Co-requisite: MATH 121. Cross-listed with: ME 014.

**CE 101. Materials and Structures Lab. 0 or 3 Credits.**

Experimental stress analysis methods; experimental verification of static force-displacement relationship for beams, frames, and trusses; fundamental mechanical properties of metals, plastics, and wood; effects of size, shape, method, speed of loading and strain history on these properties. Co-requisites: CE 100 or ME 014, and CE 170.

**CE 132. SU: Environmental Systems. 3 Credits.**

Systems thinking and the systems approach as applied to environmental systems; sustainability, mass and energy balances, kinetics, ecosystem health and the public welfare, environmental risk, green engineering, water and wastewater treatment, air resources engineering, solid-waste management. Prerequisites: CHEM 031; MATH 019 or MATH 021.

**CE 133. Transportation Systems. 3 Credits.**

Transportation systems planning, analysis, and design with foci on safety, modeling, decision support, and environmental impacts. Co-requisite: CE 010.

**CE 151. SU: Water & Wastewater Engr. 3 Credits.**

Fundamentals and design of sustainable systems for water supply, domestic and industrial wastewater treatment, soil and groundwater remediation; energy and resource recovery; project-based. Prerequisite: CE 132 with a grade of C- or better.

**CE 160. Hydraulics. 3 Credits.**

Mechanics of incompressible fluids, flow meters, flow in closed conduits and open channels, elements of hydraulic machinery. Prerequisites: CE 001 with a grade of C- or better, MATH 121. Co-requisite: CS 020.

**CE 162. Hydraulics Lab. 0-2 Credits.**

Performing various laboratory studies of flow and hydraulic machinery determine index; computer modeling of hydraulic systems; associated laboratory and project report writing and presentations. Co-requisites: CE 160.

**CE 170. Structural Analysis. 0 or 3 Credits.**

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: CS 020 or CS 021. Co-requisites: MATH 122 or MATH 124 and MATH 271; CE 100 or ME 014.

**CE 172. Structural Steel Design. 3 Credits.**

Theory and design of steel structures including flexural members, axially loaded members and combined stress members; design of composite members; plastic analysis and design; project-based. Prerequisite: CE 170.

**CE 173. Reinforced Concrete. 3 Credits.**

Analysis of stresses in plain and reinforced concrete members; design of reinforced concrete structures; theory of prestressed concrete; project-based. Prerequisite: CE 170.

**CE 180. Geotechnical Principles. 3 Credits.**

Characteristics and classification of soils; physical, mechanical and hydraulic properties of soils; seepage; the effective stress principle; stress distribution, consolidation, settlement; shear strength. Prerequisite: CE 100 or ME 014.

**CE 182. Geotechnical Principles Lab. 0-2 Credits.**

Performing various laboratory tests to determine index, hydraulic, and mechanical properties of soils; computer modeling of geotechnical systems; associated laboratory and project report writing and presentations; project-based. Prerequisite: CE 100 or ME 014. Co-requisite: CE 180.

**CE 185. SU: Capstone Design I. 3 Credits.**

Project-based. Integrate knowledge from multiple subdisciplines of Civil/Environmental Engineering in team-based contemporary design projects promoting sustainability under realistic constraints (economic, environmental, social, regulatory, safety, constructability); consider risk, uncertainty, life-cycle principles, and environmental impacts in the design; professional practice; ethics; effective communication. Prerequisite: Senior standing; Civil Engineering or Environmental Engineering major.

**CE 186. SU: Capstone Design II. 3 Credits.**

Project-based. Student teams will integrate the knowledge from multiple subdisciplines of Civil/Environmental Engineering in a contemporary design project involving realistic constraints such as economic, environmental, social, regulatory and sustainability; professional practice; ethics; written and oral presentations to professional review panels. Prerequisite: CE 185.

**CE 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CE 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Senior standing; Department permission.

**CE 193. College Honors. 1-6 Credits.**

Honors studies leading to thesis. Prerequisite: CEMS 101.

**CE 194. College Honors. 1-6 Credits.****CE 195. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: Senior standing in Civil Engineering or Environmental Engineering.

**CE 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CE 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CE 199. Cooperative Ed Experience. 12 Credits.**

On-site, full-time, supervised work experience in civil or environmental engineering or related field appropriate for sophomore or junior levels that also satisfies the overall educational objectives defined by the CEMS Engineering Co-op Program. Prerequisites: Civil Engineering or Environmental Engineering major; Sophomore or Junior standing.

**CE 201. Sustainable Eng Materials. 3 Credits.**

Introduces the fundamentals of materials with a focus on sustainable engineering, including structure and bond, interatomic potential, metals, fracture, strength testing, cement chemistry, aggregates, composites, reinforced concrete, asphalt, bamboo and wood. Prerequisite: CE 100, ME 014, or Instructor permission.

**CE 211. Sustainable Eng. Materials. 3 Credits.**

Introduces the fundamentals of materials with a focus on sustainable engineering, including structural bonding, metals, fracture, strength testing, cement chemistry, aggregates, composites, reinforced concrete, asphalt, bamboo, wood, and bio-inspired materials and structures. Prerequisites: CE 100 or ME 014 or Instructor permission.

**CE 218. Numerical Methods for Engineer. 3 Credits.**

Foundational concepts of numerical integration, numerical differentiation, and numerical approximation and solution of differential and partial differential equations of the type encountered in the analysis of engineering problems and data processing; project-based. Prerequisites: MATH 271, CS 020; MATH 122 or MATH 124. Cross-listed with: ME 218.

**CE 241. Traffic Operations & Design. 3 Credits.**

Advanced concepts of traffic engineering and safety; human, vehicle and environment factors; simulation and statistical analysis software; transportation design manuals; project-based. Prerequisite: CE 133.

**CE 243. Transportation Demand Models. 3 Credits.**

Study of specific methods used to analyze travel demand, travel behavior and network flows; process of travel demand modeling; collection, analysis and expansion of survey data and travel data; mathematical methods common to travel modeling. Prerequisite: CE 133.

**CE 247. Sustain Resource Recovery Dsgn. 3 Credits.**

Environmental engineering strategies to create circular economies emphasizing the role of wastes as resources. Course topics include life cycle assessment, carbon and nutrient management, materials recycling, and waste-to-energy processes. Project-based. Prerequisite: CE 151.

**CE 250. Fate/Transport Organic Chem. 3 Credits.**

Chemical transfers between environmental media; molecular structure-reactivity models; chemical, photochemical and biochemical transformation rates; emphasis on predicting environmental concentrations and risk. Project-based. Prerequisites: CHEM 031, CHEM 032, CE 132.

**CE 253. Transportation & Air Quality. 3 Credits.**

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. Project-based. Prerequisites: CE 132, CE 133.

**CE 254. Environmental Quantitative Anyl. 0 or 4 Credits.**

Course focuses on chemical, biochemical and physical processes; diffusion, equilibria, reaction kinetics, acids/bases, colloids, air/water exchange; laboratories demonstrate standard environmental engineering techniques; project-based. Prerequisites: CHEM 032, CE 132, STAT 143.

**CE 255. Phys/Chem Proc Water/Wstwater. 0 or 3 Credits.**

Theory of physical/chemical processes for treating waters and wastewaters; reactor dynamics, mass transfer, adsorption, ion exchange, precipitation; project-based. Prerequisite: CE 151.

**CE 256. Biol Proc Water/Wastewater Tr. 0 or 3 Credits.**

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. Prerequisite: CE 151.

**CE 260. Hydrology. 3 Credits.**

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. Pre/Co-requisite: CE 160.

**CE 262. Advanced Hydrology. 3 Credits.**

Introduces computer modeling of hydrological systems. Project-based. Simple overland flow, flood routing, water quality, and groundwater models are developed using finite difference techniques. Stochastic hydrology and hydrologic time series analysis are also introduced. Prerequisite: CE 260.

**CE 263. Applied River Engineering. 3 Credits.**

Application of fundamental principles of fluid dynamics and open channel flow to the design and retrofit of river-connected infrastructure, including road embankments, road drainage systems, berms, culverts, bridges and impoundments. Project-based. Prerequisite: CE 160.

**CE 265. Ground Water Hydrology. 3 Credits.**

Principles of ground water hydraulics, well characteristics, aquifers, and use of numerical methods to solve ground water flow problems. Project-based. Prerequisite: CE 160.

**CE 271. Advanced Structural Analysis. 3 Credits.**

Virtual work, energy theorems, analysis of structures by the displacement method and the finite element method, non-linear structural analysis. Project-based. Prerequisite: CE 170.

**CE 272. Structural Dynamics. 3 Credits.**

Vibrations, matrices, earthquake engineering, stability and wave propagation. Project-based. Prerequisites: Senior standing in Engineering or Physical Sciences or Instructor permission. Cross-listed with: ME 270.

**CE 273. Structural Design - Wood. 3 Credits.**

Analysis and design of solid and glue laminated timber members and structural systems including tension members, beams, columns, beam-columns, diaphragms, shear walls, and connections; LRFD and ASD design methods; application of IBC for timber systems; current developments in wood design/construction; project-based. Prerequisite: CE 170.

**CE 285. Geo-energy Systems. 3 Credits.**

An introduction to Geoenery technologies for subsurface energy extraction (shallow and deep geothermal systems, enhanced oil recovery, shale gas extraction) and secure storage of byproducts of energy production (carbon dioxide and nuclear wastes); project-based. Prerequisite: CE 180.

**CE 286. Foundation Design. 3 Credits.**

Subsurface explorations; geotechnical analysis, design, construction, preservation, remediation, and monitoring aspects of shallow and deep foundations. Prerequisite: CE 180.

**CE 288. Geoenvironmental Engineering. 3 Credits.**

Site characterization, site restoration, geotechnical aspects of waste disposal and containment, landfill design, geosynthetics. Project-based. Prerequisite: CE 180.

**CE 290. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CE 292. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CE 295. Special Topics. 1-18 Credits.**

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

**CE 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CE 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.



**CE 299. Cooperative Ed Experience. 12 Credits.**

On-site, full-time, supervised work experience in civil or environmental engineering or related field appropriate for senior level that also satisfies the overall educational objectives defined by the CEMS Engineering Co-op Program. Prerequisites: Civil Engineering or Environmental Engineering major; Senior standing.

**CLASSICS (CLAS)****Courses****CLAS 015. From Cuneiform to Kindle. 3 Credits.**

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.

**CLAS 020. Topics in Ancient History. 1-3 Credits.**

Topics examining themes in Ancient history. Representative topics: The Peloponnesian War; Alexander the Great. May be repeated for credit with different content. Cross-listed with: HST 020.

**CLAS 021. Greek History and Civilization. 3 Credits.**

Political, social, cultural, and literary development of ancient Greece. May be repeated for credit with different content: typically alternates between early period (Bronze Age through Persian Wars) and late (Athenian Empire through Alexander the Great and the Hellenistic World). Cross-listed with: HST 021.

**CLAS 022. Etymology. 3 Credits.**

The study of English vocabulary derived from Greek and Latin. Topics include analysis of word formation, historical and comparative linguistics, and international scientific terminology.

**CLAS 023. Classical Roman Civilization. 3 Credits.**

Political, social, cultural, and literary development of ancient Rome. May be repeated for credit with different content: normally alternates between early period (Monarchy and Republic) and late (Empire). Cross-listed with: HST 022.

**CLAS 024. Myths/Legends Trojan War. 3 Credits.**

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

**CLAS 042. Mythology. 3 Credits.**

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

**CLAS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CLAS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CLAS 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CLAS 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CLAS 105. Topics in Ancient History. 1-3 Credits.**

Topics examining Ancient history. Representative topics: Greek & Roman Comedy. May be repeated for credit with different content. Prerequisite: Three hours in History or Classics. Cross-listed with: HST 105.

**CLAS 121. Greek History and Civilization. 3 Credits.**

Political, social, cultural, and literary development of ancient Greece. May be repeated for credit with different content: normally alternates between early period (Bronze Age through Persian Wars) and late (Athenian Empire through Alexander the Great and the Hellenistic World). Prerequisite: HST 009 or appropriate work in Classics. Cross-listed with: HST 121.

**CLAS 122. Roman History and Civilization. 3 Credits.**

Political, social, cultural, and literary development of ancient Rome. May be repeated for credit with different content: normally alternates between early period (Monarchy and Republic) and late (Empire). Prerequisite: HST 009 or appropriate work in Classics. Cross-listed with: HST 122.

**CLAS 140. The Classics Now and Then. 3 Credits.**

Multidisciplinary survey of seminal Greek and Latin texts in various genres and their reception in later periods in many media, including literature, criticism, philosophy, music, theater, television, and film. Prerequisite: Minimum Sophomore standing.

**CLAS 145. D2: Comparative Epic. 3 Credits.**

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

**CLAS 147. Ancient Law. 3 Credits.**

Comparative study of three major ancient legal systems and their roles in their respective societies: ancient Near East (Sumerian to Hittite), Greek, and Roman. Prerequisite: Three credits in Classics, History, Philosophy, or Political Science. Cross-listed with: HST 147, POLS 182.

**CLAS 148. D2: Ancient Egypt Through the Ages. 3 Credits.**

A thematic and historical introduction to the civilization of Ancient Egypt and its cultural position and influence in both the ancient and modern worlds. Prerequisite: Three credits in Classics or History. Cross-listed with: HST 148.

**CLAS 150. SU: Sustainability Cultural Hst. 3 Credits.**

Through selected readings spanning over two thousand years traces the trajectory of modern notions of ecological and socio-economic sustainability back through time. Includes experiential component at the Instructor's sheep farm.

**CLAS 161. The Divine Plato. 3 Credits.**

A survey of Plato's works, including the 'early,' 'middle,' and parts of the 'late' dialogues. Emphasis will be laid on reading the dialogues themselves. Prerequisite: One course in Philosophy, or one course in Classics (Greek Culture or Greek). Cross-listed with: PHIL 108.



**CLAS 163. Stoicism. 3 Credits.**

Primary texts of Greek and Roman Stoics (Zeno, Chrysippus, Epictetus, Seneca, Marcus Aurelius) form the backbone of this course, which concentrates on Stoic ethics, psychology, and epistemology, but also covers physics and logic, as well Stoic influence on modern thought. Prerequisite: Three credit hours in Philosophy, or in Classics, Latin, or Greek.

**CLAS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CLAS 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CLAS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CLAS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CLAS 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CLAS 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CLAS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CLAS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CLAS 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CLAS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CLAS 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CLAS 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CLAS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CLINICAL&TRANSLATIONAL SCIENCE (CTS)****Courses****CTS 295. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**COLLEGE OF MEDICINE UNDERGRADUATE (COMU)****Courses****COMU 001. Healthy Brains, Healthy Bodies. 3 Credits.**

Examines the effects the college experience has on the minds and bodies of individuals. Students will learn the basic physiological and psychological factors that are associated with optimal physical and cognitive functioning at every stage of life.

**COMU 002. Intro to Medical Imaging. 3 Credits.**

Medical imaging plays a central role in healthcare delivery. Students will learn about X-Ray, CT, MRI, PET, and ultrasound imaging. Their clinical applications and role in healthcare both in the US and around the world will be discussed.

**COMU 021. Your Brain on Drugs. 3 Credits.**

Demonstrates the effects of drugs and alcohol on behavior and the brain. Pre/Co-requisite: COMU 001.

**COMU 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**COMU 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**COMU 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**COMU 122. Family Wellness Coaching. 3 Credits.**

Introduces students to the science behind health promotion in a family setting. Students will learn about motivational interviewing and family based, evidenced based strategies to raise healthy children and keep families healthy in all areas of life. Pre/Co-requisites: COMU 001.

**COMU 123. The Effects of Adversity. 3 Credits.**

Provide students with an understanding of how adversity affects the brain and genome through the use of imaging techniques such as MRIs and EEGs, epigenetics, and questionnaire data. Pre/Co-requisite: COMU 001.

**COMU 125. The Science of Happiness. 3 Credits.**

Surveys the science of well-being with a goal toward up-ending the standard medical approach of curing illness or reducing dysfunction in favor of pursuits such as making meaning, pursuing goals, enhancing well-being, and fulfilling potential. Prerequisite: COMU 001.

**COMU 131. Sex, Love, Neurosci of Relationships. 3 Credits.**

Surveys the state-of-science of close relationships, sexual behavior, and the human experience of love and intimacy. Examines the neurobiology of love and relationships while exploring aspects of attraction, attachment, affection, identity, pathology, and neurodiversity. Prerequisite: COMU 001.

**COMU 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**COMU 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**COMU 195. How You Became You: Personality Dev. 3 Credits.**

Explores the development of temperament and personality from early childhood to adulthood. Students first assess their own personality, then course proceeds in three parts: fundamental concepts, influences on personality, and special topics. Prerequisite: COMU 001 or PSYS 001.

**COMU 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**COMU 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**COMU 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**COMU 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**COMU 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded.

**COMU 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**COMU 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**COMU 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**COMM SCIENCES & DISORDERS (CSD)****Courses****CSD 020. Intro to Disordered Comm. 3 Credits.**

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

**CSD 022. Introduction to Phonetics. 3 Credits.**

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.

**CSD 023. Linguistics for Clinicians. 3 Credits.**

Linguistic concepts, applications to clinical contexts. Topics include language components, language processing in the brain, individual differences and disorders, dialects, normal and disordered language acquisition.

**CSD 025. D2: Comm Diff & Dis in Media. 3 Credits.**

Analysis of the portrayal of individuals with communication differences and disorders in the media and how this influences our perceptions and opinions. Guest speakers, shared experiences, classroom discussions, and the viewing of popular films.

**CSD 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CSD 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CSD 094. Dev of Spoken Language. 3 Credits.**

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

**CSD 096. Introductory Special Topics. 1-18 Credits.**

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

**CSD 099. Intro Topics in Clin Aud & SLP. 3 Credits.**

Introduces students to the professions of audiology and speech language pathology. Covers health care related topics relevant to professional practice when working with individuals with communication disorders. Guided observations will introduce specific clinical skills along with their application in practice. Prerequisite: Communication Sciences and Disorders major.

**CSD 101. Speech & Hearing Science. 0 or 4 Credits.**

Structure and function of the respiratory, phonatory, articulatory, and hearing systems, coupled with models of speech and hearing as part of human communication. Prerequisites: Minimum Sophomore standing; Communication Sciences & Disorders, Education major or minor, Neuroscience major; or Instructor permission.

**CSD 122. Clinical Phonetics. 0 or 4 Credits.**

Transcription of speech using the International Phonetic Alphabet. Speech sound disorders, development, universals, dialects, coarticulation, connected speech, prosody and second-language learning. Prerequisite: Three credits in Communication Sciences and Disorders or Linguistics.

**CSD 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded.

**CSD 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CSD 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded.

**CSD 196. Intermediate Special Topics. 1-18 Credits.**

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

**CSD 198. Undergraduate Research. 1-6 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded.

**CSD 199. Adv Topics in Clin Aud & SLP. 3 Credits.**

Provides advanced exploration of the professions and clinical work of audiologists and speech language pathologists. Skills and knowledge related to ethical issues, person/family centered care, and cultural competence are practiced. Guided observations review specific clinical skills along with their application in practice. Prerequisites: CSD 020, CSD 099, Sophomore standing.

**CSD 208. Cognition & Language. 3 Credits.**

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: CSD 101.

**CSD 225. Working with Speech Disorders. 3 Credits.**

Speech language pathology assistants' roles in schools working with speech disorders; health/safety, special education and HIPAA issues; observation, data collection, and collaboration skills. Complete 50 hour practicum. Prerequisites: CSD 020, CSD 022, LING 081, CSD 094.

**CSD 226. Working with Lang Disorders. 3 Credits.**

Evidence-based practice and response to intervention strategies, screening and intervention for language differences; diverse populations. Complete 50 hours practicum. Prerequisite: CSD 225.

**CSD 262. Measurement of Comm Processes. 4 Credits.**

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 199 or 3 credits NSCI.

**CSD 271. Introduction to Audiology. 3 Credits.**

Survey of hearing and the nature and causes of hearing impairment. Includes an orientation to assessment procedures and rationales, hearing screening and counseling considerations. Prerequisites: CSD 101, CSD 199.

**CSD 272. Hearing Rehabilitation. 3 Credits.**

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. Prerequisite: CSD 271.

**CSD 274. D2: Culture of Disability. 3 Credits.**

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. Prerequisite: Junior/Senior/Graduate standing. Prerequisite: Junior, Senior, or Graduate standing. Cross-listed with: EDSP 274.

**CSD 281. Intro Cognitive Neuroscience. 3 Credits.**

This course introduces students to the organization, structures and functions of the human central nervous system. Higher cognitive and linguistic behaviors are emphasized. Prerequisite: Human Biology course such as BIOL 004 or ANPS 019.

**CSD 287. D2: Mindfulness & Helping Skills. 3 Credits.**

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. Prerequisite: Any 100-level (or above) course in any human services or human communication-related field, such as: Communication Sciences and Disorders or any other College of Nursing and Health Sciences program, Psychological Science, Social Work, Education, Special Education, Linguistics, Larner College of Medicine or other 100-level courses as approved by the Instructor.

**CSD 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded.



**CSD 293. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded.

**CSD 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Undergraduate only.

**CSD 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded.

**CSD 298. Undergraduate Research. 1-6 Credits.**

Undergraduate student work on individual or small research projects under the supervision of a faculty member, for which credit is awarded.

**CSD 299. Autism Spect Dis:Assess&Interv. 3 Credits.**

Discusses knowledge/research regarding assessment of and interventions for individuals with ASD related to and use of evaluation tools, and implementation of communication, social interaction and play skills. Prerequisite: Minimum Junior standing.

## COMMUNITY DEVELOPMENT & APPLIED ECONOMICS (CDAE)

### Courses

**CDAE 001. Drafting & Design in SketchUp. 3 Credits.**

Creating pictorial presentation and 3D model drawings using SketchUp software. Basic methods and procedures of architectural, three-view, oblique, isometric, and perspective computer-aided drawings.

**CDAE 002. D2:SU:World Food,Pop & Develop. 3 Credits.**

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

**CDAE 003. D2:Intr to Dev Carib & Cent Am. 3 Credits.**

This interdisciplinary course introduces students to the culture, history, diversity, geography, and the impact of ethnicity, poverty, and oppression on development in the Caribbean and Central America.

**CDAE 004. D1:US Food, Social Equity &Dev. 3 Credits.**

Provides an introduction to gender, race, class, and ethnicity with particular emphasis on food, population, economic, and ecological issues in sustainable agriculture, food systems, and community development. The geographical focus emphasizes the United States.

**CDAE 006. Energy Alternatives. 3 Credits.**

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.

**CDAE 014. Visual Design Studio. 1 Credit.**

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: Public Communication majors only.

**CDAE 015. Visual Communication. 3 Credits.**

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

**CDAE 016. Digital Illustration. 3 Credits.**

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 015, ARTS 002, or permission.

**CDAE 018. Communication Design I. 3 Credits.**

Directed projects which explore the elements and principles of communication design. Design research, process, experimentation, and production in hand-based and computer-generated design application for multi-modal presentations.

**CDAE 024. Fund of Public Communication. 3 Credits.**

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.

**CDAE 032. Protect Your Privacy. 2 Credits.**

Every detail about individuals' lives is shared, bought, sold, monetized, and sometimes stolen. This practical course explores privacy threats, legal protections, and tools that exist to protect privacy.

**CDAE 041. CareerBuilder:Plan Your Future. 2 Credits.**

Students use design thinking principles to imagine their future at UVM and beyond. Explore majors, minors, and careers before developing a personalized plan for acquiring the knowledge, skills, and experiences needed to fulfill this vision. All students welcome.

**CDAE 044. Career Builder: Resumes & More. 2 Credits.**

Uses persuasion theory to develop a resume, cover letter, and professional philosophy statement that reflects an individual's unique professional brand.

**CDAE 045. Career Builder: LinkedIn. 2 Credits.**

Learn how to use LinkedIn to build or strengthen your professional profile, find your next job or internship, and grow your professional network. Develop communication competence and confidence relevant to your unique experiences and career goals.

**CDAE 061. SU:Principles of Comm Dev. 3 Credits.**

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

**CDAE 066. Comm Entrepren Planning Basics. 2 Credits.**

Designed for non-community entrepreneurship major to learn details of writing a business plan, and associated procedures for new venture creation.

**CDAE 091. Introductory Special Topics. 1-6 Credits.**

See Schedule of Courses for specific titles.

**CDAE 093. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.



**CDAE 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CDAE 096. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CDAE 101. Drafting & Design: SketchUp II. 3 Credits.**

Using a computer to create, manipulate, and record drafting and design concepts, symbols, and conventions to prepare technical and/or presentation drawings at the intermediate level. Students will learn in applied context relating to real world needs. Prerequisite: CDAE 001 or Instructor permission.

**CDAE 102. Sustainable Community Dev. 3 Credits.**

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 002, ENVS 002, or Instructor permission.

**CDAE 105. SU: Food Waste to Value. 3 Credits.**

Hands-on learning in generating alternative and sustainable sources of energy and valued byproducts from waste streams for enhancing food safety and community development applications along with fossil fuel reduction. Prerequisites: CDAE 002, CDAE 006, CDAE 061, PSS 010, PSS 021, or ENVS 002.

**CDAE 108. Comparative Food Systems. 3 Credits.**

Explores food production systems looking at social, economical, environmental dimensions; draws from multiple disciplines such as economics, sociology, agronomy, biology, geography, and history; critically explore scales of agriculture from very small-scale to very large. Prerequisite: CDAE 002, CDAE 004, or NFS 073. Cross-listed with: FS 102.

**CDAE 111. Design:Narrative Media & Video. 3 Credits.**

Focus on storytelling techniques through video production. Covers technical skills like basic camera usage, video/sound editing, compositing/effects, and Adobe Creative Suite. Focus is given to major elements such as image, sequence and time to explore theory and develop visual content for storytelling through video. Prerequisite: CDAE 015 or Instructor permission.

**CDAE 112. Social Media:Theory 2 Practice. 3 Credits.**

Explores social media from theoretical and professional practical perspectives, immersing students in the complex and multifaceted world of social media communication. Prerequisites: CDAE 024, CDAE 015, CALS 002, or CALS 085.

**CDAE 113. Citizen Journalism:Digital Age. 3 Credits.**

Focuses on present-day, digitally networked news commons created/populated by citizen journalists. Examines use of social media/digital platforms by marginalized and disenfranchised groups or individuals advocating for justice, fairness, equality. Further inquiries into state-/corporate-sponsored news, information, censorship in digital age. Prerequisite: CDAE 024, CDAE 120, or CDAE 121.

**CDAE 114. Doc. Film for Social Change. 3 Credits.**

Documentaries can leverage social change through education, fundraising, or urging political action; the results are hardly guaranteed. Introduces the study of documentaries as they relate to social change, environmental, and community development movements; focusing on film and context. Prerequisites: CDAE 002, CDAE 024, FTS 007, FTS 008, FTS 009, or FTS 010.

**CDAE 116. Communication Design II. 3 Credits.**

Explores visual communication through advanced projects in design research, planning, iteration, technical and software experimentation, and production for multi-modal design applications. Prerequisite: CDAE 018.

**CDAE 118. Visual Presentation Techniques. 3 Credits.**

Development of sketching, perspective drawing, graphic techniques, color rendering, and observation skills for community, landscape, and ecological design students. Final portfolio required. Prerequisite: One of the following: CDAE 015, CDAE 001, or permission.

**CDAE 119. Event Planning for Athletics. 3 Credits.**

Focuses on providing students basic knowledge and skills of event planning with real-life experiences. Topics covered include sponsorship, fundraising, marketing, promotions, branding, ticket operations, social media, event operations, and risk management in support of event production. Prerequisites: ENGS 001, CDAE 024, or Instructor permission.

**CDAE 120. Strategic Writing for PCOM. 3 Credits.**

Students learn to write standard messages and documents including e-mail, memos, letters to the editor, fundraising letters, news releases, brochures, and feature stories. Prerequisites: CDAE 024, ENGS 001, or ENGS 050; Public Communication majors/minors only.

**CDAE 121. News Writing Across Media. 3 Credits.**

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. Prerequisite: ENGS 001 or ENGS 050.

**CDAE 123. Media-Policy-Action. 3 Credits.**

Examines the connections between media, public policy, and policy outcomes. Provides hands-on learning (action) experiences in news reporting and policy-making through the lens of the Vermont Legislature and Vermont's policy and media culture. Prerequisites: Any of the following: ENGS 001, ENGS 050, POLS 021, CDAE 002, CDAE 015, CDAE 024.

**CDAE 124. Public Communication Media. 3 Credits.**

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. Prerequisite: CDAE 024.

**CDAE 127. Consumer,Markets&Public Policy. 3 Credits.**

Analysis of consumer choices through the examination of consumer behavior theories, current marketplace issues and public policy. Prerequisite: One of the following: CDAE 024, CDAE 015, ENGS 001, ENGS 050, or permission.

**CDAE 128. Strategic Communication. 3 Credits.**

Examination of strategic communication and how it impacts consumers and the economy. Extensive application of critical analysis to actual strategic communication campaigns from development through evaluation including advertising and other consumer-related ends. Prerequisites: CDAE 015 or CDAE 024.

**CDAE 129. Communication Law. 3 Credits.**

Legal issues in mass media, including: freedom of speech, libel, invasion of privacy, obscenity and indecency, copyright and trademark. Prerequisite: CDAE 024.

**CDAE 131. Appl Des Studio: Lt Frame Bldg. 3 Credits.**

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

**CDAE 132. Hackers+Data Srvelnce:Priv Law. 3 Credits.**

Covers the landscape of privacy issues from government surveillance to Big Data, security breaches, online and real world location tracking, social media, privacy as a growing field, and other issues. Prerequisites: CDAE 002, CDAE 032 or MMG 002.

**CDAE 137. Landscape Design Fundamentals. 4 Credits.**

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 permission of the Instructor. Cross-listed with: ENVS 137, NR 137, PSS 137.

**CDAE 140. Leadership in Practice. 3 Credits.**

Study of leadership theory and how it informs the practice of leadership. Focus on applying leadership theory to personal practice learning how leadership affects the changes that organizations face. Prerequisite: CDAE 024.

**CDAE 141. Crisis Communication. 3 Credits.**

Explores how organizations, corporations, and individuals communicate successfully during a crisis. Through in-class simulations, presentations by local civic leaders, PR professionals, reporters, press conferences, and creating crisis communications plans for a local business or nonprofit, students learn how crisis communications managers prepare to manage crises. Prerequisites: CDAE 024, CDAE 032, CDAE 128 or PSS 133.

**CDAE 145. Propaganda, Media, & Cit Respn. 3 Credits.**

Develops critical thinking skills about news media. Studies propaganda, media ownership, and the use of print media, radio, television, and the internet, to influence the public through various propaganda techniques from 1900 to present. Prerequisite: CDAE 015 or CDAE 024 or Instructor permission.

**CDAE 152. The Good Life: Place Matters. 2 Credits.**

An opportunity to think critically about the unique relationships among communities, organizations, and professionals. Uses community development and applied economics theory to analyze the fit between personal and professional values, organizational culture, and community development initiatives. Job search and recruitment skills are emphasized. Prerequisites: CDAE 024 or CDAE 041 or CDAE 044 or CDAE 045.

**CDAE 157. Consumer Law and Policy. 3 Credits.**

Law as an expression of public policy to protect consumers in the marketplace. Emphasis on laws prohibiting deceptive advertising and marketing practices. Prerequisites: ENGS 001, ENGS 057, CDAE 024, or CDAE 061; Sophomore standing.

**CDAE 158. Personal Financial Literacy. 3 Credits.**

Personal financial literacy is the possession and ability to use skills and knowledge that allows people to make informed and effective decisions with all of their financial resources. This applied course examines personal financial concepts and topics within various income levels/life. Prerequisites: CALS 002 or CALS 085, CS 002 or higher, MATH 009 or higher, or equivalent.

**CDAE 159. Consumer Law in Action I. 3 Credits.**

Under supervision of an attorney, students respond to real-world phone, online, and mail requests for consumer information and handle consumer complaints to connect consumers with appropriate and effective resources, professionals, and protections. Sponsored with the Vermont Attorney General's Office. Prerequisite: CDAE 157 or Instructor permission.

**CDAE 164. Design+Cultural Entrepreneurshp. 3 Credits.**

Examines models of cultural entrepreneurship focusing on local creative communities, makerspaces, incubators etc that serve as models for design analysis within cultural ecosystems. Lectures with practitioners, incubator visits, and community/studio-based projects, students will synthesize research to envision creative economic opportunities. Prerequisite: CDAE 002 or CDAE 061 or CDAE 024 or CDAE 015 or Instructor permission.

**CDAE 166. Intro to Comm Entrepreneurship. 3 Credits.**

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. Prerequisites: One of the following: CDAE 002, CDAE 061, or permission.

**CDAE 167. Fin Mgmt: Comm Entrepreneurs. 0 or 4 Credits.**

Understanding and creating business and personal financial records for entrepreneurs including applications common to entrepreneurial business practices using contemporary financial software. Prerequisite: CDAE 166 or Instructor permission; must take lab.

**CDAE 168. SU:Marketing:Com Entrepreneurs. 3 Credits.**

Marketing concepts and methods and their applications for community entrepreneurs. Focus on development of marketing plan and its use in guiding business operations. Prerequisite: CDAE 061 or permission.

**CDAE 170. Green Building Energy Systems. 3 Credits.**

Covers all things related to energy flows in the built environment. Housing and building energy systems will be a focus, as will things like landscaping, community design, and the social behaviors around energy usage and systems. Prerequisites: CDAE 001 or CDAE 002 or CDAE 006.

**CDAE 171. Community&Int'l Econ Transform. 3 Credits.**

Models of economic development, including constraints to economic transformation and policy approaches and strategies for promoting social welfare and sustainable development. Prerequisites: CDAE 002; Instructor permission required.

**CDAE 173. Evolving Trends in Int'l Devel. 3 Credits.**

Examines how donor countries have approached international development since World War II. Includes focus on a range of issues including health, agriculture, conflict resolution, democracy and governance, shifting terms of trade and globalization's effects on international development. Prerequisite: CDAE 002 or POLS 021 or POLS 041 or POLS 051 or POLS 071 or ENVS 002.

**CDAE 174. Global Media & Intl Developmen. 3 Credits.**

Focuses on an understanding of global communication issues related to international development. Examines different aspects of global communication, such as world press systems, codes of ethics, new world information and communication order, cultural imperialism and public diplomacy. Prerequisite: CDAE 002, CDAE 024, CDAE 061, ENVS 002, or SOC 043.

**CDAE 175. Farm Credit Fellowship Prac/Sem. 1 Credit.**

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

**CDAE 176. Communicating Science. 3 Credits.**

Science communication theories, contexts, and practices. Students examine the relationship between science and society before developing written, visual, spoken, and mediated messages promoting respect and shared understandings of science among researchers, journalists, public relations specialists, policy officials, and the public. Prerequisite: CDAE 024.

**CDAE 178. Socially Responsible Marketing. 3 Credits.**

Addresses communication with the public to build stronger, healthier, safer communities. Students use public communication skills to craft messages for a defined audience and consider how public/private entrepreneurs/organizations can help solve societal problems, particularly related to college-aged audiences.

**CDAE 186. Community Developmt:St Lucia I. 3 Credits.**

A general introduction to problems of sustainable development on small island developing states utilizing a case study of St. Lucia, West Indies. Prerequisites: CDAE 002 or CDAE 061; Instructor permission.

**CDAE 187. Community Developmt:St Lucia II. 1 Credit.**

The travel component to CDAE 186. Prerequisite: CDAE 186.

**CDAE 191. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**CDAE 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CDAE 195. Special Topics. 1-18 Credits.**

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

**CDAE 196. Internship. 1-15 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty the instructor of record, for which academic credit is awarded. Total credit toward graduation in CDAE 196 and CDAE 296 cannot exceed fifteen hours. Offered at department discretion. Prerequisite: Instructor permission.

**CDAE 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CDAE 205. Rural Comm in Modern Society. 3 Credits.**

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.

**CDAE 207. The Real Cost of Food. 3 Credits.**

Learn how producers, processors, wholesalers, cooperatives, retailers, consumers, and governments affect the movement of food and fiber products through the production-marketing chain. Prerequisite: CDAE 061 or equivalent.

**CDAE 208. Agricultural Policy and Ethics. 3 Credits.**

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: CDAE 102 or equivalent.

**CDAE 218. Community Org & Development. 3 Credits.**

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 Instructor permission.

**CDAE 224. Public Communication Capstone. 3 Credits.**

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: Senior standing; CDAE 024, CDAE 015, and CDAE 121 or CDAE 120.

**CDAE 231. Applied Computer Graphics. 3 Credits.**

Directed research, planning, design, technical experimentation, production, and evaluation for computer-generated design application. Prerequisite: CDAE 015 or Instructor permission.

**CDAE 237. Economics of Sustainability. 3 Credits.**

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: CDAE 102 or Instructor permission.



**CDAE 250. Applied Research Methods. 0 or 4 Credits.**

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: One of the following: STAT 141, STAT 111, or equivalent course. Must register for CDAE 250 lab.

**CDAE 251. Contemp Policy Iss:Comm Dev. 3 Credits.**

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. Prerequisites: One of the following: CDAE 102, CDAE 171, CDAE 186, or equivalent course.

**CDAE 253. Macroeconomics for Appl Econ. 3 Credits.**

Explore macroeconomic principles and concepts as they affect individuals and businesses in local, regional, national, and global economics. Prerequisites: CDAE 102 or equivalent.

**CDAE 254. Microeconomics for Appl Econ. 3 Credits.**

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: CDAE 102 or equivalent.

**CDAE 255. Applied Consumption Economics. 3 Credits.**

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. Pre/Co-requisite: CDAE 254 or EC 172.

**CDAE 259. Consumer Law in Action II. 3 Credits.**

Practicum providing experience working as an advanced consumer advocate in the Consumer Assistance Program office. Builds on CDAE 159 experience with students addressing more complex consumer complaints and inquiries as well as leading student teams. Jointly sponsored with the Vermont Attorney General's Office. Prerequisites: CDAE 159 and Instructor permission.

**CDAE 260. Smart Resilient Communities. 3 Credits.**

Focus on social ecological systems integration framework to determine community resilience, enable smart design processes at the nexus of food, energy and water systems and learn practical skills, such as early warning systems, ubiquitous computing and interactive scenario planning techniques. Prerequisite: CDAE 102 or Graduate standing. Cross-listed with: PA 260.

**CDAE 266. Dec Making:Comm Entrepreneurs. 3 Credits.**

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 CALS 002.

**CDAE 267. Strat Plan:Comm Entrepreneurs. 4 Credits.**

Applications of marketing, finance, and management strategies. Drafting a real working business plan for community entrepreneurs and economic development. Prerequisites: One of the following: CDAE 166, CDAE 167, CDAE 168, or equivalent course; Senior standing only.

**CDAE 271. Local Community Initiatives. 3 Credits.**

Provides a robust understanding of the history of Vermont community development; ongoing Vermont projects; ideas and plans for maintaining and invigorating the local community and future economy. Students work with community partners to identify and prioritize community needs and develop a project to address those. Prerequisite: CDAE 102.

**CDAE 272. Int'l Economic Development. 3 Credits.**

International trade, finance, investment, and development theories and policies for community development. Prerequisite: CDAE 102 or EC 100-172.

**CDAE 273. Project Development & Planning. 3 Credits.**

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-requisites: CDAE 102 or Instructor permission.

**CDAE 276. Community Design Studio. 3 Credits.**

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. Prerequisites: CDAE 015, CDAE 001, or equivalent.

**CDAE 278. Applied Community Planning. 3 Credits.**

Project-based community planning studio; students work collaboratively with community partners. Topics vary in response to the project and will typically include visioning, strategic action planning, community engagement and facilitation techniques, values-based decision making, mapping, and creative placemaking. Prerequisite: CDAE 102, NR 104, or PSS 137.

**CDAE 286. Adv Sust Dev Sm Island States. 4 Credits.**

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. Prerequisites: CDAE 186 and Instructor permission required.

**CDAE 291. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Department permission.

**CDAE 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CDAE 295. Special Topics. 1-18 Credits.**

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



**CDAE 296. Internship. 1-15 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Total credit toward graduation in CDAE 196 and CDAE 296 cannot exceed 15 credits. Offered at department discretion.

**CDAE 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Senior standing.

**COMPLEX SYSTEMS (CSYS)****Courses****CSYS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CSYS 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CSYS 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CSYS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CSYS 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CSYS 266. QR:Chaos,Fractals&Dynamical Syst. 3 Credits.**

Discrete and continuous dynamical systems, Julia sets, the Mandelbrot set, period doubling, renormalization, Henon map, phase plane analysis, and Lorenz equations. Prerequisite: MATH 122 or MATH 124. CS 020 or CS 021 recommended. Cross-listed with: MATH 266.

**CSYS 268. QR:Mathematical Biology&Ecol. 3 Credits.**

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: MATH 122 or MATH 124; MATH 230 or MATH 271; or instructor permission. Cross-listed with: MATH 268.

**CSYS 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CSYS 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**COMPUTER INFORMATION SYSTEMS (CIS)****Courses****CIS 001. SU: Cybersecurity Law & Policy. 3 Credits.**

U.S. statutes, regulations, and judicial decisions dealing with cybersecurity; politics and policies that are relevant to cyberspace governance; ways to create digitally resilient organizations; the relationship between cybersecurity and sustainability.

**CIS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CIS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CIS 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CIS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CIS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CIS 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CIS 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CIS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CIS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CIS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CIS 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CIS 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CIS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**COMPUTER SCIENCE (CS)****Courses****CS 005. Introductory Special Topics. 1-3 Credits.**

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

**CS 006. Exploring Cybersecurity. 3 Credits.**

Fundamental concepts and tools utilized by cybersecurity professionals to assess and detect software and network vulnerabilities; best practices in physical and data security through the use of appropriate risk management methodologies. No credit if taken after CS 166 or 266.

**CS 008. QR: Intro to Web Site Dev. 0 or 3 Credits.**

Provides a strong foundation in HTML, CSS, images, beginning web programming, and web design so that the student can create a complete functional web site in a team based final project.

**CS 020. QR: Programming for Engineers. 0 or 3 Credits.**

Introduction to computer programming principles using MATLAB, with applications chosen from civil, electrical, environmental, and mechanical engineering. Co-requisite: MATH 021. Cross-listed with: ENGR 020.

**CS 021. QR: Computer Programming I. 0 or 3 Credits.**

Introduction to algorithmic problem solving and computer programming. Designed to provide a foundation for further studies in computer science.

**CS 031. C Programming. 1-3 Credits.**

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: CS 020 or CS 021.

**CS 050. Seminar for New CS Majors. 1 Credit.**

A fun and accessible breadth-first introduction to the CS community and curricula at UVM. CS faculty serve as guest lecturers to introduce new CS majors to selected topics covered in upper division UVM CS electives. Prerequisites: Computer Science or Computer Science & Information Systems majors who have not yet completed CS 110. Co-requisite: CS 021 or CS 110.

**CS 064. QR: Discrete Structures. 3 Credits.**

Introduction to analytic and formal methods of computer science with practical examples, including analysis of data structures, recursion relations, proof methods, and logic programming. Credit not given for more than one of CS 064, MATH 052 or MATH 054. Prerequisites: CS 020 or CS 021 or CS 110; MATH 021 or MATH 023.

**CS 087. QR: Intro to Data Science. 3 Credits.**

Basic techniques of data harvesting and cleaning; association rules, classification and clustering; analyze, manipulate, and visualize data using programming languages. Basic principles of probability and statistical modeling/inference to make meaning out of large datasets. Cross-listed with: STAT 087.

**CS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CS 091. Instructing in Computer Sci. 0.5-6 Credits.**

Assist in instruction of undergraduate computer science courses under the direct supervision of a faculty member. Duties may include grading, office hours, laboratory and/or recitation instruction, or other related activities. Instructor permission required. Prerequisite: Instructor Permission.

**CS 094. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CS 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Instructor permission.

**CS 106. QR: Embedded Pgm in C. 2-3 Credits.**

Fundamental exercises in C programming for embedded systems (e.g., Arduino platform) including variable types, pointers, memory allocation, input/output, etc. and demonstration of advanced knowledge of these embedded systems concepts (second credit); with embedded systems project (third credit). Prerequisites: CS 020 or CS 021. Cross-listed with: EE 106.

**CS 110. QR: Intermediate Programming. 0 or 4 Credits.**

Intermediate programming concepts including common data structures, algorithms, style, design, documentation, testing and debugging techniques, and an introduction to object-oriented programming. Prerequisite: One of CS 020 or CS 021 with a grade of C- or better.

**CS 120. QR: Advanced Programming. 3 Credits.**

Build programming maturity and proficiency through significant projects with spiral development, including program specification, design, implementation, debugging, testing, validation, internal and external documentation. Focus on advanced topics including efficiency, profiling, modularity, extensibility, programming paradigms, design patterns, memory management, and generics. Prerequisite: CS 124.

**CS 121. QR: Computer Organization. 0 or 3 Credits.**

Introduction to computer system organization including performance, assembly language, machine-level data representation, arithmetic for computers, processor datapath control, memory, and input/output. Includes significant semester project. Prerequisite: CS 110.

**CS 124. QR: Data Struc & Algorithms. 3 Credits.**

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 110 with a grade of C- or better; minimum Sophomore standing.

**CS 125. QR: Computability& Complexity. 3 Credits.**

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. Co-requisite: CS 124.

**CS 142. QR: Advanced Web Design. 0-3 Credits.**

Advanced web site design, including structure, architecture, compliance, CSS, usability, and other related topics, to help create a pleasing user experience. Several team based projects during the semester with a team based final project. Prerequisite: CS 008.

**CS 145. QR:Web Client Programming. 3 Credits.**

Covers client side programming in the web browser. Explores the JavaScript programming language to include user actions in your web site, and work with the DOM (Document Object Model). Semester project. Prerequisites: CS 008; CS 020 or CS 021.

**CS 148. QR: Database Design for Web. 0 or 3 Credits.**

Design and implementation of a relational database model using SQL and PHP. Open ended final team based project, examples: ecommerce site, blogging site, members only site, learning site. Prerequisites: CS 008; CS 020 or CS 021.

**CS 166. QR: Cybersecurity Principles. 3 Credits.**

Introduction to cybersecurity, fundamental security design principles, programming flaws, malicious code, web and database security, cryptography algorithms and hashing functions; overview of computer networks and common network threat vectors. No credit if taken after CS 266. Prerequisites: CS 008, CS 021.

**CS 167. Cybersecurity Defense. 3 Credits.**

Cyber defense policy, privacy, ethics; network threat defense, intrusion detection systems, intro to penetration testing, OS security principles, system/network admin, cloud, mobile and IoT security; overview of security planning, management and incident response. Prerequisite: CS 166 or CS 266.

**CS 187. QR:Basics of Data Science. 3 Credits.**

Basic data science techniques, from import to cleaning to visualizing and modeling, using the R language. Machine learning methods include regression, classification and clustering algorithms. Programming methods include user-defined functions. Prerequisite: STAT 111 or STAT 141 or STAT 143 or STAT 211. Cross-listed with: STAT 187.

**CS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CS 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CS 192. Service Learning in CS. 1-3 Credits.**

Service learning experience that benefits the University or the Community under the direction of a CS faculty member. Prerequisite: Instructor permission.

**CS 195. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Instructor permission.

**CS 196. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CS 198. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CS 201. QR: Operating Systems. 0 or 3 Credits.**

Supervisory and control software for multiprogrammed computer systems. Processes, threads, synchronization, interprocess communication, scheduling, memory management, resource allocation, performance evaluation, secondary storage, case studies. Prerequisites: CS 120 and CS 121.

**CS 202. Compiler Construction. 3 Credits.**

Covers the design and construction of compilers and translation of high-level programming languages to assembly language. Topics include code representation, register allocation, optimization, static analysis, mutable data, garbage collection, and compilation of higher-order language features. Prerequisites: CS 124, CS 125.

**CS 204. QR: Database Systems. 3 Credits.**

Techniques for processing very large collections of data. Secondary storage. Database design and management. Query languages and optimization. Database recovery. Prerequisite: CS 124.

**CS 205. QR: Software Engineering. 3 Credits.**

Treatment of software engineering problems and principles, with a focus on iterative software development. A significant part of the course is devoted to two multi-week team projects. Prerequisite: CS 120.

**CS 206. QR: Evolutionary Robotics. 3 Credits.**

Exploration of the automated design of autonomous machines using evolutionary algorithms. Coursework involves reading of research papers, programming assignments and a final project. Prerequisites: Junior standing and programming experience, or Instructor permission.

**CS 211. Data Privacy. 3 Credits.**

Explores the research field of data privacy, including privacy attacks on anonymized data, and formal approaches like k-Anonymity and differential privacy. Applies the theory of data privacy to real problems in programming projects. Prerequisites: CS 124, CS 125.



**CS 222. QR: Computer Architecture. 3 Credits.**

Architecture of computing systems. Control unit logic, input/output processors and devices, asynchronous processing, concurrency, parallelism, and memory hierarchies. Prerequisite: CS 121.

**CS 224. QR: Algorithm Design & Analysis. 3 Credits.**

Comprehensive study of algorithms including greedy algorithms, divide and conquer, dynamic programming, graph algorithms and network flow. Computational intractability. Approximation, local search and randomization. Prerequisite: CS 124. Pre/co-requisites: Recommended: CS 125; STAT 143, STAT 151, or CS 128.

**CS 225. QR: Programming Languages. 3 Credits.**

The principles of programming language design and fundamental implementation concepts. Syntax, semantics, and static program analysis for various paradigms. Programming language metatheory, including confluence and type safety. Stack-based implementation and memory management issues. Prerequisites: CS 124, CS 125.

**CS 226. QR: Software Verification. 3 Credits.**

Principles and practice of software specification and verification. Design of algorithms which are verified correct using interactive or automated, software-based tools. Emphasis on the design space for software specification, and the spectrum of verification goals ranging from shallow to deep verification. Includes a course project. Prerequisites: CS 124, CS 125.

**CS 228. QR: Human-Computer Interaction. 3 Credits.**

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.

**CS 237. QR: Intro to Numerical Analysis. 3 Credits.**

Error analysis, root-finding, interpolation, least squares, quadrature, linear equations, numerical solution of ordinary differential equations. Prerequisites: Math 121; MATH 122 or MATH 124 or MATH 271; CS 020 or CS 021. Cross-listed with: MATH 237.

**CS 243. QR: Theory of Computation. 3 Credits.**

Reducibility and decidability, recursion theory, time and space complexity, P, NP, NP-completeness, PSPACE, PSPACE-completeness, L and NL, advanced topics in computability and complexity. Prerequisites: CS 124 and CS 125.

**CS 253. QR: Reinforcement Learning. 3 Credits.**

Students will program agents that learn to optimize a reward function using Reinforcement Learning; Markov Decision Processes with discrete states, Value Iteration, Policy Iteration, Q-learning and SARSA, methods for value function approximation in complex domains using linear and non-linear methods. Prerequisites: CS 064 or MATH 052; STAT 151 or STAT 251; CS 110. Pre/Co-requisites: MATH 122 or MATH 124; CS 125.

**CS 254. QR: Machine Learning. 3 Credits.**

Introduction to machine learning algorithms, theory, and implementation, including supervised and unsupervised learning; topics typically include linear and logistic regression, learning theory, support vector machines, decision trees, backpropagation artificial neural networks, and an introduction to deep learning. Includes a team-based project. Prerequisites: STAT 151 or STAT 251; MATH 122 or MATH 124.

**CS 265. QR: Computer Networks. 3 Credits.**

Introduction to the theoretical and pragmatic principles and practices of computer networking. Topics include: the Internet; wired and wireless communications protocols; network security protocols. Prerequisites: CS 110; CS 121.

**CS 266. QR: Network Security & Cryptography. 3 Credits.**

Security and secrecy in a networked environment. Cryptography: public and private key. Authentication: trusted agents, tickets. Electronic mail and digital signatures. Privacy and national security. Prerequisite: CS 124.

**CS 275. QR: Mobile App Development I. 3 Credits.**

A projects-based course focusing on software development for mobile devices, including the concepts of event-driven programming, GUI design and implementation, utilization of hardware sensors, and client/server applications. A significant part of the course is devoted to a multi-month team development project. Prerequisite: CS 120, Senior standing. Pre/co-requisites: Recommended: CS 148 or CS 204.

**CS 283. Undergraduate Honors Thesis. 3 Credits.**

See description of Honors Thesis Program in the College of EM section of this catalog. Prerequisite: CEMS 101.

**CS 284. Undergraduate Honors Thesis. 3 Credits.**

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

**CS 287. QR: Data Science I. 3 Credits.**

Data harvesting, cleaning, and summarizing. Working with non-traditional, non-numeric data (social network, natural language textual data, etc.). Scientific visualization using static and interactive 'infographics.' A practical focus on real datasets, and developing good habits for rigorous and reproducible computational science. Project-based. Prerequisites: CS 020 or CS 021; STAT 141 or STAT 143 or STAT 211. Pre/co-requisites: Recommended: CS 110; Math 122 or Math 124. Cross-listed with: STAT 287.

**CS 288. QR: Statistical Learning. 3 Credits.**

Statistical learning methods and applications to modern problems in science, industry, and society. Topics include: linear model selection, cross-validation, lasso and ridge regression, tree-based methods, bagging and boosting, support vector machines, and unsupervised learning. Prerequisites: STAT 143, STAT 183 or STAT 211. Cross-listed with: STAT 288.

**CS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CS 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.



**CS 292. Senior Seminar. 1 Credit.**

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.

**CS 293. Computing Career Preparation. 1 Credit.**

Seminar to help students develop necessary skills for becoming computing professionals and exposes them to different computing careers. Topics include job search strategies, preparation for technical interviews, networking, and developing soft skills. Several guest lectures by computing professionals and alumni. Prerequisite: CS 124.

**CS 294. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CS 295. Special Topic: Computer Science. 1-18 Credits.**

See Schedule of Courses for specific titles. Subject will vary from year to year. May be repeated for credit with instructor permission.

**CS 298. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## COUNSELING (EDCO)

### Courses

**EDCO 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EDCO 091. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EDCO 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDCO 101. The Helping Relationship. 3 Credits.**

Exposes students to domains of personal and professional development necessary for successful careers in helping professions. A key component involves helping conversations with students in the graduate counseling program. Prerequisites: For Human Development and Family Studies students: HDFS 005 and HDFS 060 (HDFS may be taken concurrently with HDFS 101); Sophomore standing; or Instructor permission. Priority: Human Development and Family Studies majors, concentrators, and minors. Cross-listed with: HDFS 101.

**EDCO 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EDCO 191. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EDCO 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDCO 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDCO 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDCO 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EDCO 291. Special Topics in Counseling. 0-18 Credits.**

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.

**EDCO 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDCO 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDCO 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## CRITICAL RACE AND ETHNIC STUDIES (CRES)

### Courses

**CRES 011. D1: Race/Racism Across Disciplines. 3 Credits.**

A multi-disciplinary introduction to the Critical Race and Ethnic Studies minor focusing on how various disciplines utilize different epistemologies and methodologies to address a single topic: race and racism.

**CRES 061. D1: Asian-American Experiences. 3 Credits.**

An overview of the socio-historical conditions of people of Asian descent in the United States, along with an examination of contemporary issues.

**CRES 065. D1:Sociology of Race. 3 Credits.**

Overview of diverse institutional, cultural, and socio-historical issues relating to U.S. ethnoracial minority groups. Critical evaluation of race/ethnicity and consequences of such categorization. May not be taken for credit concurrently with, or following receipt of, credit for SOC 019.

**CRES 075. D1:Diversity:Cont US Theatre. 3 Credits.**

An exploration of plays and playwrights in contemporary theatre focusing on themes pertaining to race, sexuality, gender, and the physically challenged. Prerequisite: Minimum Sophomore standing. Cross-listed with: THE 075.

**CRES 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CRES 093. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CRES 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CRES 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CRES 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisites: A contract must be obtained from and returned to the Critical Race & Ethnic Studies Program office during registration; permission of Director of Critical Race & Ethnic Studies.

**CRES 193. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CRES 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CRES 195. Intermediate Special Topics. 1-18 Credits.**

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

**CRES 196. Intermediate Special Topics. 1-18 Credits.**

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

**CRES 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**CRES 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**CRES 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CRES 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CRES 295. Advanced Special Topics. 1-18 Credits.**

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

**CRES 296. Advanced Special Topics. 1-18 Credits.**

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

**CRES 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: CRES 051; permission of Director of Critical Race & Ethnic Studies.

**CRES 298. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: CRES 051; permission of Director of Critical Race & Ethnic Studies.

**CRES 299. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## CURRICULUM & INSTRUCTION (EDCI)

### Courses

**EDCI 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDCI 096. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EDCI 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDCI 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EDCI 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDCI 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDCI 200. Contemporary Issues. 0-6 Credits.**

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

**EDCI 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDCI 294. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EDCI 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDCI 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## DANCE (DNCE)

### Courses

**DNCE 001. Dance in the Contemporary World. 3 Credits.**

An examination of dance as it exists in contemporary life, art, culture, entertainment and/or performance. Topics vary. Emphasis on reading, writing, viewing videos/films, and attending live performances, mixed with practical/creative experiential learning.

**DNCE 005. D2: Intro to World Dance Cult. 3 Credits.**

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.

**DNCE 006. D2: Intro Asian Theatre & Dance. 3 Credits.**

Survey of traditional dance/theatre forms in Asia, including performance traditions from China, Korea, Japan, India, Indonesia and other locations, focusing on the religious, historical, and cultural backgrounds and their influences on contemporary performance. Cross-listed with: THE 077.

**DNCE 011. Contemporary Dance I. 2 Credits.**

Introduction to applied practice in contemporary dance. Open to students with no previous dance training. Emphasis on fundamentals of contemporary dance technique and movement mechanics. Includes basic composition and experiential anatomy. Reading, writing, and attending live performances required.

**DNCE 012. Contemporary Dance II. 2 Credits.**

Beginning/intermediate level applied practice in contemporary dance. Training in dance technique, including an investigation of historical contributions to modern/contemporary dance technique and choreography. Reading, writing, and attending live performances required. Prerequisite: DNCE 011 or Instructor permission.

**DNCE 015. Yoga for Dancers. 1 Credit.**

Designed for dancers, introduces the language, philosophy, history, and concepts of Yoga. Emphasis on asanas (poses) for increased flexibility, improved health, relaxation, and reduced stress in daily living. Appropriate for all levels of fitness.

**DNCE 016. Pilates. 1 Credit.**

Kinesthetic and intellectual introduction to the physical conditioning techniques of Joseph Pilates. Matwork exercises to develop strength, flexibility, stamina, coordination and mind/body awareness. Appropriate for all levels of fitness.

**DNCE 021. Ballet I. 2 Credits.**

Introduction to applied practice in ballet. Open to students with no previous dance experience. Training in classical exercises and vocabulary, with focus on placement, alignment, coordination, basic anatomy, and movement quality. Reading, writing, and attending live performances required.

**DNCE 022. Ballet II. 2 Credits.**

Beginning/intermediate level applied practice in ballet. Emphasis on expansion of ballet vocabulary, mastery of barre and center floor exercises, and ballet technique for contemporary dance. Reading, writing, and attending live performances required. Prerequisite: DNCE 021 or Instructor permission.

**DNCE 025. Hip Hop I. 2 Credits.**

Introduction to applied practice in Hip Hop dance. Open to students with no previous dance training. Emphasis on technique and movement; includes overview of the origins and history of Hip Hop. Reading, writing, and attending live performances required.

**DNCE 031. D2: African Forms. 3 Credits.**

A detailed study of the practice, history, and cultural significance of African and/or African-derived dance forms. Major emphasis on physical training.

**DNCE 033. D2: Brazilian Dance. 3 Credits.**

Exposure to Brazilian culture through embodied dance practice, informed by studies of music, race, ethnicity, and socioeconomic diversity in Brazil. Focus on Brazil's most popular and traditional dances. Reading, writing, and attending live performances required.

**DNCE 037. D2: Capoeira. 3 Credits.**

Includes dancing, fighting, singing, drumming, reading, writing, and interacting within a specially tailored class-culture. The course uses methods from anthropology, science, philosophy, religion, history, and gender studies to form an analysis of cultural behavior.



**DNCE 050. Dance History & Legends. 3 Credits.**

A survey of dance history in Western civilization from the Renaissance to the present. Emphasis on the dance idioms of ballet and modern dance.

**DNCE 060. Movement & Improvisation. 3 Credits.**

Guided exploration in dance elements for the creative development of personal movement vocabulary, spontaneous group interaction, as well as overall individual and environmental awareness.

**DNCE 092. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**DNCE 095. Introductory Special Topics. 1-18 Credits.**

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

**DNCE 096. Introductory Special Topics. 1-18 Credits.**

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

**DNCE 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**DNCE 111. Contemporary Dance III. 3 Credits.**

Intermediate level applied practice in contemporary dance. Emphasis on technical training; also includes movement and compositional exploration of somatic work. Reading, writing, and attending live performances required. May be repeated for credit. Prerequisite: DNCE 012 or Instructor permission.

**DNCE 112. Contemporary Dance IV. 3 Credits.**

Intermediate/advanced level applied practice in contemporary dance. Strong emphasis on technical training, including the study of current developments in the field of contemporary dance. Reading, writing, and attending live performances required. May be repeated for credit. Prerequisite: DNCE 111 or Instructor permission.

**DNCE 116. Musical Theatre Dance. 3 Credits.**

The art of dance in musical theatre with training in performance skills, vocabulary, choreography, and specific styles of musical theatre dance. Special emphasis on choreographers whose works influenced musical theatre dance. Reading, writing, and attending live performances required. Prerequisite: DNCE 021.

**DNCE 121. Ballet III. 3 Credits.**

Intermediate level practice in ballet. Increased competence and stamina in the practice of classical vocabulary/exercises. Emphasis on expanded anatomical principles in dance, as well as developing expressive performance. Reading, writing, and attending live performances required. May be repeated for credit. Prerequisite: DNCE 022 or Instructor permission.

**DNCE 150. D1: Jazz in American Dance. 3 Credits.**

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 050 or Instructor permission.

**DNCE 155. D2: Sex, Gender & Social Dance. 3 Credits.**

A study of social dances from around the world with emphasis on how they reflect, shape, support and challenge cultural concepts of sex and gender. Reading, writing, basic dancing, and live events required. Prerequisite: DNCE 005 or DNCE 050 or DNCE 150.

**DNCE 160. Dance Composition. 3 Credits.**

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-requisite: DNCE 060 or Instructor permission.

**DNCE 165. Contact Improvisation. 1 Credit.**

Practical study of contact improvisation, a socially inclusive, radical movement practice in which two or more bodies make contact with each other, sharing skin, weight, and intention in improvised dances. Prerequisite: DNCE 060.

**DNCE 175. Dance Repertory. 1 Credit.**

Participation in the learning and rehearsal of dance choreography. May or may not be performed for the public. Pre/co-requisite: Audition or Instructor permission.

**DNCE 176. Dance Performance Practicum. 1-3 Credits.**

Participation in faculty-supervised dance performances; includes focus on dance rehearsal, music accompaniment/ composition, and/or technical/design preparation leading to fully realized public performances. Prerequisites: Audition or Instructor permission.

**DNCE 177. Site Performance Practicum. 1-3 Credits.**

Participation in faculty-supervised site-based performances. Emphasis on creative research that leads to performance. Includes focus on performance development/rehearsal, music accompaniment/ composition, and/or technical/design preparation leading to a fully realized public performance. Prerequisite: Audition or Instructor permission.

**DNCE 192. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**DNCE 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**DNCE 195. Intermediate Special Topics. 1-18 Credits.**

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

**DNCE 196. Intermediate Special Topics. 1-18 Credits.**

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



**DNCE 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Department permission.

**DNCE 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Department permission.

**DNCE 211. Contemporary Dance V. 1 Credit.**

Advanced level contemporary dance technique. Focus on performance, skills development, anatomical awareness, and overall conditioning. Prerequisite: DNCE 112 or Instructor permission.

**DNCE 212. Contemporary Dance VI. 1 Credit.**

Advanced level contemporary dance technique. Focus on skills development, anatomical awareness, and performance training. Prerequisite: DNCE 211 or Instructor permission.

**DNCE 260. Choreography Workshop. 3 Credits.**

Employing a variety of choreographic methodologies, students work toward developing their unique artistry in dance creation and performance through faculty-supervised projects. Special emphasis on creative collaboration with other artists and performance organization/marketing. Reading, writing, and attending live performances required. Prerequisites: DNCE 060, DNCE 160.

**DNCE 265. Advanced Improvisation. 3 Credits.**

For experienced movers and improvisers. Continued investigation of movement's relationship to text, space, music, sound, contact, and solo/group dynamics. Special emphasis on compositional tools embedded in the creation of improvisational structures/scores. Reading, writing, and attending live performance or movement labs. Prerequisites: DNCE 060; DNCE 160 or DNCE 165 recommended.

**DNCE 280. Advanced Studies in Dance. 3 Credits.**

A senior-level capstone course for dance majors, involving independent creative work/research in close consultation with a faculty sponsor on a specific and advanced project. Prerequisites: Nine hours of 100-level DNCE courses; Senior standing; departmental permission.

**DNCE 292. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**DNCE 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**DNCE 295. Advanced Special Topics. 1-18 Credits.**

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

**DNCE 296. Advanced Special Topics. 1-18 Credits.**

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

**DNCE 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**DNCE 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EARLY CHILDHOOD PRE K-3 (EDEC)****Courses****EDEC 001. Intro Early Care & Education. 0 or 4 Credits.**

Service-learning course that introduces and explores early care and education. Examines current policies and practices that have direct impact on families and young children of diverse backgrounds.

**EDEC 055. Special Topics I. 2-6 Credits.**

See Schedule of Courses for specific titles.

**EDEC 063. Child Development. 3 Credits.**

The biological, psychological, and social growth and development of children and their relationships with family, peers, and institutions.

**EDEC 091. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDEC 105. Inf/Todd Curriculum Develop. 3 Credits.**

Emphasizes the development of relevant, integrated, authentic, individualized, developmentally appropriate curriculum based on formative assessments and interpretations of children's work in inclusive Infant/toddler classrooms, serving children from birth-age 3. Reflective thinking is supported by readings and discourse. Prerequisites: EDEC 001, EDEC 063 or equivalent, Praxis Core Fulfilled, Early Childhood Education or Early Childhood Special Education major, or Instructor permission. Co-requisite: EDEC 109.

**EDEC 109. Infant Toddler Practicum. 4 Credits.**

Practicum experience with infants and toddlers. Students spend 9 hours per week as a member of a diverse, infant/toddler classroom developing skills in observation/assessment, curriculum development and facilitation. Prerequisites: EDEC 001, EDEC 63 or equivalent, Praxis Core requirement fulfilled, or Instructor permission. Co-requisite: EDEC 105.

**EDEC 113. Creative Arts and Movement. 3 Credits.**

Introduces students to the fundamentals of art, music, and movement and emphasizes the importance of process-oriented experiences in teaching children birth through age 8. Students' learning will be grounded in educational theories, knowledge of children's development, reflective practice, and experiential learning. Prerequisites: EDEC 001 and minimum Sophomore standing or Instructor permission.

**EDEC 122. Culturally Responsive Educatn. 3 Credits.**

Study of ECE systems, contexts and pedagogical frameworks, corresponding with evidence-based understanding of how young children learn and develop. Students examine various models of ECE, early learning standards, DAP, multiculturalism, family-centered practices, assessments and characteristics of high quality learning environments. Prerequisite: Early Childhood PreK-3 or Early Childhood Special Education major or Instructor permission. Pre/Co-requisite: EDEC 063 or equivalent.

**EDEC 139. Collaborative Internship, ECE. 4-9 Credits.**

The student teaching experience at the UVM Campus Children's School with children birth to age five. Students work collaboratively with children, teachers, families to develop curriculum and inclusive environments that promote play, development, and learning. Prerequisites: EDEC 103, EDEC 122; Early Childhood PreK-3 or Early Childhood Special Education major or Instructor permission; Praxis Core requirement fulfilled. Co-requisite: EDEC 140.

**EDEC 145. Preschool Curriculum Devel. 3 Credits.**

Course emphasis is on developing relevant, integrated, authentic, individualized, developmentally appropriate curriculum based on observation and interpretations of children's work in PreK classrooms, serving children ages 3-5. Reflective thinking is supported by readings and discourse. Prerequisites: EDEC 001, EDEC 063 or equivalent, Praxis Core requirement fulfilled, or Instructor permission. Co-requisite: EDEC 149.

**EDEC 149. Preschool Practicum. 4 Credits.**

Practicum experience with children ages 3-5. Students spend 9 hours per week as a member of a diverse, PreK classroom developing skills in observation/assessment, curriculum development and facilitation. Prerequisites: EDEC 001, EDEC 063 or equivalent, Praxis Core equivalent fulfilled, or Instructor permission. Co-requisite: EDEC 145.

**EDEC 151. The Science of Everyday Life. 3 Credits.**

Prepares students to apply STEM content, most relevant for working with children, birth-grade 3. Examines concepts related to Life Science, Physical Science, Technology, Engineering, and Mathematics, and how play contributes to children's construction of STEM knowledge. Prerequisite: EDEC 001 or Instructor permission, and minimum Sophomore standing.

**EDEC 156. K-3 STEM: Math for Meaning. 3 Credits.**

Focuses on children's development of mathematical thinking as it relates to STEM and classroom practices (Kindergarten-Grade 3) that individualize 'mathematizing within a socio-constructivist context of learning. Integrated approach to curriculum development with an emphasis on inquiry and 'real world' investigations. Prerequisites: EDEC 063 or equivalent, Praxis Core fulfilled, Early Childhood PreK-3 majors, or Instructor permission. Co-requisites: EDEC 179, EDEC 181, EDEC 182.

**EDEC 179. K-3 Interdisciplinry Practicum. 4-6 Credits.**

Inter-disciplinary practicum in a K-3 public school classroom, designed to provide students with opportunities to practice teaching methods in Literacy, Math, Science and Social Studies while ensuring a differentiated approach to curriculum development, instruction and assessment. Prerequisites: EDEC 063 or equivalent, Praxis Core Requirement fulfilled, Early Childhood PreK-3 major, or Instructor permission. Co-requisites: EDEC 156, EDEC 181, EDEC 182.

**EDEC 181. K-3 Inquiry. 3 Credits.**

Provides the foundation needed to implement an integrated approach to designing, implementing, and evaluating a science and social studies curriculum in the K-3, early elementary context. Experience with Next Generation Science and 3C Framework for Social Studies. Prerequisites: EDEC 063 or equivalent, Praxis Core Requirement fulfilled, Early Childhood PreK-3 major, or Instructor permission. Co-requisites: EDEC 156, EDEC 179, EDEC 182.

**EDEC 182. K-3 Literacy. 3 Credits.**

Provides the foundation needed to implement an integrated approach to designing, presenting, and evaluating an English Language Arts (ELA) curriculum across content areas while providing an important understanding of the qualities of children's literature. Prerequisites: EDEC 063, Praxis Core Requirement fulfilled, Early Childhood PreK-3 major, or Instructor permission. Co-requisites: EDEC 156, EDEC 179, EDEC 181.

**EDEC 187. Early Childhood Studnt Teachng. 12 Credits.**

Full time, semester-long student teaching experience in an early childhood setting for children birth through grade three. Prerequisites: EDEC 179; Early Childhood PreK-3 major; Praxis Core Requirement Fulfilled; GPA of 3.0 or higher. Co-requisite: EDEC 188.

**EDEC 188. Student Teaching Seminar. 3 Credits.**

Supports the EDEC 187 Early Childhood Student Teaching. It will address pertinent issues in early education teaching and learning, while preparing students to construct their licensure portfolios. Prerequisites: EDEC 103, EDEC 139, EDEC 179; Early Childhood PreK-3 major; Praxis Core Requirement fulfilled; GPA of 3.0. Co-requisite: EDEC 187.

**EDEC 190. Early Childhood Internship. 3-6 Credits.**

A non-licensure practicum for students interested in gaining valuable, individually-defined, service learning experience working with young children- as well as their parents, teachers, advocates and support systems- in a collaborative, community-based context. Students will pursue a relevant action research project related to their field experience. Prerequisite: EDEC 001 or HDF5 005 or SWSS 002, or Instructor permission.

**EDEC 191. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDEC 195. Special Topics. 1-18 Credits.**

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.

**EDEC 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDEC 198. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDEC 291. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Department permission.

**EDEC 295. Special Topics. 1-18 Credits.**

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once. Prerequisite: Department permission.

**EDEC 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDEC 298. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

## EARLY CHILDHOOD SPECIAL EDUC (ECSP)

### Courses

**ECSP 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ECSP 096. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**ECSP 105. Individualized Prac for Inclusion. 3 Credits.**

Focuses on the learning and development needs of children with or at-risk for disabilities and other diverse young learners within inclusive early childhood settings.

**ECSP 187. Student Teaching Practicum. 9-12 Credits.**

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 202, ECSP210, ECSP 211; Praxis Core requirement fulfilled; minimum GPA of 3.0 or higher.

**ECSP 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ECSP 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**ECSP 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ECSP 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ECSP 202. D2:EI for Infants and Toddlers. 3 Credits.**

An introduction to the field of Early Intervention for supporting infants and toddlers with and at risk for developmental delay or disability and their families. Stresses a routines-based and family-centered approach within the natural environment. Prerequisites: Early Childhood Special Education undergraduate or graduate students or Instructor permission.

**ECSP 210. Curriculum in ECSP. 3-4 Credits.**

Designing and implementing services and supports for young preschool-age children with diverse abilities. Topics include IEPs, embedding instruction, specialized instruction, and inclusion. Three credits, four credits with 30-hour field experience. Prerequisites: Early Childhood Special Education undergraduate students or with Instructor permission.

**ECSP 211. Assessment in EI/ECSE. 3-4 Credits.**

Overview of the strengths and limitations of traditional and nontraditional assessments; legal responsibilities, eligibility, family, and cultural aspects. Three credits, four credits for Early Childhood Special Education majors with 30-hour field experience. Prerequisites: Early Childhood Special Education undergraduate students or with Instructor permission. Pre/Co-requisites: Early Childhood Special Education major; instructor permission required for Special Education minors.

**ECSP 220. Seminar in EI/ECSE. 3 Credits.**

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.

**ECSP 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ECSP 294. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**ECSP 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ECSP 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.



## ECONOMICS (EC)

### Courses

#### **EC 011. Principles of Macroeconomics. 3 Credits.**

Introduction to economic concepts, institutions, and analysis, particularly as related to the economy as a whole. May be taught with traditional approach or with strong mathematical emphasis.

#### **EC 012. Principles of Microeconomics. 3 Credits.**

Study of individual economic units with particular emphasis on market interactions among firms and households.

#### **EC 020. Economic Problems. 3 Credits.**

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.

#### **EC 040. D2:SU:Econ of Globalization. 3 Credits.**

An examination of the dimensions, causes and consequences of the international flows of goods and services (trade), people (migration), and financial capital.

#### **EC 045. D2: Latin American Development. 3 Credits.**

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.

#### **EC 053. D1:Political Economy of Race. 3 Credits.**

An examination of the links between race and ethnicity and economic outcomes. Exploration of the definition of race and ethnicity, economic theories of discrimination, stereotyping, legacy impacts, affirmative action, wealth disparities, concepts of identity, and the effect of skin shade.

#### **EC 060. Capitalism & Human Welfare. 3 Credits.**

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.

#### **EC 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

#### **EC 093. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

#### **EC 095. Intro Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

#### **EC 096. Intro Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

#### **EC 110. American Economic History. 3 Credits.**

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. Prerequisites: EC 011, EC 012.

#### **EC 116. Comparative Economic Systems. 3 Credits.**

Major economic systems of the world, in both theory and practice, with focus on understanding how economic systems work and how economic theory interacts with government policy, history, and culture to explain economic performance. Prerequisites: EC 011 and EC 012.

#### **EC 120. Money and Banking. 3 Credits.**

Commercial and central banking with special attention given to the Federal Reserve system, monetary theory, and policy. Prerequisites: EC 011, EC 012.

#### **EC 130. Public Policy. 3 Credits.**

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. Prerequisites: EC 011, EC 012.

#### **EC 133. SU:Economics Envirnmntl Policy. 3 Credits.**

Investigation of the relationship of markets and government regulation to environmental quality. Alternative public policies to improve efficiency and equity will be evaluated. Prerequisites: EC 011, EC 012.

#### **EC 135. Law and Economics. 3 Credits.**

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. Prerequisites: EC 011, EC 012.

#### **EC 137. Using Data for Economic Policy. 3 Credits.**

How to locate, use, and present economic data to understand economic issues, problems, and policy, and integrate data into written and oral presentations. Prerequisites: EC 011, EC 012.

#### **EC 138. Game Theory. 3 Credits.**

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: EC 011, EC 012.

#### **EC 140. Economic Development. 3 Credits.**

Theories of economic growth applied to developing countries of the contemporary world including the political and social determinants of economic progress. Prerequisites: EC 011, EC 012.

#### **EC 143. International Econ I: Trade. 3 Credits.**

Trade Theory, policy, and history of international trade patterns, terms of trade, protectionism, competitiveness, structural adjustment, and international aspects of microeconomics. Prerequisites: EC 011, EC 012.

#### **EC 146. International Econ II:Finance. 3 Credits.**

Finance Theory, policy, and history of foreign-exchange markets, balance of payments, world monetary arrangements, and international aspects of macroeconomics and capital markets. Prerequisites: EC 011, EC 012.

#### **EC 150. Labor Economics. 3 Credits.**

The economics of work, including wage determination, unemployment, productivity, discrimination, unions, and policy issues. Prerequisites: EC 011, EC 012.



**EC 156. Economics of Gender. 3 Credits.**

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. Prerequisites: EC 011, EC 012. Cross-listed with: GSWS 185.

**EC 160. Industrial Organization. 3 Credits.**

The structure, conduct, and performance of U.S. industry and appraisal of its economic efficiency and social impact, including governmental policies. Prerequisites: EC 011, EC 012.

**EC 170. QR:Economic Methods. 3 Credits.**

Introduces statistical and mathematical methods for understanding economic literature including probability distributions, data sources, statistical concepts, and simple regression, uses economic examples/applications. Prerequisites: EC 011, EC 012; MATH 019 or MATH 021. No credit for both EC 170 and STAT 141.

**EC 171. Macroeconomic Theory. 3 Credits.**

Keynesian and other theories of the macroeconomy. Government policies in relation to the problems of employment, price stability, and growth. Prerequisites: EC 011, EC 012 and MATH 019 or MATH 021.

**EC 172. Microeconomic Theory. 3 Credits.**

Analysis of consumer demand, supply, market price under competitive conditions and monopolistic influences, and the theory of income distribution. Prerequisites: EC 011, EC 012 and MATH 019 or MATH 021.

**EC 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EC 193. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EC 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: EC 011, EC 012.

**EC 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: EC 011, EC 012.

**EC 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EC 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EC 200. QR:Econometrics & Applications. 3 Credits.**

A combination of economic theory, mathematics, and statistics for testing economic hypothesis and developing economic models. Conceptual development and applications. Prerequisites: EC 170, EC 171, and EC 172.

**EC 202. QR: Economic Forecasting. 3 Credits.**

Basic knowledge of how to analyze data in time series. Includes controlling for trends, seasonal components, and breakpoints. Techniques are applied to a variety of economic time series, such as inflation, stock prices, unemployment, and gross domestic product. Prerequisites: STAT 141 or EC 170; EC 171; EC 172.

**EC 210. Ec Hst, Systems & Ideas w Writing. 3 Credits.**

Topics on the evolution of economic systems and ideas. Includes a substantial writing component. Prerequisites: EC 170 or STAT 141; EC 171; EC 172.

**EC 215. Ec Hst, Systems & Ideas. 3 Credits.**

Topics on the evolution of economic systems and ideas. Prerequisites: EC 170 or STAT 141; EC 171; EC 172.

**EC 220. Macroecon & Finance w Writing. 3 Credits.**

Topics such as national economic policies, income, wealth and welfare, financial markets and the macroeconomy, central banking, and other issues concerning macroeconomics and money. Includes a substantial writing component. Prerequisites: EC 170 or STAT 141; EC 171; EC 172.

**EC 222. QR: Adv Macroeconomic Theory. 3 Credits.**

Tools and lessons of advanced macroeconomic theory with a focus on programming in Mathematica to simulate the predictions of advanced theoretical models. Prerequisites: EC 170 or STAT 141, EC 171, EC 172.

**EC 225. Macroecon & Finance. 3 Credits.**

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: EC 170 or STAT 141; EC 171; EC 172.

**EC 230. Microecon & Appl w Writing. 3 Credits.**

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. Includes a substantial writing component. Prerequisites: EC 170 or STAT 141; EC 171; EC 172.

**EC 235. Microecon & Appl. 3 Credits.**

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 or STAT 141; EC 171; EC 172.

**EC 237. Economy as a Complex System. 3 Credits.**

Enhances understanding of the application of simulation methods to economics. Topics include problems from micro and macroeconomics; game theory and general equilibrium; cellular automata, and agent-based modeling with learning and evolution. Prerequisites: EC 170 and EC 171 and EC 172.

**EC 240. Intern'l & Dev Econ w Writing. 3 Credits.**

Topics such as the economies of countries or regions, international trade agreements, international debts, deficits and structural adjustment, and aspects of development economics. Includes a substantial writing component. Prerequisites: EC 170 or STAT 141; EC 171; EC 172.

**EC 245. Intern'l & Dev Econ. 3 Credits.**

Topics such as the economies of countries or regions, international trade agreements, international debts, deficits and structural adjustment, and aspects of development economics. Prerequisites: EC 170 or STAT 141; EC 171; EC 172.

**EC 250. Labor, Race, Gender w Writing. 3 Credits.**

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. Includes a substantial writing component. Prerequisites: EC 170 or STAT 141; EC 171; EC 172.

**EC 255. Labor, Race, Gender Econ. 3 Credits.**

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: EC 170 or STAT 141; EC 171; EC 172.

**EC 260. Firms, Inst & Growth w Writing. 3 Credits.**

Topics such as antitrust and regulation, decision making and the firm, technological change and industrial policies, and the economics of growth. Includes a substantial writing component. Prerequisites: EC 170 or STAT 141; EC 171; EC 172.

**EC 265. Firms, Inst & Growth. 3 Credits.**

Topics such as antitrust and regulation, decision making and the firm, technological change and industrial policies, and the economics of growth. Prerequisites: EC 170 or STAT 141; EC 171; EC 172.

**EC 280. Advanced Economic Analysis. 3 Credits.**

Examination of major contemporary research topics in economics. Prerequisite: EC 200.

**EC 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EC 293. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EC 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EC 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: EC 170, EC 171, EC 172.

**EC 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: EC 170, EC 171, EC 172.

**EC 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: EC 170, EC 171, EC 172.

**EC 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team or research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: EC 170, EC 171, EC 172.

**EDUCATION (EDSS)****Courses****EDSS 055. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**EDSS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSS 094. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EDSS 189. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDSS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSS 194. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EDSS 195. Intermediate Special Topics. 1-6 Credits.**

Topics vary. See Schedule of Courses for specific titles.

**EDSS 196. Intermediate Special Topics. 1-6 Credits.**

Topics vary. See Schedule of Courses for specific titles.

**EDSS 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSS 200. Contemporary Issues. 0-6 Credits.**

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

**EDSS 201. Individually Designed Capstone. 3 Credits.**

Designed to serve as a culminating learning experience for the Individually Designed Major in CESS and other majors as appropriate. Supports students as they analyze and synthesize information and prepare a final written product for an oral defense. Prerequisite: Completion of or concurrent enrollment in an approved undergraduate research course or independent study and Instructor permission.

**EDSS 239. S.L.I.P. Seminar. 1-12 Credits.**

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. Prerequisites: Instructor permission; Junior standing.

**EDSS 289. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDSS 294. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EDSS 295. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

**EDSS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSS 299. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## EDUCATION FOR CULTURAL AND LINGUISTIC DIVERSITY (ECLD)

### Courses

**ECLD 056. D1:Lang Policy Issues,Race&Sch. 3 Credits.**

This course examines the connection between race and language particularly as it relates to immigration and English policies.

**ECLD 057. US Citizenship and Education. 3 Credits.**

Provides a fundamental overview of the processes for immigration and naturalization in the United States, including an exploration of the refugee system/process. Explores the corresponding educational policies put in place for English learners.

**ECLD 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ECLD 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ECLD 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ECLD 102. Bilingual Education & Policy. 3 Credits.**

Examines the foundation of educational policy as it relates to bilingual education and program planning in grades K-12 in U.S. schools. Review English language theory, as well as state and federal policy. Prerequisite: ECLD 056.

**ECLD 189. Teach Reading & Writing to ELs. 3 Credits.**

Students develop appropriate reading and writing strategies to support English learners, and then apply these strategies in a tutoring service learning context. Prerequisite: ECLD 056 or ECLD 102.

**ECLD 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ECLD 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ECLD 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ECLD 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ECLD 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ECLD 201. Developing Curriculum for ELs. 3 Credits.**

Prepares students who intend to teach in a K-12 classroom environment or similar setting by exploring language acquisition theories, instructional methods, and lesson planning for English language learners. Prerequisite: ECLD 056, ECLD 102, minimum Junior standing; or Instructor permission.

**ECLD 202. Bilingual Education & Policy. 3 Credits.**

Provides a foundation of bilingual education policy and practices. Explores theories of language acquisition and their relevance to current policies affecting linguistically diverse students and how these policies have developed through history.



**ECLD 205. Fmly Schl & Cmty Collaboration. 3 Credits.**

Provides a foundation for understanding basic concepts regarding home, school, and community collaboration. This course will focus specifically on creating partnerships between diverse families, families whose children have disabilities, and community partners and schools that serve these populations. Prerequisite: ECLD 056, ECLD 102, and minimum Junior standing; or Instructor permission. Pre/Co-requisite: Minimum Sophomore standing.

**ECLD 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ECLD 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ECLD 295. ELL Practicum. 2-3 Credits.**

A practicum opportunity for Education majors who intend to pursue the ELL endorsement for grades PreK-6, 7-12, or PreK-12. Assignments include weekly reflections, informal lessons, and resource building for teaching/tutoring English learners. Prerequisite: ECLD 056.

**ECLD 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ECLD 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ECLD 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ELECTRICAL ENGINEERING (EE)****Courses****EE 001. EE Principles and Design. 0 or 2 Credits.**

Hands-on introduction to contemporary electrical engineering principles/practice. Basic analog and digital circuit design, construction, operation, measurement. Interfacing sensors and actuators to a microcontroller, programming to interact with the world. Design project.

**EE 003. Linear Circuit Analysis I. 3 Credits.**

Circuit elements, laws, and analysis. Network principles and theorems. Energy storage elements. Magnetically coupled circuits. Transient analysis and time constants. No credit for more than one of EE 003, EE 100 and EE 075. Prerequisite: C- or better in MATH 022 or C- or better in MATH 023. Co-requisite: PHYS 125 or PHYS 152.

**EE 004. Linear Circuit Analysis II. 0 or 3 Credits.**

Sinusoids and phasors. Sinusoidal steady-state response and power. Complex frequency and network functions. Resonance. Laplace transform techniques. Prerequisites: EE 003 or EE 100 or EE 075; PHYS 125 or PHYS 152.

**EE 020. Circuits I. 0 or 4 Credits.**

Fundamental DC circuit analysis course with lab component. Topics: circuit elements and variables, integrated circuits, basic laws of circuits, method of circuit analysis. Elements of design and sensors are introduced. Prerequisite: C- or better in Math 022.

**EE 021. Circuits II. 0 or 4 Credits.**

AC circuit analysis and advanced circuit topics with lab component. Topics: AC steady state circuit analysis using phasors, AC power and efficiency, active and passive filters, generalized circuit analysis using the Laplace transform, Fourier series decomposition. Elements of design and sensors. Prerequisite: EE 020 or (EE 003 and EE 081) or EE 075 or EE 100.

**EE 075. Electrical Circuits & Sensors. 0 or 4 Credits.**

Fundamentals of electrical circuits with applications to the use of sensors. DC and AC circuits. Sensors utilized for civil engineering and environmental engineering applications. Demonstrations, hands-on exercises. No credit for more than one of EE 003, EE 075, EE 100. Prerequisites: MATH 022 or MATH 023; CS 020 or CS 021.

**EE 081. Linear Circuits Laboratory I. 0 or 2 Credits.**

Electrical instruments; oscilloscope measurements; resistive, capacitive, and inductive components; applications of operational amplifiers; digital-to-analog converters; transient response of RL and RC circuits. Co-requisites: EE 003, PHYS 125.

**EE 082. Linear Circuits Laboratory II. 0 or 2 Credits.**

Transients in RLC circuits; steady state sinusoidal response in RLC circuits; real and reactive power in RLC circuits; operational amplifier active filters. Design project. Prerequisites: EE 081 or EE 100; PHYS 125 or PHYS 152. Co-requisite: EE 004.

**EE 084. Circuits Design Project. 0 or 2 Credits.**

Project-based course focused on the design of circuits for analog-to-digital and digital-to-analog conversion, analog computing with operational amplifiers, and filtering of signals. Advanced instrumentation, fabrication methods, and printed circuit board (PCB) layout. Prerequisite: EE 020 or (EE 003 and EE 081) or EE 075 or EE 100.

**EE 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EE 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EE 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Department permission.



**EE 100. Electrical Engr Concepts. 0 or 4 Credits.**

Fundamentals of electrical engineering; DC and AC linear circuit analysis; laboratory component. No credit for more than one of EE 003, EE 100 and EE 075. Prerequisites: MATH 022 or MATH 023; CS 020 or CS 021.

**EE 101. Digital Control w/Embedded Sys. 0 or 4 Credits.**

Applications of single-chip microcontrollers as embedded systems for data acquisition/real time control. C language; parallel and serial ports; timers; counters; A/D and D/A. Simple sensors and actuators. Laboratory. Prerequisites: EE 100 or EE 003 or EE 075; CS 020 or CS 021.

**EE 106. QR:Embedded Programming in C. 2-3 Credits.**

Fundamental exercises in C programming for embedded systems (e.g., Arduino platform) including variable types, pointers, memory allocation, input/output, etc. and demonstration of advanced knowledge of these embedded systems concepts (second credit); with embedded systems project (third credit). Prerequisites: CS 020 or CS 021. Cross-listed with: CS 106.

**EE 110. Control Systems. 0 or 4 Credits.**

Analysis and design of control systems; stability, signal flow, performance criteria, classical methods. Analysis of control systems driven by random noise. Laboratory experiments. Credit not given for more than one of the courses EE 110, EE 210. Prerequisite: C- or better in EE 171 or C- or better in ME 111. Co-requisite: STAT 143 or STAT 151.

**EE 113. Electric Energy Systems. 0 or 4 Credits.**

Energy sources, including renewables (hydro, wind, and solar PV); generation, delivery, consumption of electricity; power plants, emissions, policy; three-phase power, transformers, motors/generators; sustainability and electric energy. Laboratory included. Prerequisite: C- or better in EE 003 or B- or better in EE 100 or B- or better in EE 075.

**EE 116. Virtual Instrument Engineering. 1-3 Credits.**

Introduces logical and electrical circuit modeling using computer-based virtualization tools in a graphical format. Includes circuit simulation; scripting, interfacing; signal processing; control of instruments and data acquisition. Prerequisite: ENGR 002 or Instructor permission. Cross-listed with: ENGR 116.

**EE 120. Electronics I. 4 Credits.**

Physical principles of operation of common semiconductor devices. Analog and digital circuits using diodes and transistors. Electronic circuit analysis and simulation. Prerequisite: EE 004.

**EE 121. Electronics II. 4 Credits.**

Physical principles of operation of common semiconductor devices. Analog and digital circuits using MOS and bipolar junction transistors. Operational amplifier design. Electronic circuit analysis and simulation. Project-based final. Prerequisite: C- or better in EE 120.

**EE 131. Fundamentals of Digital Design. 3 Credits.**

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.

**EE 134. Microcontroller Systems. 0 or 4 Credits.**

Operation and applications of microcontrollers in embedded digital systems for real-time control and data acquisition. Programming and the design of interfaces. Laboratory experience. Prerequisites: EE 003 or EE 075 or EE 100; CS 020 or CS 021; CS 031, EE 106 or CS 106.

**EE 141. Electromagnetic Field Theory. 0 or 4 Credits.**

Fundamentals of electromagnetic field theory and applications: vector analysis, electric and magnetic fields, potential theory, boundary conditions and boundary value problems, dielectric and magnetic material properties, conductance, capacitance, and inductance, Maxwell-Lorentz theory. Transmission line theory. Prerequisites: PHYS 125, MATH 271, EE 004.

**EE 171. Signals & Systems. 0 or 4 Credits.**

Discrete- and continuous-time signals and systems. Input/output descriptions and analysis. Convolution, Fourier analysis, sampling and Laplace transforms. Application to electrical engineering design problems. Prerequisite: EE 004 or MATH 271.

**EE 174. Communication Systems. 0 or 4 Credits.**

Signal analysis. Fundamentals of digital communications including PCM, channel coding, pulse shaping and modulation. Wireless communications, modulation, antennas and link budgets. Application of probability. Related laboratory experience. Prerequisite: STAT 151, C- or better in EE 171.

**EE 180. Engineering Ethics/Leadership. 1 Credit.**

Rights and responsibilities in engineering practice and research. Case studies related to engineering ethics. Ethics and professional practice as related to professional licensure. Development of individual leadership abilities. Team-based development of written reports and oral presentations. Prerequisite: Minimum Junior standing.

**EE 183. Electronics Laboratory. 0 or 2 Credits.**

Characteristics and applications of semiconductor devices; inverters and logic characterization; linear amplifiers and applications of operational amplifiers in non-linear circuits. Co-requisite: EE 120.

**EE 184. Electronics Design Project. 0 or 3 Credits.**

Electronics design project. Design, analyze, simulate, build, characterize, and test electronic circuits that address engineering applications. Designs follow standard requirements based design practices. Introduction to printed wiring board layout and design. Prerequisite: EE 183. Co-requisite: EE 120.

**EE 187. Capstone Design I. 0 or 3 Credits.**

Project-based course. Multidisciplinary teams apply their knowledge to design, analyze, build and test a functional prototype that meets client's requirements and solves unique problems. Teams follow engineering design and project management processes such as periodic reports, presentations, meetings, reviews and demonstrations using standard industry tools. Prerequisite: EE 120 or EE 171, and EE 184 or Instructor permission; or Senior standing in Mechanical or Biomedical Engineering. Cross-listed with: BME 187, ME 185.

**EE 188. Capstone Design II. 0 or 3 Credits.**

Project-based course. Multidisciplinary teams apply their knowledge to design, analyze, build and test a functional prototype that meets client's requirements and solves their problems. Teams follow engineering design and project management processes such as periodic reports, presentations, meetings, reviews and demonstrations using standard industry tools. Prerequisite: Senior standing. Cross-listed with: BME 188, ME 186.

**EE 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EE 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EE 193. College Honors. 3-6 Credits.**

Honors studies leading to thesis. Prerequisite: CEMS 101.

**EE 194. College Honors. 3-6 Credits.**

Honors studies leading to thesis. Prerequisite: EE 193.

**EE 195. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Department permission.

**EE 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EE 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EE 199. Cooperative Ed Experience. 12 Credits.**

On-site, full-time, supervised work experience in electrical engineering or related field appropriate for sophomore or junior levels that also satisfies the overall educational objectives defined by the CEMS Engineering Co-op Program. Prerequisites: Electrical Engineering major; Sophomore or Junior standing.

**EE 207. Intro Biomedical Engineering. 3 Credits.**

Introduction to biomedical engineering science including biomechanics, biomaterials, biomedical imaging, rehabilitation engineering, biomedical computing, biomedical instrumentation, and transport phenomena. Prerequisites: Senior standing in all engineering majors other than Biomedical Engineering; Graduate Student standing with Instructor permission. Cross-listed with: ME 207.

**EE 209. Transmission Line Analysis. 3 Credits.**

Fourier-Laplace transform analysis of steady-state and transient phenomena on transmission lines. Phasor representation and complex variable analysis. Prerequisite: MATH 271.

**EE 210. Control Systems. 3 Credits.**

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. Credit not given for more than one of the courses EE 110, EE 210. Prerequisite: EE 171 or ME 111. Cross-listed with: ME 210.

**EE 211. Real-Time Control Systems. 3 Credits.**

Digital control systems analysis and design. Topics include: difference equations, the Z-transforms, discrete-time transfer functions, state-space models, sampled-data systems, discretization, and optimal control. Project-based final. Prerequisites: EE 110 or EE 210 or ME 210.

**EE 215. Electric Energy Systems Analys. 3 Credits.**

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 122 (preferred) or MATH 124.

**EE 217. Smart Grid. 3 Credits.**

Smart Grid: Using information/communication technology to modernize electric power/energy systems, including generation, transmission, distribution and consumption. Electricity physics/economics/policy; renewable energy; energy storage; demand response; energy efficiency; distributed generation; advanced metering infrastructure; distribution automation; microgrids; synchrophasors; HVDC and FACTS systems. Prerequisite: EE 113 or Graduate standing. Co-requisite: EE 215 recommended.

**EE 219. Low Carbon Electric Power. 3 Credits.**

Greenhouse gas emission, Global Climate Change, need for low carbon electrical power. Physics and technology of three sources will be covered: photovoltaics, electrochemical systems (batteries and fuel cells) and nuclear systems, (fission and fusion). Prerequisites: PHYS 125 or PHYS 152.

**EE 221. Digital VLSI Circuit Design. 0 or 3 Credits.**

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. Prerequisites: EE 120. Pre/co-requisites: EE 131.

**EE 227. Biomedical Instrumentation. 3 Credits.**

Measurement techniques for biomedical engineering research and industry, and health care institutions. Integrated biomedical monitoring, diagnostic, and therapeutic instrumentation. Prerequisite: EE 100 or EE 004. Co-requisites: EE 120, ANPS 020, or Instructor permission. Cross-listed with: BME 227.

**EE 228. Sensors. 3 Credits.**

Sensor design, interrogation, and implementation. A wide variety of electrical, electronic, optical, mechanic, and cross-disciplinary devices. System designs, measurement techniques, and methodologies. Interface electronics, system grounding and shielding methods. Prerequisite: EE 101 or EE 120.

**EE 231. Digital Computer Design I. 3 Credits.**

Hardware organization and realization, hard-wired and microprogrammed control units, interrupt and I/O systems. Hardware design language introduced and used for computer design. Prerequisites: EE 131; EE 134 or CS 121.

**EE 232. Digital Computer Design II. 3 Credits.**

Memory designs, error control, high-speed addition, multiplication, and division, floating-point arithmetic, CPU enhancements, testing and design for testability. Prerequisite: EE 231.

**EE 261. Semiconductor Materials/Device. 3 Credits.**

Energy band theory, effective mass, band structure and electronic properties of semiconductors. Transport of electrons and holes in bulk materials and across interfaces. MOSFETs, BJTs, pn junctions, and Schottky barriers. Prerequisite: EE 120 or Graduate Student standing.

**EE 275. Digital Signal Processing. 3 Credits.**

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

**EE 278. Wireless Communication. 3 Credits.**

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

**EE 279. Wireless Sensor Networks. 3 Credits.**

Applications of and technologies behind wireless sensor networks. A systems-level perspective that integrates wireless networking, antennas, radio frequency circuitry, sensors, digital signal processing, embedded systems, and energy. Term project. Prerequisite: EE 171 or Instructor permission.

**EE 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EE 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EE 295. Special Topics. 1-18 Credits.**

Special topics in developing areas of Electrical Engineering. Prerequisite: Senior standing, or Instructor permission.

**EE 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EE 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ELEMENTARY EDUCATION (EDEL)****Courses****EDEL 024. Learners and Learning Process. 3 Credits.**

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.

**EDEL 055. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EDEL 056. Teachers&the Teaching Process. 3 Credits.**

Students examine lives of teachers, demands of the profession, and selected models of teaching. Student observation of teachers in appropriate settings and knowledge of learning and development. Prerequisite: EDEL 010, EDEL 024; concurrent with EDEL 177, EDSP 005.

**EDEL 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDEL 155. Lab Experience in Inquiry. 3 Credits.**

Supervised practicum in field sites. Implementation of teaching methods from Inquiry Block. Documentation of classroom work, child study, and development of portfolio. Prerequisite: Admission to Elementary Teacher Education Program; concurrent with EDEL 157, EDEL 158, EDEL 159.

**EDEL 156. Teaching Math for Meaning. 3 Credits.**

Methods of teaching mathematics in elementary school. Research base for how children learn mathematics and how math curriculum is organized. Special focus on teaching diverse groupings of learners. Prerequisite: Admission to Elementary Teacher Education Program; concurrent with EDEL 175, EDEL 176, EDEL 178.

**EDEL 157. SU:Social Educ & Social Stdies. 3 Credits.**

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, EDEL 158.

**EDEL 158. Teaching Science for Meaning. 3 Credits.**

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 & EDEL 157.

**EDEL 159. Integrating the Arts. 3 Credits.**

Explores how the arts, with a focus on theater and creative movement, can actively engage students in learning, improve literacy, enrich the curriculum, and deepen students' understanding of complex concepts.

**EDEL 175. Lab Experience in Literacy. 3 Credits.**

Supervised practicum in a field site. Implementation of teaching methods from Literacy Block. Documentation of classroom work, child study, and development of portfolio. Prerequisite: Admission to Elementary Teacher Education Program; concurrent with EDEL 156, EDEL 176, EDEL 178.



**EDEL 176. Language Arts & Literacy Skills. 3 Credits.**

Cognitive research base for the social context of children's learning. Methods of language arts as literate activity. Emphasis on emergence of literacy in the child of special need. Prerequisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 156, EDEL 175, EDEL 178.

**EDEL 177. Children's Lit & Literacy. 3 Credits.**

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, EDEL 175 and EDEL 176.

**EDEL 178. Mtg Needs of Diverse Learners. 3 Credits.**

Designed to familiarize students with different ways that that students learn. Supports educators' responsibility to create learning environments where all students are engaged and have equitable access to learning opportunities. Pre/co-requisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 056, EDSP 005.

**EDEL 181. Student Teaching. 3-12 Credits.****EDEL 185. Student Teaching Internship. 3-12 Credits.**

Supervised student teaching internship in field site. Fifteen-week total immersion as a beginning teacher. Responsibilities specified in internship handbook. Documentation of activities for professional portfolio. Concurrent with EDEL 187 and EDEL 188. Prerequisite: Method Blocks in Inquiry and Literacy. Variable credit.

**EDEL 186. Seminar in Student Teaching. 3 Credits.****EDEL 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDEL 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EDEL 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDEL 198. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDEL 285. Student Teaching Internship. 12 Credits.**

Culminating Full-Time Student Teaching Internship in field placement with a mentor endorsed in Elementary Education; 4.5 days per week for full semester, gradually assuming more responsibilities with a two-week solo teaching experience. Prerequisites: Pre 4th yr Elementary Education (Grades K-6) major; admit to Student Teaching; overall GPA requirement and professional course GPA requirement (EDEL/EDSP/EDTE/EDML) of 3 point 0. Co-requisite: EDEL 288.

**EDEL 287. Plng, Adptg, Dlvrng Lit Instr. 3 Credits.**

Extending and refining knowledge about reading, writing instruction, and assessment. Students will review literature, implement classroom-based assessment strategies, and develop lessons and units for literacy instruction. Prerequisites: EDEL 175, EDEL 176; Elementary Education (Grades K-6) major; minimum Junior standing.

**EDEL 288. Principles-Classroom Mgmt. 3 Credits.**

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. Creation of unit, lesson plans and professional licensure portfolio. Prerequisites: Elementary Education (Grades K-6) major; Senior standing; admit to Student Teaching. Co-requisite: EDEL 285.

**EDEL 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDEL 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EDEL 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDEL 298. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

## ENGINEERING (ENGR)

### Courses

**ENGR 001. First-Year Design Experience. 0-3 Credits.**

Introduction to the engineering profession and the engineering design process. Hands-on experiences that emphasize interdisciplinary teamwork, seeking and defining problems, and developing, fabricating and/or testing solutions. Data analysis and technical communications.

**ENGR 002. Graphical Communication. 0 or 2 Credits.**

Project-based course. 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.

**ENGR 010. D1:Dvrsty Issues:Math/Sci/Egr. 3 Credits.**

Diversity in CEMS: under-representation, environmental justice, gender/race participation, ethical considerations, urban planning, equal opportunity, Title IX. Landscape of race/gender in STEM.

**ENGR 050. First Year Engineering Seminar. 0 or 1 Credits.**

This first year experience seminar course exposes students to curricular options and career paths in engineering. Also introduces basic principles of engineering design through project-based laboratories. Students interact with faculty, professionals and peers in their fields.



**ENGR 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ENGR 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGR 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ENGR 101. Engineering Communications. 3 Credits.**

Traditional technical and scientific writing forms, including outlines, summaries, abstracts, technical descriptions, research reports/papers and proposals; written and oral technical communication with technical and nontechnical audience; electronic professional portfolio. Prerequisites: ENGS 001; Engineering major.

**ENGR 112. Building Information Modeling. 1-3 Credits.**

Building Information Modeling (BIM) is a digital representation integrating the design tools used by building disciplines under a single parametric computer model. Buildings, facilities and infrastructure are modeled with special attention to mechanical, plumbing, electrical and structural systems. Prerequisite: ENGR 002 or Instructor permission.

**ENGR 114. Advanced 3D Drafting. 3 Credits.**

Creation of geometric solid representations of physical objects using three dimensional CAD. Introduces parametric design; analysis tools; assembly simulation; dimension methods & standards; tolerances & geometric tolerancing. Further addresses the design for manufacturing of machined parts; sheet metal; mold design. Prerequisite: ENGR 002 or Instructor permission.

**ENGR 116. Virtual Instrument Engineering. 1-3 Credits.**

Introduces logical and electrical circuit modeling using computer-based virtualization tools in a graphical format. Includes circuit simulation; scripting, interfacing; signal processing; control of instruments and data acquisition. Prerequisite: ENGR 002 or Instructor permission. Cross-listed with: EE 116.

**ENGR 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ENGR 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGR 195. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ENGR 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ENGR 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGR 201. Ethics in CEMS Rsrch/Practice. 1 Credit.**

Professional responsibilities of computer scientists, engineers, mathematicians, and statisticians in research and practice. Professional rights and responsibilities, research integrity, fair credit in research and publication. Prerequisite: Minimum Senior standing.

**ENGR 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ENGR 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGR 295. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ENGR 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ENGR 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ENGR 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGINEERING MANAGEMENT (EMGT)****Courses****EMGT 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EMGT 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EMGT 095. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EMGT 170. Engineering Economics. 3 Credits.**

Fundamental concepts and applied techniques in the economic aspects of engineering alternatives. Economic dimensions for sustainable practice, including basic financial decision making, methods to evaluate business and engineering assets, analysis of project cash flows, life cycle analysis, and replacement decisions. Prerequisites: MATH 22; Junior standing.

**EMGT 185. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Senior standing in Engineering Management.

**EMGT 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EMGT 195. Special Topics. 1-18 Credits.**

Specialized or experimental course offered as resources permit.

**EMGT 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EMGT 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EMGT 201. Engineering Project Management. 3 Credits.**

Principles of project management on designing, building/manufacturing engineering facilities, processes, products and structures; metrics for managing quality, schedule, and financial performance of projects; services and product procurement; project financial management; legal and insurance aspects. Prerequisites: Minimum Senior standing in Engineering.

**EMGT 285. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EMGT 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EMGT 295. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EMGT 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EMGT 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGL FOR SPKRS OF OTHER LANGS (ESOL)****Courses****ESOL 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ESOL 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ESOL 095. Introductory Special Topics. 0-18 Credits.**

See Schedule of Courses for specific titles.

**ESOL 096. Introductory Special Topics. 0-18 Credits.**

See Schedule of Courses for specific titles.

**ESOL 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ESOL 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ESOL 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ESOL 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ESOL 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ESOL 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ESOL 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ESOL 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ESOL 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**ESOL 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ESOL 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGLISH (ENGS)****Courses****ENGS 001. FW: Written Expression. 3 Credits.**

A foundational composition course featuring a sequence of writing, reading, and information literacy assignments. Students learn to write and revise for different rhetorical situations while increasing their mastery of academic conventions. Some sections designed for specific student audiences.

**ENGS 002. FW: Written Expression: Theme. 3 Credits.**

Intensive instruction and practice in writing, reading, research, and revision through the exploration of a theme related to the instructor's expertise.

**ENGS 005. First Year Seminar. 3 Credits.**

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. Prerequisite: First-Year standing in College of Arts and Sciences.

**ENGS 013. Introduction to Fiction. 3 Credits.**

Exploration of a variety of fictional forms, including the short story, the novella, and the novel.

**ENGS 014. Introduction to Poetry. 3 Credits.**

Examination of the forms of poetry, past and present, British and American. Provides a wide variety of perspectives on the poem.

**ENGS 021. Seminar in British Lit I. 3 Credits.**

Selected texts from the beginnings to the late 18th century. Explores periodization, genre, key terms and concepts through close reading and critical analysis. Fulfills major requirements; open to non-majors.

**ENGS 022. Seminar in British Lit II. 3 Credits.**

Selected texts from the late 18th century to the present. Explores periodization, genre, key terms and concepts through close reading and critical analysis. Fulfills major requirements; open to non-majors.

**ENGS 023. Seminar in American Lit I. 3 Credits.**

Selected texts from the beginnings to the Civil War. Explores periodization, genre, key terms and concepts through close reading and critical analysis. Fulfills major requirements; open to non-majors.

**ENGS 024. Seminar in American Lit II. 3 Credits.**

Selected texts from end of Civil War to the present. Explores periodization, genre, key terms and concepts through close reading and critical analysis. Fulfills major requirements; open to non-majors.

**ENGS 027. Lit Western Trad I: Intg Humn. 3 Credits.**

Study of primary authors in the Western cultural tradition from Homer to the modern period with particular reference to history, religion, and philosophy. Co-requisites: Concurrent enrollment in the Integrated Humanities Program; REL 027 and HST 013.

**ENGS 028. Lit Western Trad II: Intg Humn. 3 Credits.**

Study of primary authors in the Western cultural tradition from Homer to the modern period with particular reference to history, religion, and philosophy. Co-requisites: Concurrent enrollment in the Integrated Humanities Program; REL 028 and HST 014.

**ENGS 030. Topics in Amer Lit & Culture. 3 Credits.**

Subjects vary by semester. Representative topic: Reading the American Wilderness. May be repeated for credit with different content.

**ENGS 031. D1: Topics in Afr-Am Lit & Cult. 3 Credits.**

Subjects vary by semester. Representative topic: African- American Women Writers in the 20th/21st Century. May be repeated for credit with different content.

**ENGS 032. Topics in British Literature. 3 Credits.**

Subjects vary by semester. Representative topic: Jane Austen, Page and Film. May be repeated for credit with different content.

**ENGS 033. D1: Topics in Native Amer Lit. 3 Credits.**

Representative topics: Introduction to Native American Literature. May be repeated for credit with different content.

**ENGS 040. Topics in Science Fctn & Fantasy. 1-3 Credits.**

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.

**ENGS 041. Topics in Mystery. 1-3 Credits.**

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. Specific topics vary by instructor.

**ENGS 042. Women in Literature. 3 Credits.**

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. Cross-listed with: GSWS 042.

**ENGS 043. D2: Top in Gender/Sexuality Lit. 3 Credits.**

Representative topics: Gender, Sexuality and Identity in American Poetry. May be repeated for credit with different content.

**ENGS 050. The Art of the Essay. 3 Credits.**

In this intermediate writing course, students explore and practice variations in the genre known as the nonfiction essay, attending to audience, purpose, context, style, and medium. Prerequisite: Sophomore standing.



**ENGS 051. Topics in Composition. 3 Credits.**

Representative topics include Forms of Journalism and Writing for the Web. May be repeated for credit with different content. Prerequisite: Sophomore standing.

**ENGS 053. Intro to Creative Writing. 3 Credits.**

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.

**ENGS 057. D1:Race&Ethnic Lit Stds:Intro. 3 Credits.**

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.

**ENGS 060. D2:Topics in Post-Colonial Lit. 3 Credits.**

Representative topic: Introduction to Post-Colonial Literature. May be repeated for credit with different content.

**ENGS 061. D2:Intro to African Literature. 3 Credits.**

Readings in African literature, concentrating on major human and political themes and literary techniques.

**ENGS 062. D2:Topics in Caribbean Lit. 3 Credits.**

Representative topics: Caribbean Women Writers. May be repeated for credit with different content.

**ENGS 081. Structure of English Language. 3 Credits.**

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. Cross-listed with: LING 081.

**ENGS 085. Intro to Literary Studies. 3 Credits.**

Introduction to the critical work of close reading across literary genres, understanding of key terms and concepts, and writing in the discipline. Topics vary by section. Open to all students.

**ENGS 089. English and Careers. 1-2 Credits.**

Explores careers for students with an English background. Students research careers, job listings, and internships; prepare job-seeking materials that highlight skills learned in English courses; prepare personal development plans. Prerequisite: Sophomore standing.

**ENGS 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Departmental Permission required. Offered at department discretion.

**ENGS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGS 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. May be repeated for credit with different content.

**ENGS 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. May be repeated for credit with different content.

**ENGS 100. Literary Theory. 3 Credits.**

Survey of literary and cultural theory introducing a variety of major approaches to the interpretation of literature. Required for all English Majors. Prerequisite: Minimum Sophomore standing. Pre/Co-requisite: ENGS 021 or ENGS 022 or ENGS 023 or ENGS 024.

**ENGS 102. Hist of English Language. 3 Credits.**

Principles of historic linguistics and their application to English. Pre/co-requisites: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 103. American English Dialects. 3 Credits.**

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: LING 080. Cross-listed with: LING 162.

**ENGS 104. Tutoring Writing. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 105. Exploring Writing Centers. 3 Credits.**

A continuation of ENGS 104, this course explores theoretical frameworks for writing centers and how they can shape ways tutors respond to writers. Pre/co-requisite: three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 107. Topics in Comp & Rhetoric. 3 Credits.**

Representative topics: Investigating Literacy, Cybercultural Rhetoric. May repeat with different content. Prerequisites: ENGS 050, ENGS 051, or ENGS 053; minimum Sophomore standing.

**ENGS 111. D1:Race & Ethnic in Lit Studies. 0 or 3 Credits.**

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: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 112. Topics in Cultural Studies. 3 Credits.**

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: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 113. Topics in Genre. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.



**ENG 114. Topics in Writing. 3 Credits.**

Topics vary by semester and professor. Representative topics: Writing Literary Criticism; Reading and Writing Autobiography; Literary Journalism. Prerequisites: ENGS 050, ENGS 051, or ENGS 053; minimum Sophomore standing. May repeat for credit with different content.

**ENG 117. Advanced Creative Nonfiction. 3 Credits.**

In this workshop for experienced writers, students pursue projects of their own design, in various creative nonfiction sub-genres, including personal essay, literary memoir, and/or literary journalism. May be repeated once for credit. Prerequisites: ENGS 050, ENGS 051, or ENGS 053; minimum Sophomore standing.

**ENG 118. Advanced Writing: Fiction. 3 Credits.**

This upper-level course for fiction writers of proven ability employs a seminar/workshop format, with most classroom time devoted to manuscript discussion. May be repeated once for credit. Prerequisites: ENGS 053; minimum Sophomore standing.

**ENG 119. Advanced Writing: Poetry. 3 Credits.**

This upper-level course for poets of proven ability employs a seminar/workshop format, with most classroom time devoted to manuscript discussion. May be repeated once for credit. Prerequisites: ENGS 053; minimum Sophomore standing.

**ENG 120. Writer's Workshop. 3 Credits.**

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; minimum Sophomore standing.

**ENG 131. Topics in Bible & Lit. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENG 133. Chaucer. 3 Credits.**

Study of the principle works of Chaucer, emphasizing Chaucer's literary scope, talents, and position in medieval literature. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENG 134. Topics in Medieval Literature. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENG 135. Shakespeare. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENG 136. Topics in Shakespeare. 3 Credits.**

Examines Shakespeare's works in intellectual, historical, aesthetic contexts. Topics: Shakespeare and Philosophy; Engendering Shakespeare; Shakespeare and Renaissance Drama. May be repeated for credit with different content. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENG 137. Topics in Ren Lit & Culture. 3 Credits.**

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: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENG 138. Milton. 3 Credits.**

Milton's major works in various intellectual, historical, and aesthetic contexts, with special attention to 'Paradise Lost.' Pre/co-requisites: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENG 140. Survey Brit Lit to 1700. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENG 141. Restoration & 18thC Literature. 3 Credits.**

Significant writers and dramatists from Behn and Dryden to Sheridan and Johnson. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENG 143. Topics: 18C, 19C Brit Lit & Cul. 3 Credits.**

Topics examining issues in 18th- and 19th-century British literature and culture. May repeat for credit with different content. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENG 144. Topics in Romanticism. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENG 145. Topics in Victorian Literature. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENG 150. Topics: Early American Studies. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 152. 19th Century American Fiction. 3 Credits.**

Short stories, novellas, and novels by such writers as Cooper, Sedgwick, Poe, Hawthorne, Wilson, Melville, Stowe, James, Harper, Chesnutt, Chopin, and Jewett. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 156. Topics:19C American Studies. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 158. Topics:19C Women's Writing. 3 Credits.**

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: three hours in English courses numbered ENGS 005-ENGS 096; minimum Sophomore standing. Cross-listed with: GSWS 142.

**ENGS 163. Topics:20C American Studies. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 164. Modern Poetry. 3 Credits.**

Poetry from beginning of modern period to end of WWII, emphasizing Yeats, Eliot, Stevens, Auden, Frost, Williams. Pre/co-requisites: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 167. Topics in Modernism. 3 Credits.**

Topics vary by semester and by professor. Representative topics: Joyce. May repeat for credit with different content. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 168. Topics in Post-Modernism. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 171. Contemporary American Poetry. 3 Credits.**

American poetry since 1950 by writers such as Lowell, Bishop, Levine, Olds, Hayden, Harper. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 176. D1:Afr Am Lit Since Harlem Ren. 3 Credits.**

Survey of the various literary traditions of African Americans during the 20th century. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 177. D1:Topics 20C Afr Am Lit & Cul. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 179. D2: Topics in African Lit. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 182. D2:Colonial/Post-Col World Lit. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 188. Topics in 20C Comparative Lit. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 189. Topics in 20C Women's Writing. 3 Credits.**

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-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing.

**ENGS 190. Buckham Honors Seminar. 0 or 3 Credits.**

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: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing. May be repeated for credit with different content.

**ENGS 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with structured academic learning plan directed by a faculty member or a faculty-staff team with a faculty member as instructor of record, for which academic credit is awarded. Departmental permission required. Offered at department discretion. Prerequisite: Minimum Junior standing.

**ENGS 192. Internship. 1-18 Credits.**

On-site supervised work experience combined with structured academic learning plan directed by a faculty member or faculty-staff team with a faculty member as instructor of record, for which academic credit is awarded. Departmental permission required. Offered at department discretion. Prerequisite: Minimum Junior standing.

**ENGS 193. Travel Study. 1-6 Credits.**

Courses that involve extended travel-time away from UVM campus and that link course content to travel destinations. Representative topic: Literary London. Prerequisites: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing; or Instructor permission.

**ENGS 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant usually in an introductory-level course in the discipline, for which credit is awarded. Departmental permission required. Offered at department discretion.

**ENGS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Pre/co-requisites: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing. May be repeated for credit with different content.

**ENGS 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Pre/co-requisites: Three hours in English courses numbered ENGS 005 - ENGS 096; minimum Sophomore standing. May be repeated for credit with different content.

**ENGS 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Departmental permission required. Offered at department discretion.

**ENGS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small research projects under the supervision of a faculty member, for which credit is awarded. Pre/corequisite: Departmental permission required. Offered at department discretion.

**ENGS 201. Sem Engl Lang or Critical Thry. 3 Credits.**

Recent topics: 'Origins and Development of the English Language,' 'Re-disciplining the History of Literature and the Literature of History.' Prerequisites: ENGS 100; and one of the following pairs of courses: ENGS 021 and ENGS 022, ENGS 023 and ENGS 024, or ENGS 027 and ENGS 028; Instructor permission for graduate students.

**ENGS 211. Seminar in Writing. 3 Credits.**

Recent topics: 'Writing the New Yorker,' 'Writing Vermont Life,' 'Editing and Publishing. Prerequisites: ENGS 100; ENGS 050 or ENGS 051 or ENGS 053; and one of the following pairs of courses: ENGS 021 and ENGS 022, ENGS 023 and ENGS 024, or ENGS 027 and ENGS 028; Instructor permission for Graduate students.

**ENGS 212. Seminar in Writing. 3 Credits.**

Recent topics: 'Writing the New Yorker,' 'Writing Vermont Life,' 'Editing and Publishing. Prerequisites: ENGS 100; ENGS 050 or ENGS 051 or ENGS 053; and one of the following pairs of courses: ENGS 021 and ENGS 022, ENGS 023 and ENGS 024, or ENGS 027 and ENGS 028; Instructor permission for Graduate students.

**ENGS 221. Seminar in Literature to 1800. 3 Credits.**

Recent topics: 'Women in 17th Century English Poetry,' 'Dante and the Experience of Reading,' 'Orality and Textuality in Middle English Literature.' Prerequisites: ENGS 100; and one of the following pairs of courses: ENGS 021 and ENGS 022, ENGS 023 and ENGS 024, or ENGS 027 and ENGS 028; Instructor permission for graduate students.

**ENGS 222. Seminar in Literature to 1800. 3 Credits.**

Recent topics: 'Women in 17th Century English Poetry,' 'Dante and the Experience of Reading,' 'Orality and Textuality in Middle English Literature.' Prerequisites: ENGS 100; and one of the following pairs of courses: ENGS 021 and ENGS 022, ENGS 023 and ENGS 024, or ENGS 027 and ENGS 028; Instructor permission for graduate students.

**ENGS 241. Seminar in 19th Century Lit. 3 Credits.**

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: ENGS 100; and one of the following pairs of courses: ENGS 021 and ENGS 022, ENGS 023 and ENGS 024, ENGS 027 and ENGS 028; Instructor permission for graduate students.

**ENGS 242. Seminar in 19th Century Lit. 3 Credits.**

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: ENGS 100; and one of the following pairs of courses: ENGS 021 and ENGS 022, ENGS 023 and ENGS 024, or ENGS 027 and ENGS 028; Instructor permission for graduate students.

**ENGS 252. Seminar in 20th Century Lit. 3 Credits.**

Recent topics: 'The Beat Generation,' 'Literature and Society in Modern Ireland,' 'Dostoevsky's Influence on 20th Century American Literature.' Prerequisites: ENGS 100; and one of the following pairs of courses: ENGS 021 and ENGS 022, ENGS 023 and ENGS 024, or ENGS 027 and ENGS 028; Instructor permission for graduate students.

**ENGS 281. Sem Lit Themes, Genres, Folklore. 3 Credits.**

Recent topics: 'Spiritual Journeys,' 'Murder, He Said: Detective Fiction,' 'Chekhov to Cheever: The Short Story.' Prerequisites: ENGS 100; and one of the following pairs of courses: ENGS 021 and ENGS 022, ENGS 023 and ENGS 024, or ENGS 027 and ENGS 028; Instructor permission for graduate students.

**ENGS 282. Sem Lit Themes, Genres, Folklore. 3 Credits.**

Recent topics: 'Spiritual Journeys,' 'Murder, He Said: Detective Fiction,' 'Chekhov to Cheever: The Short Story.' Prerequisites: ENGS 100; and one of the following pairs of courses: ENGS 021 and ENGS 022, ENGS 023 and ENGS 024, or ENGS 027 and ENGS 028; Instructor permission for graduate students.



**ENGS 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by faculty member or faculty-staff team with a faculty member as instructor of record, for which academic credit is awarded. Departmental permission required. Offered at department discretion.

**ENGS 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Departmental permission required. Offered at department discretion.

**ENGS 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: ENGS 100; and one of the following pairs of courses: ENGS 021 and ENGS 022, ENGS 023 and ENGS 024, or ENGS 027 and ENGS 028; Instructor permission for graduate students.

**ENGS 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: ENGS 100; and one of the following pairs of courses: ENGS 021 and ENGS 022, ENGS 023 and ENGS 024, or ENGS 027 and ENGS 028; Instructor permission for graduate students.

**ENGS 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Departmental permission required. Offered at department discretion.

**ENGS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Departmental permission required. Offered at department discretion.

**ENGR & MATH SCIENCES (CEMS)****Courses****CEMS 033. SU: Sustainable Energy Sources. 3 Credits.**

Qualitative and quantitative study of renewable energy sources in comparison to fossil fuels: methods of harvesting, applications, environmental and financial sustainability. Assessment of current national and international energy mixes, considering challenges and opportunities in the energy transition. Prerequisites: MATH 009 or any higher level MATH class or Instructor permission.

**CEMS 050. CEMS First Year Seminar. 1 Credit.**

First-year experience for College of Engineering and Mathematical Sciences majors that introduces the design process and strategies for building equitable and effective teams. These skills will be developed in the context of a semester-long project. Students interact with faculty, professionals and peers in their fields. Prerequisite: College of Engineering and Mathematical Sciences major.

**CEMS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CEMS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CEMS 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Topics for specific titles.

**CEMS 101. HCOL Research Experience. 1 Credit.**

CEMS HCOL students are required to enroll in this course in their Junior year, as part of their pre-thesis requirements. Expectations for the course are set by the student's HCOL Thesis advisor. Prerequisite: Junior standing.

**CEMS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CEMS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CEMS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CEMS 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CEMS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CEMS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**CEMS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**CEMS 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.



**CEMS 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**CEMS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## ENVIRONMENTAL SCIENCES (ENSC)

### Courses

**ENSC 001. SU: Intro Environmental Sci. 3 Credits.**

Emphasizes the impacts of human activity on the environment. Attention to resources at risk and pollutant fate and effects on ecosystems.

**ENSC 009. Orientation to Env Sciences. 1 Credit.**

Introducing new majors to the environmental sciences through field trips, panel discussions and group projects. Prerequisites: First-Year Rubenstein School of Environment and Natural Resources and College of Agriculture and Life Sciences Environmental Sciences majors.

**ENSC 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ENSC 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENSC 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ENSC 130. Global Environmental Assessmnt. 0 or 3 Credits.**

Introduction to skills for assessing human impacts on the global environment. Theory and application of GPS, geographic information systems and satellite remote sensing to address key environmental issues. Prerequisites: Environmental Sciences major.

**ENSC 160. Pollutant Mvmt/Air, Land & Water. 0 or 4 Credits.**

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: ENSC 001, BCOR 011 or BIOL 001, BCOR 012 or BIOL 002, CHEM 031, CHEM 032, MATH 019 or MATH 021, and MATH 020 or MATH 022.

**ENSC 185. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ENSC 192. Independent Study. 1-18 Credits.**

Tailored to the interests of a specific student, occurs outside the traditional classroom/laboratory setting under faculty supervision, for which credit is awarded. Offered at department discretion. Up to six hours. Three can be applied to elected concentration with Director permission.

**ENSC 195. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Maximum of six hours. Three can be applied to elected concentration with Director permission.

**ENSC 196. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Up to six hours. Three can be applied to elected concentration with Director permission.

**ENSC 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ENSC 201. Recovery & Restor Altered Ecosys. 0 or 4 Credits.**

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: ENSC 160; NR 103 or BCOR 102.

**ENSC 202. Applied Envir Assess Analysis. 0 or 4 Credits.**

Approaches used to identify, evaluate, and manage environmental risks. Focus on interactions among ecological, economic, and social considerations; often utilizing a watershed perspective. Problem formulation, methods selection. Case studies. Project-oriented. Prerequisites: Senior standing; Environmental Sciences major.

**ENSC 274. SU: Climate Chg: Sci & Percept. 3 Credits.**

Students will develop a complete scientific understanding of climate change's causes and consequences and learn how to effectively communicate climate change science and address commonly-used arguments against climate change. Prerequisites: BCOR 102 or NR 103.

**ENSC 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ENSC 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENSC 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Senior standing.

**ENSC 296. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENSC 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ENSC 299. Environmental Sciences Honors. 1-6 Credits.**

Honors project dealing with environmental sciences. Not approved for Graduate credit.

**ENVIRONMENTAL STUDIES (ENVS)****Courses****ENVS 001. SU: Intro to Environmtl Studies. 0 or 4 Credits.**

Survey of environmental studies examining ecological, socioeconomic, aesthetic, and technological influences determining quality of life on earth. Prerequisite: First-year/Sophomore standing.

**ENVS 002. SU: Solutions in Env Studies. 0 or 4 Credits.**

Analysis and critique of grand challenges in environmental studies with an emphasis on understanding and solving pervasive global and local environmental problems such as global climate change.

**ENVS 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ENVS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENVS 095. Special Topics. 1-18 Credits.**

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.

**ENVS 096. Special Topics. 1-18 Credits.**

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.

**ENVS 101. Academic Planning Workshop. 1 Credit.**

Individual investigation and design of major plan in Environmental Studies with emphasis on academic and career choices. Prerequisites: ENVS 001, ENVS 002; Environmental Studies major.

**ENVS 105. Applied Ecology. 3 Credits.**

Provides a knowledge base of some of the key concepts, ideas, relationships, and tensions in ecology. Demonstrates how to apply an ecological perspective to identifying, framing, and addressing a variety of contemporary environmental and conservation problems and challenges. Prerequisites: ENVS 001 and ENVS 002.

**ENVS 107. SU: Human Health & Environmt. 3 Credits.**

Offers an introduction to 'environmental health.' Topics include: methods (toxicology, epidemiology) environmental health hazards (physical, biological, chemical) and supports (nature contact), risk analysis, communication and management, health and climate change, food production and access, energy production, and water. Prerequisite: Sophomore standing. Cross-listed with: HLTH 107, NR 107.

**ENVS 121. Ecosystems' Nonmaterial Values. 3 Credits.**

Explores the nonmaterial ways ecosystems benefit people (e.g., spiritually, psychologically), and how those benefits might be incorporated into decision-making. In addressing these Cultural Ecosystem Services, its approach is both appreciative and critical. Ethical implications figure prominently. Prerequisites: ENVS 001 and ENVS 002.

**ENVS 137. Landscape Design Fundamentals. 4 Credits.**

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 permission of the Instructor. Cross-listed with: CDAE 137, PSS 137, NR 137.

**ENVS 141. Intro to Ecological Economics. 3 Credits.**

Introduction to the study of economics as dependent on social and environmental systems and to transdisciplinary problem-solving using ecological economics. Prerequisite: Minimum Sophomore standing. Cross-listed with: NR 141.

**ENVS 142. Intro to Environmental Policy. 3 Credits.**

Introduction to policy aspects of environment and natural resources including policy processes, public governance, and citizen participation with applications to environmental issues. Prerequisite: NR 104 or POLS 021. Cross-listed with: NR 153.

**ENVS 143. Political Ecology. 3 Credits.**

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. Prerequisites: GEOG 050 or GEOG 070 or ENVS 002; and ENSC 001 or ENVS 001 or GEOG 040 or GEOL 007 or GEOL 055 or NR 103. Cross listed with: GEOG 173.

**ENVS 150. Environmental Field Studies. 3 Credits.**

Travel study courses examining environmental issues from a local ecological, political, and socioeconomic perspective using experiential learning methods in diverse sites. Prerequisite: One of the following: ENVS 001, ENVS 002, NR 001, NR 002, ENSC 001.

**ENVS 154. D2: Trad Ecological Knowledge. 3 Credits.**

Examines how specific peoples of the world live in their environments and how their knowledge, practices and beliefs are created, passed on, or lost. Prerequisite: One of the following: ENVS 001, ENVS 002, NR 001, NR 002, ENSC 001.

**ENVS 156. Permaculture. 0 or 3 Credits.**

Design of agriculturally productive environments that have the diversity, stability, and resilience of the natural biosphere to harmoniously integrate landscape and people. Prerequisite: Three hours basic biological or ecological science, or permission. Cross-listed with: PSS 156.

**ENVS 165. Enviro Literature, Arts, Media. 3 Credits.**

Introduction to the environmental humanities exploring the role of the literary, visual, musical, performative, and media arts in shaping cultural attitudes and responses to nature and contemporary environmental problems. Prerequisite: ENVS 001 or ENVS 002.

**ENVS 167. D2: Global Env History. 3 Credits.**

The role and influence of nature on global human history and how people and cultures have influenced the natural world around them. Cross-listed with: HST 067.

**ENVS 173. Landscape Natural History. 3 Credits.**

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. Prerequisite: ENVS 001 or NR 001.

**ENVS 174. Nat Areas Conservation&Steward. 3 Credits.**

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. Prerequisite: ENVS 001 or NR 001.

**ENVS 178. Environmental Ethics. 0-3 Credits.**

Current approaches and problems in environmental ethics drawing on philosophy and case studies in animal rights, land ethics, deep ecology, wilderness protection, and human rights. Prerequisite: One of the following: ENVS 001, ENVS 002, NR 001, NR 002, ENSC 001.

**ENVS 179. D2: Ecofeminism. 3 Credits.**

Investigation of the parallel dominations of women and nature, through analysis and reflection on ecofeminist theory, activism, and spirituality. Prerequisite: ENVS 001, ENVS 002, NR 002, or GSWS 001. Cross-listed with: GSWS 179.

**ENVS 180. Radical Environmentalism. 3 Credits.**

Survey of radical environmental philosophy and activism from a liberation ethics perspective. Includes deep ecology, ecofeminism, environmental justice, and ecological resistance movements around the world. Prerequisite: ENVS 001, ENVS 002, or NR 002.

**ENVS 181. D1:Environmental Justice. 3 Credits.**

Examines environmental inequalities among communities of race/ethnicity and economic class through a social justice lens: how racism, classism, prejudice, and power are intimately intertwined with environmental pollution, including implications for health. Prerequisite: ENVS 001, ENVS 002, or NR 002.

**ENVS 182. D2:Religion and Ecology. 3 Credits.**

Exploration of the greening of major world religious traditions in both practice and philosophy. Includes institutional, activist, and lifestyle initiatives in ecological spirituality. Prerequisite: ENVS 001, ENVS 002, or NR 002.

**ENVS 183. Env Impacts of Consumerism. 3 Credits.**

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: One of the following: ENVS 001, ENVS 002, NR 001, NR 002, ENSC 001.

**ENVS 185. Topics in Enviro Activism. 3 Credits.**

Hands-on experience in and critical reflection on environmental activism; recent topics include 'Climate Advocacy' and 'Land & Food Justice. Prerequisite: ENVS 001 or ENVS 002 or NR 001 or NR 002 or CDAE 002.

**ENVS 187. Campus Sustainability. 3 Credits.**

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, ENSC 001.

**ENVS 188. SU:Sustainability Science. 3 Credits.**

The study of sustainability integrating natural and social science perspectives. Topics include theories of ecological adaptation and resilience, sustainability assessment methods, emerging technologies and applications. Prerequisite: One of the following: ENVS 001, ENVS 002, NR 001, NR 002, ENSC 001.

**ENVS 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Permission of course coordinator.

**ENVS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENVS 193. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, Offered at department discretion.

**ENVS 195. Special Topics. 1-18 Credits.**

Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One of the following: ENVS 001, ENVS 002, NR 001, NR 002, ENSC 001.

**ENVS 196. Special Topics. 1-18 Credits.**

Intermediate courses of current areas of interest which vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: One of the following: ENVS 001, ENVS 002, NR 001, NR 002, ENSC 001.



**ENVS 197. Student Designed Course. 1-3 Credits.**

Student-taught courses beyond the scope of existing formal courses in environmental studies. Developed according to Program guidelines, with sponsorship by interested faculty. Prerequisite: One of the following: ENVS 001, ENVS 002, NR 001, NR 002, ENSC 001.

**ENVS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENVS 201. Research Methods. 3 Credits.**

Planning, design, and methods for the senior capstone thesis or project. Includes literature review and proposal writing. Prerequisites: ENVS 151; Junior standing.

**ENVS 202. Senior Capstone. 1-9 Credits.**

Senior capstone thesis, project, creative arts project, or internship under faculty direction. Prerequisites: Environmental Studies major; minimum Junior standing.

**ENVS 203. Honors Thesis. 1-9 Credits.**

Undergraduates only.

**ENVS 204. Seminar Environmental Studies. 1-3 Credits.**

Review and discussion of current environmental research and literature. Prerequisites: ENVS 001 and ENVS 002; minimum Junior standing.

**ENVS 212. SU:Advanced Agroecology. 0-4 Credits.**

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 one semester of ecology at the 100-level or above or Instructor permission. Cross-listed with: PSS 212.

**ENVS 236. Women, Health & Environment. 3 Credits.**

Uses interdisciplinary approaches to study/analyze specific connections between human-environment interactions from the gender perspective, especially the women's and children's health perspectives. Explores historical and contemporary understandings of gender in science and society at large. Prerequisites: 3 credit hours of 100-level coursework in ENVS or 3 credit hours of 100-level coursework in a health-related field.

**ENVS 237. Human Ecology & Health-Arctic. 3 Credits.**

An unstable Arctic poses threats, not only to the future of the Arctic but to the world itself. Seminar provides an interdisciplinary overview of histories and approaches to human-environment interactions in the circumpolar Arctic, with a focus on the contexts of sustainability and justice. Prerequisite: 3 credit hours of 100-level coursework in ENVS or 3 credit hours of 100-level coursework in a health-related field.

**ENVS 267. Environmental History Seminar. 3 Credits.**

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: ENVS 151; six credits in History. Cross-listed with: HST 267.

**ENVS 284. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission. Variable credit. May be repeated.

**ENVS 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: ENVS 002; Junior standing.

**ENVS 293. Environmental Law. 3 Credits.**

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. Prerequisites: ENVS 142 or NR 153; Junior standing.

**ENVS 294. Environmental Education. 3 Credits.**

Philosophy, concepts, and strategies of environmental education, emphasizing integration of environmental concerns into formal and nonformal educational programs for youth and adults. Prerequisite: Junior standing.

**ENVS 295. Advanced Special Topics. 1-18 Credits.**

Advanced courses of current areas of interest which may vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: Junior standing.

**ENVS 296. Advanced Special Topics. 1-18 Credits.**

Advanced courses of current areas of interest which may vary each semester. Topics have included environmental health, energy, regional planning, international studies, literature, ethics, and natural area management. Prerequisite: Junior standing.

**ENVS 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENVS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EXERCISE SCIENCE (EXSC)****Courses****EXSC 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EXSC 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.



**EXSC 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**EXSC 150. Intro to Exercise Science. 1 Credit.**

Introduces students to the discipline of exercise science, the responsibilities of the exercise science professional, and varied career paths in the field.

**EXSC 175. Applied Kinesiology. 3 Credits.**

Foundational course examining applied kinesiology of human movement with focus on musculoskeletal anatomy. Prerequisite: Minimum Sophomore Exercise Science major.

**EXSC 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EXSC 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EXSC 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**EXSC 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EXSC 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EXSC 213. Biomechanics of Human Movement. 3 Credits.**

The application of kinesiology and biomechanical principles and concepts to the analysis of human movement, posture, joint structure and function, and gait. Prerequisites: ANPS 019, ANPS 020.

**EXSC 240. Motor Skill Learning & Control. 3 Credits.**

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. Prerequisites: ANPS 019, ANPS 020; Minimum Junior standing.

**EXSC 242. Exercise and Sport Psychology. 3 Credits.**

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. Prerequisite: PSYS 001.

**EXSC 244. Nutrition for Health & Fitness. 3 Credits.**

Explores how nutrition can influence overall health, disease, fitness and performance. Prerequisite: NFS 043.

**EXSC 245. Evaluation & Prescription. 3 Credits.**

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: RMS 250; Senior standing in Exercise Science.

**EXSC 250. Exercise Physiology. 3 Credits.**

Explores the acute and long-term responses to exercise on the metabolic, skeletal, cardiovascular, and respiratory systems. Prerequisites: ANPS 019, ANPS 020.

**EXSC 252. Exercise Physiology Lab. 1 Credit.**

The main objective of this laboratory course is to learn how to measure and evaluate physiological function and structure.

**EXSC 260. Adapted Physical Activity. 3 Credits.**

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. Prerequisite: Minimum Junior standing.

**EXSC 262. Human Perf & Ergogenic Aids. 3 Credits.**

Evaluates the role and effectiveness of performance enhancing substances in sports: including supplements, diets, banned substances, prescription and social drugs, and others. Prerequisites: ANPS 019, ANPS 020, EXSC 244.

**EXSC 263. Exercise in Chronic Conditions. 3 Credits.**

Advanced course in exercise prescription for a variety of unique populations. Recommended modifications and techniques that support fitness testing and programming for individuals with specific exercise needs will be reviewed. Prerequisites: EXSC 260, RMS 250; Senior standing in Exercise Science.

**EXSC 264. Certified Exer Physiologist. 3 Credits.**

Designed to prepare students for the ACSM Certified Exercise Physiologist exam and includes a high level review of exercise physiology, risk stratification, and fitness assessments. Prerequisites: RMS 250, EXSC 245; Senior standing.

**EXSC 268. Exercise Program Design. 3 Credits.**

Students will gain competency prescribing, designing, monitoring, and adapting exercise based on scientific evidence to a wide range of individuals-from healthy to those with co-morbidities. Prerequisites: RMS 250, EXSC 245, Senior standing.

**EXSC 270. Exer Sci Professional Seminar. 1 Credit.**

Junior seminar that bridges the foundational curricular experience with professional practice and/or post-graduate education. Professional seminar topics include but are not limited to: resume development, interviewing techniques, collaborative communication, etc.

**EXSC 272. Senior Capstone Experience. 1-6 Credits.**

Supervised capstone experience in Exercise Science. Prerequisite: Senior standing in Exercise Science.

**EXSC 273. EXSC WE Leadership. 3 Credits.**

Seminar serves as a leadership experience for Exercise Science students; offers applied experience in the UVM Wellness Environment. Prerequisite: Minimum Junior standing.

**EXSC 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EXSC 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EXSC 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**EXSC 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EXSC 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## FILM & TELEVISION STUDIES (FTS)

### Courses

**FTS 008. Classical Cinema. 0 or 3 Credits.**

Introduction to basic film history, theory, and analytical skills. An historical overview of classical international cinema.

**FTS 009. History of Television. 3 Credits.**

Introduction to basic television history, theory and analysis. An historical overview of television from its invention to the present.

**FTS 010. Contemporary Cinema. 3 Credits.**

Introduction to basic film history, theory, and analytical skills. An historical overview of contemporary international cinema.

**FTS 080. Film Festival Studies. 1-3 Credits.**

Investigates the history and business of the evolving role of film festivals for filmmakers, distributors, exhibitors, and audience. Students will study and attend a film festival for experiential observation of the field.

**FTS 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Departmental Permission required. Offered at department discretion.

**FTS 095. Intro Spec Topics in Film/TV. 1-18 Credits.**

See Schedule of Courses for specific titles.

**FTS 096. Intro Spec Topics in Film/TV. 1-18 Credits.**

See Schedule of Courses for specific titles.

**FTS 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**FTS 121. Film/Television Theory. 0 or 3 Credits.**

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. Prerequisite: FTS 007, FTS 008, FTS 009, or FTS 010.

**FTS 122. Film/TV Genre and Auteur. 0 or 3 Credits.**

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. Prerequisite: FTS 007, FTS 008, FTS 009, or FTS 010.

**FTS 123. Global Studies in Film/TV. 0 or 3 Credits.**

Investigations of nation and identity in film and/or television approached in their specific cultural, historical, and theoretical terms. May be repeated for credit. Prerequisite: FTS 007, FTS 008, FTS 009, or FTS 010.

**FTS 131. Advanced Film/TV Theory. 3 Credits.**

Advanced study of an area of film and/or television theory, such as psychoanalysis, feminism, historicism, or formalism. Prerequisite: FTS 121.

**FTS 133. Stds Docmnty/Avant-garde Cinm. 3 Credits.**

Explorations into various issues, ideas, and movements within documentary and avant-garde cinema. Prerequisite: FTS 007, FTS 008, FTS 009, or FTS 010.

**FTS 134. Cntmpty Topics in Film/TV. 3 Credits.**

Explorations into various issues, ideas, and movements within contemporary film and/or television. Prerequisite: FTS 007, FTS 008, FTS 009, or FTS 010.

**FTS 141. Film & Video Production I. 0 or 3 Credits.**

An introduction to techniques and theories of video production. Prerequisites: FTS 007, FTS 008, FTS 009 or FTS 010.

**FTS 142. Film & Video Production II. 0-3 Credits.**

Intermediate topics in film and video production. Topics vary with instructor, and may include editing, lighting, use of sound, etc. Prerequisite: FTS 141.

**FTS 143. Film Theory and Practice. 3 Credits.**

An advanced study of media theory and video production. Prerequisites: FTS 121 and one of the following: FTS 007, FTS 008, FTS 009, FTS 010.

**FTS 144. Screenwriting I. 3 Credits.**

An investigation of screenwriting practice and a screenwriting workshop. Prerequisite: FTS 007, FTS 008, FTS 009, or FTS 010.

**FTS 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Departmental permission required. Offered at department discretion. Only three credits can be applied to the Film and Television Studies major. Prerequisite: FTS 007, FTS 008, FTS 009, or FTS 010.

**FTS 192. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Departmental permission required. Offered at department discretion. Only three credits can be applied to the Film and Television Studies major. Prerequisite: FTS 007, FTS 008, FTS 009, or FTS 010.

**FTS 193. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Departmental Permission required. Offered at department discretion.

**FTS 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant usually in an introductory-level course in the discipline, for which credit is awarded. Departmental permission required. Offered at department discretion.

**FTS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: FTS 007, FTS 008, FTS 009, or FTS 010.

**FTS 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**FTS 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Departmental permission required. Offered at department discretion. Prerequisite: FTS 007, FTS 008, FTS 009, or FTS 010.

**FTS 198. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Departmental permission required. Offered at department discretion. Prerequisite: FTS 007, FTS 008, FTS 009, or FTS 010.

**FTS 271. Seminar in Film/Television. 3 Credits.**

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. Prerequisite: FTS 121 and one of the following: FTS 007, FTS 008, FTS 009, FTS 010.

**FTS 272. Seminar in Film/Television. 3 Credits.**

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. Prerequisite: FTS 121 and one of the following: FTS 007, FTS 008, FTS 009, FTS 010.

**FTS 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Departmental permission required. Offered at department discretion.

**FTS 293. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Departmental permission required. Offered at department discretion.

**FTS 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Departmental permission required. Offered at department discretion.

**FTS 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**FTS 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**FTS 298. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Departmental permission required. Offered at department discretion.

**FTS 299. Comprehensive Exam. 1 Credit.**

Capstone experience for majors culminating in a comprehensive exam. Readings and films will be available throughout the major, and in many cases, will draw from materials encountered in previous classes. Prerequisite: FTS 121.

## FOOD SYSTEMS (FS)

### Courses

**FS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**FS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**FS 093. Food Systems Seminar I. 1-3 Credits.**

For the second year of the Food Systems major; survey of the field exploring academic research in Food Systems.

**FS 096. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**FS 101. U.S. Food Policy and Politics. 3 Credits.**

Provides a systems perspective on U.S. food policies and politics across the food system. Focuses on understanding the U.S. food policy process, policymakers, stakeholders, issues, goals and feedbacks between food policy and politics. Prerequisite: NFS 073 or CDAE 002 or CDAE 004. Cross-listed with: NFS 113.

**FS 102. Comparative Food Systems. 3 Credits.**

Explores food production systems looking at social, economical, environmental dimensions; draws from multiple disciplines such as economics, sociology, agronomy, biology, geography, and history; critically explore scales of agriculture from very small-scale to very large. Prerequisite: CDAE 002 or CDAE 004 or NFS 073. Cross-listed with: CDAE 108.

**FS 103. Human Health in the Food Syst. 3 Credits.**

Explores the multifaceted and evolving intersection of food systems, dietary quality, food availability and human health outcomes. Investigates how political, economic, social and cultural drivers in the food system influence human health outcomes. Prerequisite: NFS 043 or NFS 073. Cross-listed with: NFS 114.



**FS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**FS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**FS 193. Food Systems Seminar II. 1-3 Credits.**

For the final year of the Food Systems major; refines the ability to critically address academic research in the field as well as provides professional development to prepare students for their job field. Prerequisite: FS 093.

**FS 196. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**FS 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**FS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**FS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**FS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**FS 296. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**FS 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**FS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**FOREIGN LANGUAGE (LANG)****Courses****LANG 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**LANG 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**LANG 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**LANG 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**LANG 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**LANG 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**FORESTRY (FOR)****Courses****FOR 001. SU: Forest Conservation. 3 Credits.**

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/Senior-level Rubenstein School of Environment and Natural Resources students.

**FOR 021. Dendrology. 0 or 4 Credits.**

Classification, silvical characteristics, and identification features of native and introduced trees and shrubs.

**FOR 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**FOR 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**FOR 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**FOR 111. Nat Res Ecol and Assessment 1. 0 or 4 Credits.**

Basic, essential field and assessment skills; knowledge needed in upper-level classes and jobs in forestry, wildlife, fisheries, or natural resources.

**FOR 112. Nat Res Ecol and Assessment 2. 4 Credits.**

Introduces concepts and skills important for assessing forest ecosystem structure and functioning to inform forest management and other natural resource conservation decisions.

**FOR 122. Forest Ecosystem Analysis. 4 Credits.**

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.

**FOR 146. Remote Sensing of Natural Res. 0 or 3 Credits.**

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: Sophomore standing. Cross-listed with: NR 146, GEOG 185.



**FOR 182. Advanced Forestry Seminar. 1 Credit.**

In-depth examination of contemporary issues in forestry.  
Prerequisite: Junior standing in Forestry. Credit arranged.

**FOR 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**FOR 191. Forestry Work Practicum. 1-9 Credits.**

Supervised work experience in forest resource area. Credit arranged.

**FOR 192. Forestry Work Practicum. 1-9 Credits.**

Supervised work experience in forest resource area.

**FOR 193. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**FOR 195. Special Topics. 1-18 Credits.**

Readings, investigations, and lectures in selected forest resource subjects.

**FOR 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**FOR 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**FOR 223. Multi-Resource Silviculture. 0 or 4 Credits.**

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. Prerequisite: NR 103.

**FOR 228. Ecosystems Ecology. 3 Credits.**

Examination of the structure and function of terrestrial ecosystems focusing on carbon and nutrient cycles. Laboratory sessions involve spatial modeling and data analysis. Prerequisites: NR 103, BCOR 102, PSS 161, or Graduate student standing. Cross-listed with: NR 228.

**FOR 233. Management of Forest Woodlots. 1. 3 Credits.**

Introduction to the knowledge and skills required for serving forest management needs of small properties in New England and beyond. Prerequisite: FOR 223.

**FOR 272. Sustain Mgmt Forest Ecosys. 0 or 4 Credits.**

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, FOR 223.

**FOR 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**FOR 291. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Findings submitted in written form as prescribed by department. Offered at department discretion Prerequisite: Senior standing.

**FOR 292. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small research projects under the supervision of a faculty member, for which credit is awarded. Findings submitted in written form as prescribed by department. Offered at department discretion Prerequisite: Senior standing.

**FOR 293. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**FOR 295. Advanced Special Topics. 1-18 Credits.**

Advanced special topics courses or seminars in forestry beyond the scope of existing formal courses. Prerequisites: Minimum Junior standing; Instructor permission.

**FOR 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**FOR 299. Honors. 1-6 Credits.**

Honors project dealing with the biology and/or management of forest ecosystems. See Program Chair.

**FOUNDATIONS (EDFS)****Courses****EDFS 001. D1:Race and Racism in the U.S.. 3 Credits.**

Students will investigate the multi-faceted concepts of identity, racism, and the dynamics of power, privilege, and oppression in the United States.

**EDFS 002. School and Society. 0 or 3 Credits.****EDFS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDFS 095. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EDFS 096. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EDFS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDFS 195. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EDFS 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EDFS 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDFS 198. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDFS 200. Contemporary Issues. 3 Credits.**

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

**EDFS 203. Soc, Hst & Phil Found of Educ. 3 Credits.**

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.

**EDFS 209. Intro to Research Methods. 3 Credits.**

Seminars and research projects. Methods of historical, descriptive, experimental, quasi-experimental, field studies, and survey research.

**EDFS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDFS 295. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

**EDFS 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**EDFS 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDFS 298. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**FRENCH (FREN)****Courses****FREN 001. Elementary I. 4 Credits.**

Fundamentals of French composition, comprehension, pronunciation, speaking, reading, and writing in a cultural context. Classes are conducted in French and students engage in active use of the language. No prior knowledge expected.

**FREN 002. Elementary II. 4 Credits.**

Further development of French composition, comprehension, pronunciation, speaking, reading, and writing in a cultural context. Classes are conducted in French and students engage in active use of the language. Prerequisite: FREN 001 or equivalent.

**FREN 051. Intermediate I. 3 Credits.**

Review of grammar, moving toward increased proficiency in composition, comprehension, pronunciation, speaking, reading, and writing. Emphasis on cultural context. Compositions, oral practice, reading. Prerequisite: FREN 002, FREN 009, or equivalent.

**FREN 052. Intermediate II. 3 Credits.**

Continues building on skills from FREN 051. Cultural context, grammar review, moving toward increased proficiency in comprehension, pronunciation, speaking, reading, and writing. More extensive and sophisticated readings and compositions than in FREN 051. Prerequisite: FREN 051 or equivalent.

**FREN 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**FREN 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**FREN 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**FREN 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**FREN 101. Writing Workshop. 3 Credits.**

Improvement of functional skills: writing, listening, and speaking. Development of techniques to explain, elaborate, support opinions, convince, and persuade in both writing and speaking. Prerequisite: FREN 052 or equivalent.

**FREN 107. Focus on Oral Expression. 3 Credits.**

Guided practice of oral-aural skills through vocabulary and pronunciation exercises, readings, and oral presentations. Writing exercises reinforce oral work. Prerequisite: FREN 052 or equivalent.

**FREN 109. French Grammar in Review. 3 Credits.**

Grammar review and practice using a communicative approach to reinforce oral expression skills. Prerequisite: FREN 052.

**FREN 131. French Civilization. 3 Credits.**

Study of the fundamentals of French culture from historical and structural perspectives, including a review of sociopolitical institutions. Prerequisite: FREN 101.

**FREN 132. Contemporary France. 3 Credits.**

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.

**FREN 135. Topics in Frn/Frnchphne Culture. 3 Credits.**

Topics in the cultures of France and/or the French-speaking world, including Africa, the Caribbean, and/or Quebec. May be repeated for credit with different content. Prerequisite: FREN 101.

**FREN 141. French Lit in Context I. 3 Credits.**

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. Prerequisite: FREN 101.

**FREN 142. French Lit in Context II. 3 Credits.**

A study of significant texts in the history of French literature from the French Revolution to the present, in their historical and cultural contexts. Prerequisite: FREN 101.

**FREN 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**FREN 192. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**FREN 195. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**FREN 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**FREN 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Permission of Chair required.

**FREN 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Permission of Chair required.

**FREN 201. Adv Composition & Conversation. 3 Credits.**

Course activities (discussions, exposes, written work, etc.) designed to lead to mastery of French oral and written expression. Prerequisite: FREN 101.

**FREN 209. Advanced Grammar. 3 Credits.**

Comparative grammatical study centered on the specific problems encountered by Anglophones in written and spoken French. Prerequisite: FREN 101.

**FREN 237. Early French Women Writers. 3 Credits.**

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: FREN 141 or FREN 142.

**FREN 266. Rev&React in 19th C Narrative. 3 Credits.**

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: FREN 141 or FREN 142.

**FREN 269. La Belle Epoque. 3 Credits.**

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: FREN 141 or FREN 142.

**FREN 275. 20-C Lit - Society and Writers. 3 Credits.**

A study of twentieth-century French authors who shaped contemporary French culture by challenging traditional ethics and modes of thought. Representative authors include Beauvoir, Camus, and Sartre. Prerequisites: FREN 141 or FREN 142.

**FREN 278. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**FREN 279. Women's Autobiographies. 3 Credits.**

Study of several autobiographies written by contemporary French/Francophone women. Representative authors include Colette, de Beauvoir, Sarraute, Duras, Ernaux, Martin. Prerequisites: FREN 141 or FREN 142.

**FREN 280. Francophone Crossings. 3 Credits.**

Study of works in French that demonstrate multiple cultural influences. Topics may include: exile writings, cultural/linguistic mixing, colonialism and independence movements, human rights, immigration. Prerequisites: FREN 141 or FREN 142.

**FREN 282. Multiethnic France: 20-21C Lt. 3 Credits.**

A study of contemporary French and Francophone African authors and filmmakers, with emphasis on the representation of colonialism, post-colonial France, and identity construction. Representative authors may include Begag, Beyala, and Sebbar. Prerequisite: FREN 141 or FREN 142.

**FREN 285. Quebec Literature. 3 Credits.**

A study of contemporary (1960-1985) major works of fiction, poetry, and drama. Authors studied include Anne Hébert, Michel Tremblay, Jacques Godbout, Gaston Miron. Prerequisites: Either FREN 141 or FREN 142, or both.



**FREN 292. Topics in French Culture. 3 Credits.**

In-depth study of a major aspect of French culture. See Schedule of Courses for specific offering. Prerequisites: FREN 131 or FREN 132 or Instructor permission.

**FREN 293. Quebec Culture. 3 Credits.**

Sociocultural study of the Francophone culture of Canada.

Prerequisite: FREN 141 or FREN 142.

**FREN 295. Advanced Special Topics. 1-18 Credits.**

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

**FREN 296. Advanced Special Topics. 1-18 Credits.**

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

**FREN 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Permission of Chair required.

**FREN 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Permission of Chair required.

**FREN 299. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GEOGRAPHY (GEOG)****Courses****GEOG 040. Weather, Climate & Landscapes. 0 or 3 Credits.**

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.

**GEOG 050. D2:SU:Global Envmnts& Cultures. 3 Credits.**

Introduction to Geography from global, place-based, cultural, and socio-environmental perspectives.

**GEOG 060. D1:Geography/Race&Ethnic in US. 3 Credits.**

Examination of the ways in which spatial and locational processes shape and are shaped by ethnic and racial identities, struggles, and relationships.

**GEOG 061. Place, Lndscpe, Environment VT. 3 Credits.**

Introduction to Vermont's physical geographies, environmental histories, and socio-environmental problems. The course also considers Vermont's global and regional connections.

**GEOG 070. SU: Society, Place, and Power. 3 Credits.**

An introduction to human geography: a spatial perspective on the study of population and migration, globalization, uneven economic development, geopolitics, cities and rural spaces, cultural meanings of place, and struggles for spatial justice.

**GEOG 081. Geospatial Cncpt&Visualization. 0 or 3 Credits.**

Introduction to the quantitative and qualitative geospatial concepts and tools used in Cartography, Geographic Information Science (GISci), Remote Sensing, and geographic research. Data creation, analysis, and map design using existing digital map resources, topographic/satellite data, and alternative mapping methodologies.

**GEOG 085. Imaging the Earth. 3 Credits.**

Geographic analysis and evaluation of aerial imagery produced by remote sensors (satellites, airplanes, drones) and its relationship to environmental problems in the social and physical sciences.

**GEOG 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GEOG 095. Special Topics in Geography. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GEOG 096. Special Topics in Geography. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GEOG 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GEOG 099. First-Year Seminar. 3 Credits.****GEOG 140. Biogeography. 3 Credits.**

Examines geographic distribution of organisms, emphasizing the biotic and abiotic factors that explain temporal and spatial patterns of species, population, and community distributions. Prerequisite: GEOG 040.

**GEOG 143. Climatology: Concepts & Tools. 3 Credits.**

Quantitative analysis of the atmospheric-land-water processes that determine climate variability and change at the local to global scales. Historical and near real-time data manipulation via statistics, weather map interpretation, climate indices, modeling and remote sensing. Prerequisite: GEOG 040.

**GEOG 144. Geomorphology. 0 or 4 Credits.**

Examines, using lectures, labs, and field-based independent study research projects, processes which change Earth's surface and the history of landscape development. Considers fundamental geologic constraints on environmental problems. Prerequisite: GEOL 001, GEOL 005, GEOL 007, or GEOL 055. Cross-listed with: GEOL 151.

**GEOG 145. SU: Geography of Water. 3 Credits.**

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.

**GEOG 148. Global Environmental Change. 3 Credits.**

Explores changes in natural processes and anthropogenic activities that influence the atmosphere, hydrosphere, and biosphere individually and through interactions and feedbacks from a distinctly spatial perspective employed by physical geographers. Prerequisite: GEOG 040.



**GEOG 150. D2: Geography of Africa. 3 Credits.**

The character and development of the contemporary cultural, economic, and political patterns of the area against the background of its physical and resource base. Prerequisite: GEOG 050 or GEOG 070.

**GEOG 151. D2: Geography of India. 3 Credits.**

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 GEOG 070.

**GEOG 153. The Circumpolar Arctic. 3 Credits.**

Examines the physical and human geography of the circumpolar Arctic. Prerequisite: GEOG 040 or GEOG 050.

**GEOG 160. The US: Place, Power, Politics. 3 Credits.**

Study of the United States through diverse perspectives in Human Geography. Examines how race, class, and gender relations shape social and political landscapes in historical and contemporary contexts. Emphasizes social/environmental justice and geographic approaches to thinking about political power. Prerequisite: GEOG 050 or GEOG 070.

**GEOG 170. Historical Geography. 3 Credits.**

Examination of the tools, techniques, and perspectives used in studying the historic development of places and landscapes. Vermont and other North American case studies. Prerequisite: GEOG 050 or GEOG 070 or HST 012. Cross-listed with: HST 170.

**GEOG 173. Political Ecology. 3 Credits.**

Human-environment interactions under globalization. The politics of using particular ideas of 'nature' for the benefit of some and to the detriment of others in spaces from local backyards to global contexts. Environmental movements and livelihoods. Prerequisites: GEOG 050 or GEOG 070 or ENVS 002; and ENSC 001 or ENVS 001 or GEOG 040 or GEOL 001 or GEOL 007 or GEOL 055 or NR 103. Cross-listed with: ENVS 143.

**GEOG 174. Rural Geography. 3 Credits.**

Global, national and local scale study of rural landscapes, cultures, social issues, and environmental concerns. Prerequisite: GEOG 050 or GEOG 070.

**GEOG 175. Urban Geography. 3 Credits.**

Analysis of the morphology, function and social structure of cities. Consideration of the nature, history and theories of urban growth and development. Prerequisite: GEOG 050 or GEOG 070.

**GEOG 178. Gender, Space & Environment. 3 Credits.**

Examination of the ways in which human relationships to both the built and the natural environment are mediated by gender. Prerequisite: Six hours in Geography or Gender, Sexuality, & Women's Studies.

**GEOG 179. Cultural Ecology. 3 Credits.**

Interrelationships of social groups and their natural environments and resource bases, with primary emphasis on nonindustrial cultures, examined from the perspectives of anthropology and geography. Prerequisite: GEOG 050 or GEOG 070.

**GEOG 184. Geog Info: Cncpts & Applic. 0 or 3 Credits.**

Systematic approach to important geographical concepts (including distance, shape, scale dispersion) structured around the use of Geographical Information Systems (GIS) as an analytical tool. Prerequisite: Sophomore standing.

**GEOG 185. Remote Sensing. 0 or 3 Credits.**

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: Sophomore standing. Cross-listed with: FOR 146, NR 146.

**GEOG 186. Qualitative Research Methods. 3 Credits.**

Covers data collection, analysis, and representation techniques for qualitative data with emphasis on critical perspectives and cutting-edge practices, such as participatory mapping and mixed-methods approaches. Prerequisite: Sophomore standing.

**GEOG 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Minimum Junior standing.

**GEOG 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GEOG 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GEOG 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GEOG 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GEOG 199. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**GEOG 244. Adv Top: Global Change. 3 Credits.**

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. Prerequisite: Vary with course content; Minimum Junior standing.

**GEOG 245. Adv Top: Human Env Interactions. 3 Credits.**

Advanced offerings on various manifestations of social-environmental relationships. Possible topics include sustainable development, environmental justice, and urban ecology. Prerequisites: Vary with course content; Minimum Junior standing.

**GEOG 246. Adv Top:Climate&Water Resource. 3 Credits.**

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. Prerequisites: Vary with course content; minimum Junior standing.

**GEOG 272. Adv Top:Space, Power, Identity. 3 Credits.**

Advanced offerings on topics related to the spatial regulation and geographic construction of social identity, paying particular attention to race, gender, and sexuality. Prerequisites: Vary with course content; minimum Junior standing.

**GEOG 273. Adv Top:Political Econ&Ecology. 3 Credits.**

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: Vary with course content; minimum Junior standing.

**GEOG 274. Adv Top:Critical Urban&Soc Geo. 3 Credits.**

Advanced offerings in urban and critical social geography. Possible topics include social justice and the city, human rights, geographies of social control. Prerequisites: Vary with course content; minimum Junior standing.

**GEOG 281. Adv Topic:GIS & Remote Sensing. 3 Credits.**

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: Vary with course content; minimum Junior standing.

**GEOG 287. Spatial Analysis. 3 Credits.**

Analysis of spatial pattern and interaction through quantitative statistical models; application of GIS to statistical modeling. Prerequisite: GEOG 081 or GEOG 184 or NR 143 or ENSC 130 or GEOL 185.

**GEOG 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GEOG 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GEOG 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GEOG 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GEOG 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GEOG 299. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**GEOLOGY (GEOL)****Courses****GEOL 001. Earth System Science. 0 or 4 Credits.**

Introduction to the earth as a closed system, the cycling of materials and energy within it, and its interactions with the hydrosphere and atmosphere. No credit for GEOL 001 and either GEOL 005, GEOL 006, GEOL 008, or GEOL 011.

**GEOL 005. Mt - Lake:Geol Lake Chmpln Bsn. 4 Credits.**

Scientific principles applied to the geology and geologic history of the Lake Champlain Basin. Credit not given for both GEOL 005 and either GEOL 001, GEOL 006, GEOL 008, or GEOL 011.

**GEOL 006. How the Earth Works. 3 Credits.**

Introduces how the Earth works through examination of interactions between geosphere, hydrosphere, atmosphere and biosphere that produce Earth's climates and environments. Credit not given for both GEOL 006 and either GEOL 001, GEOL 005, GEOL 008, or GEOL 011.

**GEOL 007. SU: Earth Hazards. 0 or 3 Credits.**

Understand geological and societal causes of death and destruction by earthquakes, landslides, floods, volcanoes, storms, and avalanches around the world.

**GEOL 011. Geology Using Google Earth. 3 Credits.**

An illustration of dynamic processes that have shaped our planet, and views the results of those processes using Google? Earth. Credit not given for both GEOL 011 and either GEOL 001, GEOL 005, Geol 006, or GEOL 008.

**GEOL 055. Environmental Geology. 0 or 4 Credits.**

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.

**GEOL 062. Earth Env & Life Through Time. 0 or 4 Credits.**

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, GEOL 005, or GEOL 055.

**GEOL 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GEOL 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GEOL 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GEOL 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GEOL 101. Field Geology. 4 Credits.**

Geological evolution of western Vermont as seen through actual field mapping in the Burlington area. Specifically designed for sophomores majoring or minoring in Geology or related sciences. Prerequisite: GEOL 001 or GEOL 005 or GEOL 055.

**GEOL 110. SU: Earth Materials. 0 or 4 Credits.**

Exploration of the building blocks of the Earth (elements, minerals, and rocks) and their connection to the Earth's past, present, and possible sustainable future. Prerequisite: GEOL 001 or GEOL 005 or GEOL 055.

**GEOL 116. Glacial Geology. 4 Credits.**

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, GEOL 005, or GEOL 055.

**GEOL 135. Environmental Geochemistry. 4 Credits.**

Application of many basic principles of chemistry to selected environmental problems in geosciences (e.g. acid mine drainage, carbon dynamics, weathering, and contaminant metal mobility). Prerequisite: CHEM 031.

**GEOL 151. Geomorphology. 0 or 4 Credits.**

Examines, using lectures, labs, and field-based independent study research projects, processes which change Earth's surface and the history of landscape development. Considers fundamental geologic constraints on environmental problems. Prerequisite: GEOL 001, GEOL 005, GEOL 007, OR GEOL 055. Cross-listed with: GEOG 144.

**GEOL 161. SU:Field Methods in Geophysics. 0-4 Credits.**

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.

**GEOL 172. Regional Geology. 0-4 Credits.**

Field study of a selected region including multi-week summer trip to the area in question. Not more than four credits allowed toward major.

**GEOL 185. Geocomputing. 3 Credits.**

Introduction to a variety of computing tools commonly used in sciences and geosciences in particular. Hands-on experience is at the heart of the teaching of this class; real data are used to resolve specific problems. Prerequisite: Sophomore standing.

**GEOL 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GEOL 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**GEOL 195. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GEOL 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GEOL 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GEOL 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GEOL 201. Advanced Field Geology. 3 Credits.**

Advanced field mapping techniques, analysis of field data, preparation of geological maps and reports. Prerequisite: GEOL 101.

**GEOL 217. Vermont Field Geology. 4 Credits.**

Field observations of rocks and surficial materials across northern Vermont are utilized to decipher the region's geologic history. Readings complement field work. Prerequisite: Graduate student standing.

**GEOL 231. Petrology. 4 Credits.**

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. Prerequisite: GEOL 110.

**GEOL 233. Environmental Isotope Geochem. 3 Credits.**

Course focuses on stable isotope geochemistry of low temperature processes occurring on and near the earth surface through lecture, laboratory, and seminar. Prerequisite: CHEM 031.

**GEOL 234. Global Biogeochemical Cycles. 3 Credits.**

Integrated perspective on biogeochemical cycles describing the transformation and movement of chemical substances in the natural environment, as seen on the global context. Prerequisite: CHEM 031.

**GEOL 235. Geochemistry of Natural Waters. 3 Credits.**

Basic concepts of chemical equilibria applied to natural waters, including thermodynamics, pH, oxidation-reduction, weathering, and solution equilibria. Prerequisite: CHEM 032.

**GEOL 240. Tectonics. 3 Credits.**

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. Prerequisites: GEOL 101, GEOL 110.

**GEOL 246. X-ray Diffractometry. 3 Credits.**

This course focuses on identification and characterization of materials using X-ray diffractometry. The course will include exercises using a modern powder diffractometer. Prerequisite: CHEM 032.



**GEOL 249. Crystal Chemistry. 3 Credits.**

A hands-on course involving crystal structure solutions, wherein grading will be based on various class projects, not examinations. Students will gain a deep understanding of how Nature arranges matter on Earth, and how to determine the atomic arrangement of compounds using X-ray diffractometry. Prerequisites: GEOL 110 or GEOL 246; or Chemistry, Physics, or Material Science major and minimum Junior standing; or graduate standing in Chemistry, Physics, or Material Science.

**GEOL 260. Structural Geology. 0 or 4 Credits.**

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: GEOL 101, GEOL 110.

**GEOL 263. Geochronology. 3 Credits.**

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.

**GEOL 266. Microstructures. 3 Credits.**

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. Prerequisite: GEOL 260.

**GEOL 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GEOL 291. Capstone: Fall Geol Seminars. 1 Credit.**

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: Geology majors and Geology minors only.

**GEOL 292. Capstone: Spring Geol Seminars. 1 Credit.**

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: Geology majors and Geology minors only.

**GEOL 293. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**GEOL 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GEOL 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GEOL 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GEOL 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GERMAN (GERM)****Courses****GERM 001. Elementary. 4 Credits.**

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.

**GERM 002. Elementary. 0 or 4 Credits.**

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 001 or equivalent.

**GERM 011. Experience German. 1 Credit.**

Students will engage in a variety of events to enhance their understanding and appreciation of German language and culture. Provides an opportunity to experience German through a variety of interactive contexts.

**GERM 051. Intermediate. 3 Credits.**

Comprehensive review of German grammar, vocabulary-building skills, development of reading strategies and compositional abilities, study of contemporary German culture through literary texts. Prerequisites: GERM 001, GERM 002 or equivalent.

**GERM 052. SU: Intermediate. 3 Credits.**

Comprehensive review of German grammar, vocabulary-building skills, development of reading strategies and compositional abilities, study of contemporary German culture through literary texts. Prerequisites: GERM 051 or equivalent.

**GERM 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GERM 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GERM 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GERM 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GERM 105. Staging German. 3 Credits.**

Opportunity to improve oral communication skills through the study and performance of different genres. Prerequisite: GERM 051. Pre-/Co-requisite: GERM 052.



**GERM 106. My Best Friend, The Dictionary. 3 Credits.**

Opportunity to expand students' vocabulary as well as their recognition and understanding of collocations, synonyms, and idiomatic expressions in their cultural context through the in-depth study of German dictionaries. Prerequisite: GERM 051. Pre/Co-requisite: GERM 052.

**GERM 122. 20th C Culture & Civilization. 3 Credits.**

Social, cultural, and political developments in the German-speaking countries since 1900, stressing written and oral components. Prerequisite: GERM 052 or equivalent.

**GERM 123. Modern Germany. 3 Credits.**

Overview of the most important components of contemporary German society. Prerequisite: GERM 052.

**GERM 155. Topics in 18th-19th Cen Lit. 3 Credits.**

Thematically organized course focused on German literature of the eighteenth and nineteenth centuries, with attention to political, philosophical, musical, and artistic developments. May be repeated for credit with different content. Prerequisite: GERM 052.

**GERM 156. Topics in 20th-21st Cen Lit. 3 Credits.**

Thematically organized course focused on twentieth- and twenty-first-century German literature in historical and cultural contexts. May be repeated for credit with different content. Prerequisite: GERM 052.

**GERM 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GERM 192. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**GERM 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GERM 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GERM 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GERM 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GERM 281. Sem in Lit Genre,Period,Theme. 3 Credits.**

Study of a literary genre, period, or theme through close readings of representative texts supplemented by lectures and reports on sociocultural context. May be repeated. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 282. Sem on Particular Author. 3 Credits.**

Study of author(s) through close readings of representative texts supplemented by lectures and reports on the works' socio-cultural context. May be repeated. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GERM 292. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**GERM 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GERM 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GERM 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GERM 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GLOBAL AND REGIONAL STUDIES (GRS)****Courses****GRS 001. D2:SU:Intro to Global Studies. 3 Credits.**

An interdisciplinary introduction to the social, political, economic, natural, and cultural dimensions of globalization and transnational interdependencies.

**GRS 025. Global Village Passport. 1 Credit.**

Explores global problems and international perspectives through attendance at campus and community lectures and events. Required for first-time L/L Global Village residents.

**GRS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GRS 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GRS 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GRS 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GRS 111. SU:Race,Identity&Migrant Labor. 3 Credits.**

Spanish composition and conversation course that explores the Mexican and Mexican-American experience in the United States during the nineteenth, twentieth, and twenty-first centuries and focuses on issues of sustainability, food sovereignty and institutionalized racism in service-learning and global contexts. Prerequisites: SPAN 052 or SPAN 080 or equivalent; GRS 001 recommended. Cross-listed with: SPAN 111.

**GRS 157. D2:Int'l Politics Middle East. 3 Credits.**

Survey of the politics of the Middle East since World War II. Includes sessions on specific countries, discussions of topics ranging from democratization to terrorism to social media use, and debate on current policy dilemmas in the region. Prerequisite: POLS 051. Cross-listed with: POLS 157.

**GRS 167. D2:Terrorism&Counterterrorism. 3 Credits.**

Overview of scholarly research on terrorism and counterterrorism efforts, engagement with debates on the appropriateness of the term terrorism, information on terrorist movements (both historical and contemporary), and a discussion of policy responses to terrorism. Prerequisite: POLS 051. Cross-listed with: POLS 167.

**GRS 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GRS 192. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GRS 193. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**GRS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GRS 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GRS 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GRS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GRS 200. D2:Seminars in Global Studies. 3 Credits.**

An advanced interdisciplinary seminar that examines the social, political, economic, natural, and cultural dimensions of globalization and transnational interdependencies. Prerequisites: Global Studies major; minimum second-semester Junior standing.

**GRS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GRS 293. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**GRS 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Instructor permission.

**GRS 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Instructor permission.

**GRS 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Minimum Junior standing and permission of Program Director.

**GRS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Minimum Junior standing and permission of Instructor.

## GNDR, SEXUALITY, & WMS STDIES (GSWS)

### Courses

**GSWS 001. D2:Gender Sexuality Wmn's Stdy. 3 Credits.**

Introduction to the field of gender, sexuality, and women's studies. Topics include key theoretical approaches to conceptualizing gender, sexuality, and power; how gender and sexuality are policed; and the relationship between gender, sexuality, and other social categories.

**GSWS 022. Sociology of Sexualities. 3 Credits.**

Examination of the social construction of sexuality with emphasis on theories, concepts, and cultural ramifications of a range of sexual practices and identities. Cross-listed with: SOC 022.

**GSWS 042. Women in Literature. 3 Credits.**

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. Cross-listed with: ENGS 042.

**GSWS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GSWS 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GSWS 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GSWS 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GSWS 100. D2: Gender and Feminism(s). 3 Credits.**

This course explores the politics and history of feminist movements and theories, as well as the ways in which gender has shaped public policies. The emphasis will be primarily, although not exclusively, on gender and feminism(s) in the United States. Prerequisite: GSWS 001.

**GSWS 105. D2: LGBT Politics and History. 3 Credits.**

Explores the history, strategies, conflicts, and issues surrounding the various movements advancing the claims of LGBT rights, as well as the roles LGBTQ people play as participants in American politics and culture. Prerequisite: POLS 021, GSWS 001, or Instructor permission. Cross-listed with: POLS 119.

**GSWS 114. Women in Christianity to 1500. 3 Credits.**

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. Prerequisite: Three hours of Religion. Cross-listed with: REL 125.

**GSWS 120. Feminism:Theories and Issues. 3 Credits.**

Theories of libertarianism, liberalism, and egalitarianism; application to the analysis and evaluation of social issues of contemporary interest, such as abortion and affirmative action. Prerequisite: One course in Philosophy. Cross-listed with: PHIL 170.

**GSWS 131. D2: Sex in Modern History. 3 Credits.**

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. Prerequisites: Three hours of History or Gender, Sexuality & Women's Studies. Cross-listed with: HST 160.

**GSWS 140. Gender, Sexualities & Medicine. 3 Credits.**

Examines medicine through a sociocultural lens, drawing on sociological, historical, anthropological, philosophical, feminist, queer, and critical race studies perspectives in order to explore the intersections of sex, gender, sexuality, and medicine. Prerequisites: GSWS 001; or three hours of Sociology; or Health and Society major or minor. Cross-listed with: SOC 140.

**GSWS 142. 19th Century Women's Writing. 3 Credits.**

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 titles. Prerequisite: Three hours in English or Gender, Sexuality, & Women's Studies. Cross-listed with: ENGS 158.

**GSWS 145. Scandinavia: Gender & Equality. 3 Credits.**

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: GSWS 001.

**GSWS 155. The Politics of Sex. 3 Credits.**

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. Prerequisites: POLS 021 or GSWS 001. Cross-listed with: POLS 120.

**GSWS 165. D2:Gender Sex Race & the Body. 3 Credits.**

Cross-cultural study of gender, sex, sexuality, and race including exploring the cultural construction of categories and cultural practices related to the body and gender, sex, sexuality, and race. Prerequisites: ANTH 021 or GSWS 001. Cross-listed with: ANTH 172.

**GSWS 179. D2: Ecofeminism. 3 Credits.**

Investigation of the parallel dominations of women and nature, through analysis and reflection on ecofeminist theory, activism, and spirituality. Prerequisites: ENVS 001, ENVS 002, or GSWS 001; Sophomore standing. Cross-listed with: ENVS 179.

**GSWS 180. Communicating Masculinities. 3 Credits.**

An exploration of how our culture communicates about and defines masculinity, what the effects are for individuals and institutions, and the alternative possibilities for creating new masculinities. Pre/Co-requisites: GSWS 001. Cross-listed with: SPCH 180.

**GSWS 185. Economics of Gender. 3 Credits.**

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, Prerequisites: EC 011, EC 012. Cross-listed with: EC 156.

**GSWS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GSWS 191. Practicum. 3-6 Credits.**

A required component of a curriculum that is an on-site supervised work experience combined with a structured academic learning plan directed by faculty member or faculty-staff team with a faculty member as instructor of record, for which credit is awarded. Prerequisite: A contract must be obtained from and returned to the Gender, Sexuality, & Women's Studies Program office during registration; permission of Director of Gender, Sexuality, & Women's Studies.

**GSWS 192. Practicum. 3-6 Credits.**

A required component of a curriculum that is an on-site supervised work experience combined with a structured academic learning plan directed by faculty member or faculty-staff team with a faculty member as instructor of record, for which credit is awarded. Prerequisite: A contract must be obtained from and returned to the Gender, Sexuality, & Women's Studies Program office during registration; permission of Director of Gender, Sexuality, & Women's Studies.

**GSWS 193. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.



**GSWS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GSWS 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GSWS 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GSWS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GSWS 200. GSWS Senior Seminar. 3 Credits.**

Advanced discussion-based, interdisciplinary approaches to the study of GSWS topics. Representative topics: Feminist Media Studies; Feminist Theory in Historical Perspective; Gender, Sexuality and the Law. Prerequisites: GSWS 001, six additional hours in Gender, Sexuality, & Women's Studies, and admission to the Gender, Sexuality, & Women's major or minor program.

**GSWS 231. Transgender Studies. 3 Credits.**

Introduction to the interdisciplinary field of transgender studies. Exploration of trans studies in the social sciences and gender and queer studies and examination of the contributions of the field to shifting understandings of sex, gender, identity, and the body. Prerequisites: GSWS 001 or SOC 001; three additional hours in Gender, Sexuality, and Women's Studies at 100-level or above or SOC 090 or SOC 100 or SOC 101; minimum Junior standing. Cross-listed with: SOC 231.

**GSWS 250. Sociology of Reproduction. 3 Credits.**

Examines reproduction of cultural values in relation to social conduct of reproduction of human life (childbearing) under advanced capitalism. Prerequisite: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing. Cross-listed with: SOC 223.

**GSWS 258. Gender and Law. 3 Credits.**

Examination of the interaction between gender and law in American society. Topics covered include workplace law, family law, and personal autonomy. Prerequisites: POLS 021, three hours at the 100-level. Cross-listed with: POLS 235.

**GSWS 280. D2: Queer Lives: LGBT History. 3 Credits.**

Advanced readings and research on the history of LGBT peoples in Europe and North America with a focus on case studies, recent scholarship, and major theoretical works. Prerequisites: GSWS 001 and six additional hours of Gender, Sexuality, & Women's Studies courses, or twelve hours of History; minimum Junior standing. Cross-listed with: HST 280.

**GSWS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GSWS 293. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline for which credit is awarded. Offered at department discretion.

**GSWS 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GSWS 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**GSWS 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: GSWS 001; permission of Director of Gender, Sexuality, & Women's Studies.

**GSWS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: GSWS 001; approval of Director of Gender, Sexuality, & Women's Studies.

**GRADUATE (GRAD)****GREEK (GRK)****Courses****GRK 001. Elementary Ancient Greek. 4 Credits.**

Fundamentals of fifth-century Attic (Athenian) Greek, in preparation for reading great works of Thucydides, Aeschylus, Sophocles, Euripides, Aristophanes, Lysias, Plato, Aristotle, Demosthenes, Homer, Herodotus, Sappho, Pindar, New Testament, and more.

**GRK 002. Elementary Ancient Greek. 4 Credits.**

Fundamentals of fifth-century Attic (Athenian) Greek, in preparation for reading great works of Thucydides, Aeschylus, Sophocles, Euripides, Aristophanes, Lysias, Plato, Aristotle, Demosthenes, Homer, Herodotus, Sappho, Pindar, New Testament, and more. Prerequisite: GRK 001 or equivalent.

**GRK 003. Self-Paced Greek. 1-8 Credits.**

Fundamentals of Classical Greek through tutorial instruction, credit dependent on amount of material learned. May be repeated for credit. No credit with GRK 001 and GRK 002.

**GRK 051. Intermediate Ancient Greek. 3 Credits.**

Review of syntax. Readings from Plato, Herodotus, and Euripides. Prerequisite: GRK 002 or equivalent.

**GRK 052. Intermediate Ancient Greek. 3 Credits.**

Review of syntax. Readings from various authors. Prerequisite: GRK 051 or equivalent.

**GRK 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.



**GRK 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GRK 095. Introductory Special Topics. 1-18 Credits.**

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

**GRK 096. Introductory Special Topics. 1-18 Credits.**

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

**GRK 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GRK 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**GRK 195. Intermediate Special Topics. 1-18 Credits.**

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

**GRK 196. Intermediate Special Topics. 1-18 Credits.**

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

**GRK 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GRK 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GRK 201. Greek Orators. 3 Credits.**

Selected speeches of Lysias, Demosthenes, and other Attic orators. Prerequisite: GRK 052 or equivalent.

**GRK 203. Greek Historians. 3 Credits.**

Thucydides, Books I and II; selections from Herodotus and Xenophon's Hellenica. Alternate years, as needed. Prerequisite: GRK 052 or equivalent.

**GRK 205. Greek Philosophers. 3 Credits.**

Dialogues of Plato with attention to language and dialectical method; Aristotle, Xenophon or Presocratic philosophers may be read. Alternate years, as needed. Prerequisite: GRK 052 or equivalent.

**GRK 206. Greek Epic. 3 Credits.**

Reading in the Iliad and Odyssey. Problems of epic composition and language together with mythological and historical background. Alternate years, as needed. Prerequisite: GRK 052 or equivalent.

**GRK 211. Greek Prose Style. 3 Credits.**

Readings in literary prose analyzed stylistically and imitated in composition. Required of Greek majors. Prerequisite: GRK 052 or equivalent. Co-requisite: GRK at the 200-level.

**GRK 212. Greek Prose Style. 3 Credits.**

Readings in literary prose analyzed stylistically and imitated in composition. Required of Greek majors. Prerequisite: GRK 052 or equivalent. Co-requisite: GRK at the 200-level.

**GRK 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**GRK 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**GRK 295. Advanced Special Topics. 1-18 Credits.**

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

**GRK 296. Advanced Special Topics. 1-18 Credits.**

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

**GRK 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GRK 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**GREEK & LATIN (GKLT)****Courses****GKLT 295. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Undergraduate only.

**HEALTH AND SOCIETY (HSOC)****Courses****HSOC 054. Health Care in America. 3 Credits.**

Examination of the organization and financing of the U.S. health care system. Focus on health disparities, health care policy, and cross-national comparisons. Cross-listed with: SOC 054.

**HSOC 089. D2:SU:Global Health Devl & Div. 3 Credits.**

An anthropological exploration of connections between global health, economic development, and cultural diversity in contemporary times. Considers ways in which informed global citizens can make a positive difference in human health, taking socioeconomic and cultural diversity into account. Cross-listed with: ANTH 089.

**HSOC 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HSOC 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HSOC 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HSOC 103. D2: Fndns of Global Health. 3 Credits.**

Explores global health and global health challenges affecting people primarily in developing or resource-constrained countries. Prerequisite: Minimum Sophomore standing. Cross-listed with: ANTH 173, HSCI 103.

**HSOC 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HSOC 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HSOC 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HSOC 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**HSOC 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HSOC 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HSOC 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HSOC 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HSOC 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**HSOC 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HEALTH EDUCATION (EDHE)****Courses****EDHE 046. Personal Health. 3 Credits.**

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.

**EDHE 050. D2: Bullying & Discrimination. 3 Credits.**

Critically examines youth bullying, violence, discrimination, and harassment as they primarily occur in educational contexts.

**EDHE 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDHE 096. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDHE 146. Personal Health. 3 Credits.**

Discussions of personal health guided by the social ecological model, which details the multiple levels of influence on a person's individual health including: family, school, neighborhood, community, state policy, federal legislation and international development.

**EDHE 173. Practicum in Field Experience. 1-4 Credits.**

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.

**EDHE 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDHE 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDHE 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDHE 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDHE 200. Contemporary Issues. 1-6 Credits.**

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

**EDHE 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDHE 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDHE 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDHE 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## HEALTH (HLTH)

### Courses

**HLTH 003. Medical Terminology. 2 Credits.**

Terminology related to medical and health sciences. Online.

**HLTH 025. Patient Care Equipment Tech. 3 Credits.**

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.

**HLTH 051. Wilderness First Responder. 3 Credits.**

Meets or exceeds the standards of the Wilderness First Responder minimum course contents established by the Wilderness Medical Society. Successful course completion results in certification for Wilderness First Responder by Stonehearth Open Learning Opportunities (SOLO).

**HLTH 053. Emergency Medical Technician. 6 Credits.**

Prepares students to become Emergency Medical Technicians. Each student must successfully complete all of the requirements prior to sitting for the certification exam. Prerequisite: BCLS CPR Certification.

**HLTH 057. Adv. Emergency Medical Tech.. 6 Credits.**

Prepares students to become Advanced Emergency Medical Technician. Each student must successfully complete all of the requirements prior to sitting for the certification exams. Prerequisite: Instructor permission.

**HLTH 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HLTH 092. D2:Mongolian Medicine & Cultr. 3 Credits.**

Introduction to traditional Mongolian medicine including acupuncture, herbal medicine, massage, and cupping integrated with western medical practices; students will interact with Mongolian nomads, Kazakh and Tuvan nomads, reindeer herders and Shamans; community, family and individual healthcare will be observed in urban and rural settings.

**HLTH 093. D2:CAM Therapies in Cuban Hlth. 3 Credits.**

Introduction to complementary and alternative medicine in Cuban healthcare; neighborhood-based primary care integrates acupuncture, herbal medicine, massage, cupping, moxibustion, yoga, floral/essence therapy, and meditation; students will be immersed in Cuban culture.

**HLTH 095. Special Topics. 1-18 Credits.**

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

**HLTH 096. Special Topics. 1-18 Credits.**

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

**HLTH 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HLTH 098. Restore, Rejuvenate&Energize. 1 Credit.**

Experiential learning focusing on promotion of healthy behaviors designed to restore, rejuvenate and energize. Topics to be covered include physical activity, stress management, healthy nutrition, sleep hygiene, work/life balance, self-compassion, and practicing gratitude.

**HLTH 100. Biology of Aging. 3 Credits.**

Human aging examined emphasizing biological and nonpathological physiological changes and their effects on the functioning of elders. Prerequisites: BIOL 004, ANPS 019 and ANPS 020, or Instructor permission.

**HLTH 101. Intro to Integrative Health. 3 Credits.**

Overview of social forces prompting the rise of integrative healthcare in the U.S.; the theory and practice of health professions included in integrative healthcare. Cultural and institutional views and processes shaping substance and delivery modes of healthcare in the U.S. Prerequisite: Sophomore standing.



**HLTH 102. Science Complementary&Alt Med. 3 Credits.**

Introduces Integrative, Complementary, and Alternative Medicine (CAM) such as Ayurveda, Traditional Chinese, Aboriginal, European, Jewish and Islamic Medicine. Historical, philosophical, diagnostic-etiological and therapeutic aspects of CAM will be critically analyzed in the context of current evidence-based medical research and patient-centered social policies. Prerequisite: Sophomore standing.

**HLTH 105. D2:Cultural Health Care. 3 Credits.**

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.

**HLTH 107. SU:Human Health & the Envirnmnt. 3 Credits.**

Offers an introduction to environmental health. Topics include: methods (toxicology, epidemiology), environmental health hazards (physical, biological, chemical) and supports (nature contact), risk analysis, communication and management, health and climate change, food production and access, energy production, and water. Prerequisite: Sophomore standing. Cross-listed with: ENVS 107, NR 107.

**HLTH 109. Energy Medicine. 3 Credits.**

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-requisite: HLTH 141.

**HLTH 135. Adv Medical Equipment Systems. 3 Credits.**

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.

**HLTH 137. Mindful Eating. 3 Credits.**

An experiential introduction to the principles and practice of mindfulness and mindful eating, including an exploration of the cultural, environmental, economic, health-related, and spiritual connections we make every time we take a bite. Prerequisite: Minimum Sophomore standing.

**HLTH 140. Issues in Women's Health. 3 Credits.**

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: PSYS 001; HDFS 005; one Sociology course below 100.

**HLTH 141. Healing Touch Level 1. 0-1 Credits.**

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.

**HLTH 142. Healing Touch Level 2. 1 Credit.**

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-requisite: HLTH 141.

**HLTH 143. Healing Touch Level 3. 1 Credit.**

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 HLTH 142.

**HLTH 144. Healing Touch Level 4. 3 Credits.**

Prepares the student to become a Healing Touch practitioner. Topics include client/practitioner relations, identifying energy patterns, business and professional ethics and standards. Prerequisite: HLTH 143.

**HLTH 145. D2:Women's Hlth & Spirituality. 3 Credits.**

Travel course to Belize. Examines women's physical, mental, and spiritual health with a cross-cultural perspective. Pre/co-requisite: Instructor permission.

**HLTH 146. Healing Touch Level 5. 3 Credits.**

Includes client/practitioner relationships, identification of energy patterns in clients, full sequence healing, professional development, scope of practice, ethics, networking, and business concepts. Qualifies students to apply for certification as healing touch practitioner. Prerequisite: HLTH 144.

**HLTH 151. Wilderness EMT. 3 Credits.**

Focuses on the assessment and management of environmental emergencies, trauma and medical problems in the wilderness or austere environment building on the foundation of Emergency Medical Technician training through a series of lectures, small group activities and field exercises. Prerequisite: HLTH 153 or NREMT certification.

**HLTH 153. Emergency Medical Technician. 6 Credits.**

Prepares students to become Emergency Medical Technicians. Each student must successfully complete all of the requirements prior to sitting for the certification exam. Pre/Co-requisite: HLTH 003.

**HLTH 155. D1:Racism & Health Disparities. 3 Credits.**

This course will introduce basic issues that underlie health disparities, with a focus on the connection between racism and health disparities in the U.S.

**HLTH 160. Meridians, Systems & Organs. 1 Credit.**

Meridians are an interconnected web of energy lines that nourish the internal aspects of organs and body systems. Learn ways to assess the meridians, systems and organs, alter their energy flow, and discover how meridians influence health and illness. Co-requisite: HLTH 141.

**HLTH 187. Health Coach Immersion Intro. 1 Credit.**

Initial course in an Integrative Health and Wellness Coaching sequence. Introduces the practice of Integrative Health and Wellness Coaching with focus on experiential learning of integrative therapies for self-care as emerging healthcare providers and their future clients. Required for NBHWC Exam. Prerequisite: Minimum Sophomore standing or Instructor permission. Co-requisites: HLTH 188, HLTH 189.



**HLTH 188. Motivational Interview Intro. 0 or 1 Credits.**

Teaches the theoretical framework, strategies and techniques of basic motivational interviewing. Examines evidence-based practice as it relates to the Stages of Behavioral Change and skillful conversation, including the use of open ended questions, affirmations, reflections, and summaries. Required for NBHWC Exam. Prerequisites: Minimum Sophomore standing or Instructor permission. Co-requisites: HLTH 187, HLTH 189.

**HLTH 189. Health Coach Skills Lab Intro. 0 or 2 Credits.**

Interactive course where students apply basic motivational interviewing skills and behavioral change theory to the practice of Integrative Health & Wellness Coaching. Covers the coaching structure, application of skills, and health promotion. Required for NBHWC National Certification exam. Prerequisite: Minimum Sophomore standing or Instructor permission. Co-requisites: HLTH 187, HLTH 188.

**HLTH 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HLTH 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**HLTH 195. Intermediate Special Topics. 1-18 Credits.**

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

**HLTH 196. Intermediate Special Topics. 1-18 Credits.**

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

**HLTH 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HLTH 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HLTH 200. Emergency Service Leadership. 3 Credits.**

Explores the concepts of leadership through the lens of Emergency Services. Participants will increase their understanding of their personal leadership style and establish a plan to develop their personal leadership skills. Prerequisite: College of Nursing and Health Sciences major or Emergency Medical Services minor.

**HLTH 210. D2: Health and Culture: Oaxaca. 3 Credits.**

Gain appreciation for cultural diversity by exploring the social, psychological, health practices, and historical trajectories of Oaxacan perceptions within the overarching theme of health. Prerequisites: Minimum Junior standing and Instructor permission.

**HLTH 225. Health Technology Management. 3 Credits.**

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.

**HLTH 241. D2:Exploring Healthcare Systms. 3 Credits.**

Explores a healthcare system outside the USA. Common elements in all healthcare systems are required for effective and efficient delivery. Field visits, presentations, and cultural exposure are included in the program. Prerequisite: Instructor permission.

**HLTH 257. Advanced EMT. 6 Credits.**

Follows the national EMS Scope of Practice Model to expand the Emergency Medical Technician's knowledge and skills in preparation for licensure as an Advanced Emergency Medical Technician. Prerequisite: HLTH 053 OR HLTH 153.

**HLTH 287. Health Coach Immersion Advance. 1 Credit.**

Interactive comprehensive evaluation course for Integrative Health & Wellness Coaching for students to refine and demonstrate the Health and Wellness Coaching session. The class is interspersed with Integrative therapies that support healthy behavioral change and compassionate self-awareness. Required for NBHWC Certification Exam. Prerequisites: HLTH 187, HLTH 188, HLTH 189. Co-requisites: HLTH 288, HLTH 289.

**HLTH 288. Motivational Interview Advance. 0 or 1 Credits.**

Students learn the theoretical framework, strategies and techniques of advanced motivational interviewing, positive psychology and behavioral change. This course examines evidence-based practice as it relates to skillful conversation, clinical interventions and strategies to actively engage complex clients in health-related behavior change. Required for NBHWC Exam. Prerequisites: HTLH 187, HLTH 188, HLTH 189. Co-requisites: HLTH 287, HLTH 289.

**HLTH 289. Health Coach Skill Lab Advance. 0 or 2 Credits.**

Interactive course where students learn to apply advanced motivational interviewing skills to the practice of Integrative Health & Wellness Coaching. Advanced coaching skills/structure with complex patients/situations and professional conduct will be covered. Required for NBHWC National Certification Exam. Prerequisites: HTLH 187, HLTH 188, HLTH 189. Co-requisites: HLTH 287, HLTH 288.

**HLTH 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HLTH 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**HLTH 295. Advanced Special Topics. 1-18 Credits.**

Advanced courses on health topics beyond the scope of department or college offerings. See Schedule of Courses for specific titles.

**HLTH 296. Advanced Special Topics. 1-18 Credits.**

Advanced courses on health topics beyond the scope of department or college offerings. See Schedule of Courses for specific titles.

**HLTH 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HLTH 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HLTH 299. Building your Coaching Career. 2 Credits.**

Advanced course for Integrative Health & Wellness Coaching students who are interested in taking the NBHWC exam and preparing for a career as a Health & Wellness Coach. Students will receive professional mentoring, resume building, professional communication, establishing community contacts and national exam preparation. Prerequisite: HLTH 287.

## HEALTH SCIENCES (HSCI)

### Courses

**HSCI 021. Introduction to Public Health. 3 Credits.**

In this introductory investigation of public health, students will explore the development and scope of the discipline of public health, and issues that have been raised with regard to the practice of public health.

**HSCI 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HSCI 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HSCI 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HSCI 102. Epidemics-Dyn. of Inf. Disease. 3 Credits.**

Through historical and fictional epidemics and pandemics, students will explore how the changing world has impacted the development and spread of infectious disease, and make informed decisions related to infectious disease risk at the personal, clinical, and population level. Prerequisite: HSCI 021.

**HSCI 103. D2: Fndns of Global Health. 3 Credits.**

Explores global health and global health challenges affecting people primarily in developing or resource-constrained countries. Prerequisite: Minimum Sophomore standing. Cross-listed with: ANTH 173, HSOC 103.

**HSCI 130. Health Promotion. 3 Credits.**

An overview of health promotion across the lifespan, from local, national and global perspectives. Examination of the influences on health and risk, strategies to promote health, and evaluation of outcomes. Students will engage in 8-10 hours of service learning. Prerequisite: HSCI 021.

**HSCI 140. Struct & Finan of US Hlthcare. 3 Credits.**

Organization and financing of the U.S. health care system; discussion of current issues in health reform. Prerequisite: HSCI 021; ENGS 001 or equivalent.

**HSCI 160. Health Communication. 3 Credits.**

Students will work together to investigate the nature of health communication and explore the ways in which health communication is intertwined with public health and health care. Prerequisites: HSCI 021, ENGS 001 or equivalent; minimum Sophomore standing.

**HSCI 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HSCI 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HSCI 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HSCI 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**HSCI 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HSCI 230. SU:Reading and Eval. Research. 3 Credits.**

Critical reading and analysis of varied types of health literature and research. Examination of research methods and evaluation of published literature viewed through a sustainability framework. Prerequisites: STAT 111 or STAT 141; Health Sciences majors.

**HSCI 240. Project Planning and Eval.. 3 Credits.**

In stages, create a project proposal and evaluation plan for a health-related program. A complete proposal and evaluation plan will be required of each student as the final course outcome. Prerequisites: HSCI 130; Health Sciences major; minimum Junior standing.

**HSCI 250. Writing for Health Profess.. 3 Credits.**

Review of principles of good writing with an emphasis on non-technical writing commonly used in health care organizations, and organizations that support health and health care in the U.S. and globally. Adaption of materials for lay or low literacy audiences. Prerequisites: HSCI 160; Health Sciences major; minimum Junior standing.

**HSCI 280. Capstone. 3 Credits.**

The health-related capstone is a service-learning based course that provides an opportunity for students to integrate their academic learning and skills while gaining exposure to health issues and populations through a service placement with a community agency. Prerequisites: All HSCI required courses unless permission granted from instructor; Health Sciences Majors Only; Senior Standing.

**HSCI 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HSCI 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HSCI 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

**HSCI 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**HSCI 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HEBREW (HEBR)****Courses****HEBR 001. Elementary. 4 Credits.**

The spoken language of everyday use with oral, aural, and written practice in speaking, reading, and comprehension.

**HEBR 002. Elementary. 4 Credits.**

The spoken language of everyday use with oral, aural, and written practice in speaking, reading, and comprehension. Prerequisite: HEBR 001 or equivalent.

**HEBR 051. Intermediate. 3 Credits.**

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, HEBR 002 or equivalent.

**HEBR 052. Intermediate. 3 Credits.**

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, HEBR 002 or equivalent, HEBR 051.

**HEBR 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HEBR 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HEBR 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HEBR 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HEBR 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HEBR 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**HEBR 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HEBR 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HEBR 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HEBR 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HEBR 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HEBR 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**HEBR 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HEBR 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HIGHER EDUCATION (EDHI)**



## Courses

### **EDHI 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

### **EDHI 095. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

### **EDHI 096. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

### **EDHI 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

### **EDHI 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

### **EDHI 195. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

### **EDHI 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

### **EDHI 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

### **EDHI 199. Practicum. 1-18 Credits.**

A required component of a curriculum that is an on-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded.

### **EDHI 200. Contemporary Issues. 1-6 Credits.**

Designed so that its content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Twelve hours in Education and related areas.

### **EDHI 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

### **EDHI 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

### **EDHI 295. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

### **EDHI 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific titles.

### **EDHI 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

### **EDHI 299. Practicum. 1-18 Credits.**

A required component of a curriculum that is an on-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded.

## HISTORIC PRESERVATION (HP)

### Courses

#### **HP 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

#### **HP 200. History American Architecture. 3 Credits.**

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: Admission to the Historic Preservation graduate program; or twelve hours of History and minimum Junior standing.

#### **HP 201. History on the Land. 3 Credits.**

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. Prerequisites: Admission to the Historic Preservation graduate program; or twelve hours of History and minimum Junior standing. Cross-listed with: HST 201.

#### **HP 202. Special Topics. 3 Credits.**

Courses are offered under this number in specialized areas of historic preservation through Continuing Education.

#### **HP 204. Historic Pres: Devlpmnt Econ. 3 Credits.**

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.

#### **HP 205. Historic Preservation Law. 3 Credits.**

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.



**HP 206. Rschg Historic Structure/Sites. 3 Credits.**

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.

**HISTORY (HST)****Courses****HST 009. D2: Global History to 1500. 0 or 3 Credits.**

The development and cross-fertilization of civilizations in Eurasia, Africa, and the Americas from about 3500 BCE to AD 1500.

**HST 010. D2: Global History since 1500. 3 Credits.**

Character, development, and emerging interdependence of the world's major civilizations since 1500.

**HST 011. US History to 1865. 3 Credits.**

Survey of American history from the pre-Revolutionary period through the Civil War era.

**HST 012. US History since 1865. 3 Credits.**

Survey of US history from the Civil War era.

**HST 013. Ideas in the Western Tradition. 3 Credits.**

Great books of Western civilization in their historical setting. Greece and Rome. Co-requisites: ENGS 027, REL 027; Concurrent enrollment in the Integrated Humanities Program.

**HST 015. Early Europe. 3 Credits.**

Survey of European history, 500-1648.

**HST 016. Modern Europe. 3 Credits.**

Survey of European history, 1648-present.

**HST 017. D1: North American Indian Hist. 3 Credits.**

Surveys Native North American history across regions of the continent that became Canada and the United States from pre-contact to the present, with emphasis on Indian-European interaction.

**HST 020. Topics in Ancient History. 1-3 Credits.**

Topics examining Ancient history. Representative topics: The Peloponnesian War; Alexander the Great. May be repeated for credit with different content. Cross-listed with: CLAS 020.

**HST 021. Greek History and Civilization. 3 Credits.**

Political, social, cultural, and literary development of ancient Greece. May be repeated for credit with different content: typically alternates between early period (Bronze Age through Persian Wars) and late (Athenian Empire through Alexander the Great and the Hellenistic World). Cross-listed with: CLAS 021.

**HST 022. Roman History and Civilization. 3 Credits.**

Political, social, cultural, and literary development of ancient Rome. May be repeated for credit with different content: normally alternates between early period (Monarchy and Republic) and late (Empire). Cross-listed with CLAS 023.

**HST 041. D2: Africa C-1870 to Present. 3 Credits.**

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.

**HST 045. D2: Hst Islam&Middle E to 1258. 3 Credits.**

Introduction to the major institutions evolved in the Middle East from the advent of Islam to the Mongol conquest of Baghdad in 1258.

**HST 046. D2: Hst Islam&Mid E since 1258. 3 Credits.**

Introduction to the major institutions evolved in the Islamic Middle East since the Mongol conquest of Baghdad in 1258 to the present.

**HST 055. D2: History of China and Japan. 0 or 3 Credits.**

An introductory survey of the history of Chinese and Japanese civilizations from their Neolithic origins until the twentieth century.

**HST 063. D2: Modern Latin Amer History. 3 Credits.**

Comparative survey concentrating on Latin America from the independence movements to the present with emphasis on cultural, political, and economic development and US intervention.

**HST 065. History of Canada. 3 Credits.**

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.

**HST 067. D2: Global Env History. 3 Credits.**

The role and influence of nature on global human history and how people and cultures have influenced the natural world around them. Cross-listed with: ENVS 167.

**HST 072. Graveyards, Tombs&Undertakers. 1-3 Credits.**

Exploration of the ways in which American cemeteries, burial practices, and grieving for the dead are studied.

**HST 080. Topics in American History. 1-3 Credits.**

Topics examining the history of the Americas. Representative topics: The Golden Age of Sports; The 1960s. May be repeated for credit with different content.

**HST 081. Topics in Film & History. 3 Credits.**

Topics exploring films as primary sources and as historical interpretations. Representative topics: Medieval & Renaissance Europe in Film; Twentieth century European History in Film. May be repeated for credit with different content.

**HST 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HST 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HST 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HST 099. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HST 101. History Methods. 3 Credits.**

Investigation of the theory and practice of history through critique of historians' methods, analysis of primary sources, and development of the research and writing skills necessary for constructing historical arguments. Prerequisites: History major; three hours in History; Sophomore standing recommended.

**HST 102. Topics in American History. 3 Credits.**

Topics examining the history of the Americas. Representative topics: Early Republic; American Cultural History; US Legal History. May be repeated for credit with different content. Prerequisite: Three hours of History.

**HST 103. Topics in European History. 3 Credits.**

Topics examining European history. Representative topics: Capetian France; World War I in Europe; Twentieth-century Europe. May be repeated for credit with different content. Prerequisite: Three hours of History.

**HST 104. Topics in Global History. 3 Credits.**

Topics examining Global history. May be repeated for credit with different content. Prerequisite: Three hours of History.

**HST 105. Topics in Ancient History. 1-3 Credits.**

Topics examining Ancient history. Representative topics: Greek & Roman Comedy. May be repeated for credit with different content. Prerequisite: Three hours in History or Classics. Cross-listed with: CLAS 105.

**HST 108. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**HST 109. The British Isles, 1300-1688. 3 Credits.**

Examines the social, cultural, and political history of the British Isles from 1300 to 1688, focusing on institutions, religious beliefs, literature, art, and everyday life. Prerequisite: Three hours of History.

**HST 110. Britain since 1688. 3 Credits.**

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: Three hours of History.

**HST 111. The Cold War. 3 Credits.**

An exploration of the ideological and geopolitical struggle between the United States and the Soviet Union, encompassing the political, social, cultural, and economic repercussions of the conflict in Europe and the United States. Prerequisite: Three hours of History.

**HST 112. D2: History of Zionism to 1948. 3 Credits.**

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: Three hours of History. Cross-listed with: HS 112.

**HST 115. History of Poland. 3 Credits.**

History of the Polish people and Polish state from the tenth century to the present. Strong emphasis on the twentieth century. Prerequisite: Three hours of History. Cross-listed with: HS 115.

**HST 116. Medieval Mystics & Heretics. 3 Credits.**

Exploration of the explosion of new religious ideas that characterized the period from 1100 to 1500 and the Church's response to these challenges. Prerequisite: Three hours of History.

**HST 117. Medieval Urban Legends. 3 Credits.**

Examines legends from and about the European Middle Ages, analyzing how and why societies create and cling to intellectually improbable interpretations of the world. Prerequisite: Three hours of History.

**HST 118. Europe since 1945. 3 Credits.**

The course explores the changes and continuities in European societies following the devastation of World War II. Prerequisite: Three hours of History.

**HST 119. D2: Modern Jewish History. 3 Credits.**

The history of the Jewish people from the eighteenth century to the present, focusing on Europe and the United States. Prerequisite: Three hours of History. Cross-listed with: HS 119.

**HST 121. Greek History and Civilization. 3 Credits.**

Political, social, cultural, and literary development of ancient Greece. May be repeated for credit with different content: normally alternates between early period (Bronze Age through Persian Wars) and late (Athenian Empire through Alexander the Great and the Hellenistic World). Prerequisite: HST 009 or appropriate work in Classics. Cross-listed with CLAS 121.

**HST 122. Roman History and Civilization. 3 Credits.**

Political, social, cultural, and literary development of ancient Rome. May be repeated for credit with different content: normally alternates between early period (Monarchy and Republic) and late (Empire). Prerequisite: HST 009 or appropriate work in Classics. Cross-listed with: CLAS 122.

**HST 125. The Renaissance. 3 Credits.**

European society from the fourteenth to early sixteenth century, emphasizing the transition from medieval to modern society and the roots of Renaissance Italy's cultural and artistic brilliance. Prerequisite: Three hours of History.

**HST 136. Topics in French History. 3 Credits.**

Topics examining French history. Representative topics: France since Napoleon. May be repeated for credit with different content. Prerequisite: Three hours of History.

**HST 139. Modern Germany. 3 Credits.**

Political, cultural, and social history of Germany from unification in 1871 through the Wilhelmine empire, Weimar Republic, Nazi era, and postwar period. Prerequisite: Three hours of History. Cross-listed with: HS 139.

**HST 141. D2: History of Southern Africa. 3 Credits.**

Lecture survey, covering the history of Southern Africa from the Bantu Migrations to the end of Apartheid. Prerequisite: Three hours of History.

**HST 142. D2: Nigeria: Giant of Africa. 3 Credits.**

History of Nigeria from earliest times to the present, concentrating on the impact of colonial conquest, nationalism, and the politics and economics of independence. Prerequisite: Three hours of History.

**HST 144. D2: Rel & Pol in Islamic Hist. 3 Credits.**

Exploration of the relationship between religion and politics in Islamic history, from the rise of Islam in the seventh century to modern times. The course defines the Islamic world broadly, including the Indian subcontinent and Africa. Prerequisite: Three hours of History.

**HST 145. Topics in Middle East History. 3 Credits.**

Topics examining Middle Eastern history. Representative topics: Iran, Egypt, and Turkey. May be repeated for credit with different content. Prerequisite: Three hours of History.

**HST 146. D2: Hist of Modern Middle East. 3 Credits.**

Offers an historical understanding of social and political change in the Middle East during the nineteenth and twentieth centuries. Prerequisite: Three hours of History.

**HST 147. Ancient Law. 3 Credits.**

Comparative study of three major ancient legal systems and their roles in their respective societies: ancient Near East (Sumerian to Hittite), Greek, and Roman. Prerequisite: Three credits in Classics, History, Philosophy, or Political Science. Cross-listed with: CLAS 147, POLS 182.

**HST 148. D2: Ancient Egypt Thru the Ages. 3 Credits.**

A thematic and historical introduction to the civilization of Ancient Egypt and its cultural position and influence in both the ancient and modern worlds. Prerequisite: Three credits in Classics or History. Cross-listed with: CLAS 148.

**HST 150. D2: Modern China. 3 Credits.**

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: Three hours of History.

**HST 151. D2: Modern Japan. 3 Credits.**

Transition from tradition to modernity Meiji Restoration, 1868 to the present. Prerequisite: Three hours of History.

**HST 153. Topics in Diplomatic History. 3 Credits.**

Topics examining themes in American diplomatic history. Representative topics: 1890s: Globalizing America; Treaties & International Law; US & Latin America. May be repeated for credit with different content. Prerequisite: Three hours of History.

**HST 156. Samurai in History & Film. 3 Credits.**

Explores the history of the samurai class in Japan, as represented in primary historical sources, recent secondary scholarship, and contemporary popular culture. Prerequisite: HST 055 or HST 151.

**HST 158. History of New England. 3 Credits.**

History of New England as place and idea, exploring the process by which regional identities are formed and changed over time. Prerequisite: Three hours of History.

**HST 160. D2: Sex in Modern History. 3 Credits.**

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: Three hours of History or Gender, Sexuality, & Women's Studies. Cross-listed with: GSWS 131.

**HST 162. Topics in Mexican History. 3 Credits.**

Topics examining Mexican history. Representative topics: Modern Mexico. May be repeated for credit with different content. Prerequisite: Three hours of History.

**HST 165. Canadian-American Relations. 3 Credits.**

Canada's relationship with the United States from the Revolutionary War to the present, emphasizing diplomatic, economic, social, and environmental relations in the nineteenth and twentieth centuries. Prerequisite: Three hours of History.

**HST 167. London: A Cultural History. 3 Credits.**

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: Three hours of History.

**HST 170. Historical Geography. 3 Credits.**

Examination of the tools, techniques, and perspectives used in studying the historic development of places and landscapes. Vermont and other North American case studies. Prerequisite: GEOG 050 or GEOG 070 or HST 012. Cross-listed with: GEOG 170.

**HST 172. Topics in US Social History. 3 Credits.**

Topics examining themes in US social history. May be repeated for credit with different content. Prerequisite: Three hours of History.

**HST 177. American Revolution. 3 Credits.**

Survey of the Revolutionary Era, 1760-1791. Causes of the Revolution, War for Independence, establishment of the Constitution. Prerequisite: Three hours of History.

**HST 182. Topics in US Women's History. 3 Credits.**

Topics examining themes in US women's history. Representative topics: Women's Political History; Women, Families, & the Economy. May be repeated for credit with different content. Prerequisite: Three hours of History or Gender, Sexuality, and Women's Studies minor.

**HST 184. Vermont History. 3 Credits.**

Survey of Vermont history from early times to the present. Prerequisite: Three hours of History. Cross-listed with: VS 184.

**HST 187. D1: Afr Amer Hst: 1619-Civil War. 3 Credits.**

Economic, social, political, and intellectual developments in US history as they have affected and been affected by African-Americans, 1619 to Civil War. Prerequisite: Three hours of History.

**HST 188. Afr Amer Hst: Civil War-pres. 3 Credits.**

Economic, social, political, and intellectual developments in US history as they have affected and been affected by African-Americans, Civil War to present. Prerequisite: Three hours of History.

**HST 190. The Holocaust. 3 Credits.**

Study of the background, events, and aftermath of the Holocaust in Nazi Germany and Europe under German control. Prerequisite: Three hours of History. Cross-listed with: HS 190.

**HST 191. World War II. 3 Credits.**

Causes, conduct, and consequences of global war from 1931 to 1945, including social, economic, political, and diplomatic as well as military aspects. Prerequisite: Three hours of History. Cross-listed with: HS 191.



**HST 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Three hours of History.

**HST 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Three hours of History.

**HST 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**HST 198. Undergraduate Research. 1-18 Credits.**

Undergraduate students work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**HST 199. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**HST 201. History on the Land. 3 Credits.**

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. Prerequisites: Admission to the Historic Preservation graduate program; or twelve hours of History and minimum Junior standing. Cross-listed with: HP 201.

**HST 208. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**HST 209. Seminar in Global History. 3 Credits.**

Topics examining themes in Global history. May be repeated for credit with different content. Prerequisite: Twelve hours of History; minimum Junior standing.

**HST 224. Seminar in Medieval Europe. 3 Credits.**

Topics examining themes in Medieval European history. May be repeated for credit with different content. Prerequisites: Twelve hours of History; minimum Junior standing.

**HST 225. Seminar in Early Modern Europe. 3 Credits.**

Topics examining themes in Early Modern European history. Representative topics: Books & Readers in Europe, 1250- 1650. May be repeated for credit with different content. Prerequisites: Twelve hours of History; minimum Junior standing.

**HST 226. Seminar in Modern Europe. 3 Credits.**

Topics examining themes in Modern European history. May be repeated for credit with different content. Prerequisites: Twelve hours of History; minimum Junior standing.

**HST 227. Seminar in Modern Europe. 3 Credits.**

Topics examining themes in Modern European history and Holocaust Studies. Representative topics: The Holocaust & Memory; Auschwitz; The Holocaust in Poland. May be repeated for credit with different content. Prerequisites: Twelve hours of History; minimum Junior standing. Cross-listed with: HS 227.

**HST 240. D2: Comparative Slavery. 3 Credits.**

History of slavery from a comparative perspective, including Classical Antiquity, Islam and the Middle East, Africa, Latin America, and the Southern United States. Prerequisites: Twelve hours of History; minimum Junior standing.

**HST 250. D2: Seminar in East Asian Hst. 3 Credits.**

Topics examining East Asian history. Representative topics: Postwar Japan; Japan in the World; Modern Japan-China Relations. May be repeated for credit with different content. Prerequisites: Twelve hours of History; minimum Junior standing.

**HST 252. D2: Seminar on China. 3 Credits.**

Topics examining Chinese history. Representative topics: China under Chairman Mao; 20th-century China; China and the West. May be repeated for credit with different content. Prerequisites: Twelve hours of History; minimum Junior standing.

**HST 265. Seminar in Canadian History. 3 Credits.**

Topics in Canadian history. May be repeated for credit with different content. Prerequisite: Twelve hours of History; minimum Junior standing.

**HST 267. Environmental History Seminar. 3 Credits.**

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: Twelve hours of History; Junior/Senior/ Graduate standing. Cross-listed with: ENVS 267.

**HST 271. Seminar in American Social Hst. 3 Credits.**

Topics examining themes in American social history. Representative topics: US Social History. May be repeated for credit with different content. Prerequisites: Twelve hours of History; minimum Junior standing.

**HST 275. Seminar in Early American Hst. 3 Credits.**

Topics examining themes in early American history. Representative topics: American Slavery; Early Republic. May be repeated for credit with different content. Prerequisites: Twelve hours of History; minimum Junior standing.

**HST 280. D2: Queer Lives: LGBT History. 3 Credits.**

Advanced readings and research on the diverse history of LGBT peoples in Europe and North America with a focus on case studies, recent scholarship, and major theoretical works. Prerequisites: Twelve hours of History, or GSWS 001 and six additional hours of Gender, Sexuality, & Women's Studies courses; minimum Junior standing. Cross-listed with: GSWS 280.

**HST 284. Seminar in Vermont History. 3 Credits.**

Topics exploring themes in Vermont history. May be repeated for credit with different content. Prerequisites: Twelve hours of History; minimum Junior standing.



**HST 295. Special Topics Seminar. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: Twelve hours of History; minimum Junior standing.

**HST 296. Special Topics Seminar. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: Twelve hours of History; minimum Junior standing.

**HST 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**HST 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**HST 299. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**HOLOCAUST STUDIES (HS)****Courses****HS 017. German Literature: Translation. 3 Credits.**

See Schedule of Courses for specific titles.

**HS 092. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HS 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HS 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HS 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HS 112. D2: History of Zionism to 1948. 3 Credits.**

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: Three hours of History. Cross-listed with: HST 112.

**HS 115. History of Poland. 3 Credits.**

History of the Polish people and Polish state from the tenth century to the present. Strong emphasis on the twentieth century. Prerequisite: Three hours of History. Cross-listed with: HST 115.

**HS 119. D2: Modern Jewish History. 3 Credits.**

The history of the Jewish people from the eighteenth century to the present, focusing on Europe and the United States. Prerequisites: Three hours of History. Cross-listed with: HST 119.

**HS 139. Modern Germany. 3 Credits.**

Political, cultural, and social history of Germany from unification in 1871 through the Wilhelmine Empire, Weimar Republic, Nazi era, and post-war period. Prerequisites: Three hours of History. Cross-listed with: HST 139.

**HS 180. Moral&Rel Persp on Holocaust. 3 Credits.**

A study of the Holocaust in relation to questions of moral responsibility, justice, guilt, and human suffering, focusing on Jewish responses. Prerequisite: Three hours in Religion or Instructor permission. Cross-listed with: REL 180.

**HS 190. The Holocaust. 3 Credits.**

Study of the background, events, and aftermath of the Holocaust in Nazi Germany and Europe under German control. Prerequisite: Three hours of History. Cross-listed with: HST 190.

**HS 191. World War II. 3 Credits.**

Causes, conduct, and consequences of global war from 1931 to 1945, including social, economic, political, and diplomatic as well as military aspects. Prerequisites: Three hours of History. Cross-listed with: HST 191.

**HS 192. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HS 193. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**HS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HS 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HS 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. May be prescribed by an individual instructor. Junior /Senior standing.

**HS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Junior/Senior standing.

**HS 227. Seminar in Modern Europe. 3 Credits.**

Topics examining themes in Modern European history and Holocaust Studies. Representative topics: The Holocaust & Memory; Auschwitz; The Holocaust in Poland. May be repeated for credit with different content. Prerequisites: Twelve hours of History; minimum Junior standing. Cross-listed with: HST 227.

**HS 292. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HS 293. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**HS 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HS 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HS 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Declared minor in Holocaust Studies and permission of director.

**HS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Declared minor in Holocaust Studies and permission of director.

**HONORS COLLEGE (HCOL)****Courses****HCOL 031. Music in Live Performance. 1 Credit.**

While attending five Lane Series events, students will discuss historical context and will learn to listen and criticize different genres of music and theatre.

**HCOL 033. Climb Your Own Way. 1 Credit.**

A professional-readiness course that prepares students for what comes next after graduation; blends practical skills like resume-writing and interview workshops with reading and discussions about the meaning of work.

**HCOL 085. FW:Honors Coll First Year Sem. 0 or 3 Credits.**

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.

**HCOL 086. Honors College First Year Sem. 0 or 3 Credits.**

Follows the fall HCOL seminar, The Pursuit of Knowledge, with sections considering a particular way of knowing, often focusing on race, gender, or culture. Prerequisite: HCOL 085.

**HCOL 096. Introductory Special Topics. 1-18 Credits.**

A two-semester sequence required of all Honors College First-Year Students. Course content may vary slightly from year to year.

**HCOL 101. Honors College Thesis Prep Sem. 0-1 Credits.**

A course designed to assist students in the production and submission of an Honors College Thesis Proposal. Prerequisites: Honors College membership or by Instructor permission; Junior standing.

**HCOL 185. Honors College Sophomore Sem. 3 Credits.**

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 only.

**HCOL 186. Honors College Sophomore Sem. 3 Credits.**

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 only.

**HCOL 193. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HCOL 194. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HCOL 293. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HCOL 294. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HONORS (HON)****Courses****HON 095. Introductory Special Topics. 1-18 Credits.**

This seminar accompanies the visit of the Zeltzman Lecturer each spring. Satisfactory/Unsatisfactory. Prerequisite: College of Arts and Sciences/Honors College membership.

**HON 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HON 101. Thesis Proposal Seminar. 1 Credit.**

A one-credit course designed to assist students in the production and submission of a College Honors Proposal. Prerequisites: College of Arts and Sciences/Honors College; membership; Junior standing.

**HON 195. Intermediate Special Topics. 1-18 Credits.**

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.

**HON 196. Honors. 1-18 Credits.****HON 201. Thesis Seminar. 0 Credits.**

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.

**HON 202. Honors: Anthropology. 1-6 Credits.**  
**HON 203. Honors: Anthropology. 1-6 Credits.**  
**HON 204. Honors: Studio Art. 1-6 Credits.**  
**HON 205. Honors: Studio Art. 1-6 Credits.**  
**HON 206. Honors: Art History. 1-6 Credits.**  
**HON 207. Honors: Art History. 1-6 Credits.**  
**HON 208. Honors: Biology. 1-6 Credits.**  
**HON 209. Honors: Biology. 1-6 Credits.**  
**HON 210. Honors: Plant Biology. 1-6 Credits.**  
**HON 211. Honors: Plant Biology. 1-6 Credits.**  
**HON 212. Honors: Chemistry. 1-6 Credits.**  
**HON 213. Honors: Chemistry. 1-6 Credits.**  
**HON 214. Honors: Classics. 1-6 Credits.**  
**HON 215. Honors: Classics. 1-6 Credits.**  
**HON 218. Honors: Economics. 1-6 Credits.**  
**HON 219. Honors: Economics. 1-6 Credits.**  
**HON 220. Honors: English. 1-6 Credits.**  
**HON 221. Honors: English. 1-6 Credits.**  
**HON 222. Honors: French. 1-6 Credits.**  
**HON 223. Honors: French. 1-6 Credits.**  
**HON 224. Honors: Geography. 1-6 Credits.**  
**HON 225. Honors: Geography. 1-6 Credits.**  
**HON 226. Honors: Geology. 1-6 Credits.**  
**HON 227. Honors: Geology. 1-6 Credits.**  
**HON 228. Honors: German. 1-6 Credits.**  
**HON 229. Honors: German. 1-6 Credits.**  
**HON 230. Honors: Greek. 1-6 Credits.**  
**HON 231. Honors: Greek. 1-6 Credits.**  
**HON 232. Honors: History. 1-6 Credits.**  
**HON 233. Honors: History. 1-6 Credits.**  
**HON 234. Honors: Global&Regional Studies. 1-6 Credits.**  
**HON 235. Honors: Global&Regional Studies. 1-6 Credits.**  
**HON 236. Honors: Latin. 1-6 Credits.**  
**HON 237. Honors: Latin. 1-6 Credits.**  
**HON 240. Honors: Music. 1-6 Credits.**  
**HON 241. Honors: Music. 1-6 Credits.**  
**HON 242. Honors: Philosophy. 1-6 Credits.**  
**HON 243. Honors: Philosophy. 1-6 Credits.**  
**HON 244. Honors: Physics. 1-6 Credits.**  
**HON 245. Honors: Physics. 1-6 Credits.**  
**HON 246. Honors: Political Science. 1-6 Credits.**  
**HON 247. Honors: Political Science. 1-6 Credits.**  
**HON 248. Honors: Psychological Science. 1-6 Credits.**

**HON 275. Honors: Biochemistry. 1-6 Credits.**  
**HON 276. Honors: Biochemistry. 1-6 Credits.**  
**HON 277. Honors: Environmental Sciences. 1-6 Credits.**  
**HON 278. Honors: Environmental Sciences. 1-6 Credits.**  
**HON 279. Honors: Linguistics. 1-6 Credits.**  
**HON 280. Honors: Linguistics. 1-6 Credits.**  
**HON 281. Honors: Neuroscience. 1-6 Credits.**  
**HON 282. Honors: Neuroscience. 1-6 Credits.**  
**HON 286. Honors: Japanese. 1-6 Credits.**  
**HON 287. Honors: Japanese. 1-6 Credits.**  
**HON 288. Honors: Mathematics. 1-6 Credits.**  
**HON 289. Honors: Mathematics. 1-6 Credits.**  
**HON 290. Honors: Health and Society. 1-6 Credits.**  
**HON 291. Honors: Dance. 1-6 Credits.**  
 Honors Thesis.

## HUMAN DEVELOPMENT & FAM STDIES (HDFS)

### Courses

#### **HDFS 001. Int Hum Dev&Fam Std for Majors. 4 Credits.**

Seminar designed to introduce incoming majors to college expectations and skills, and to concepts and practices of Human Development & Family Studies and to critically think about these concepts and practices. Prerequisite: Human Development & Family Studies major. Pre/Co-requisite: HDFS 005.

#### **HDFS 005. Human Development. 3 Credits.**

A comprehensive survey of life span individual and family development within social and historical context.

#### **HDFS 020. Aging:Change & Adaptation. 3 Credits.**

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 020.

#### **HDFS 055. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

#### **HDFS 060. Family Context of Development. 3 Credits.**

Developmental ecological approach to analysis of the family as a system in which individuals develop.

#### **HDFS 065. Human Relationships&Sexuality. 3 Credits.**

Sexual responsibility and the biological, social, psychological growth, and development of human beings in terms of sex role identity.

#### **HDFS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.



**HDFS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HDFS 101. The Helping Relationship. 3 Credits.**

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 HDFS 060; Sophomore standing. Cross-listed with: EDCO 101.

**HDFS 141. D1: Interrogating White Identity. 3 Credits.**

Introductory examination of white identity development and white identity development models from an ecological perspective. Prerequisites: HDFS 005 or HDFS 060; Sophomore standing.

**HDFS 161. Social Context of Development. 3 Credits.**

Developmental ecological approach to analysis of social institutions as influences on human development. Focus on education, community, health care, and social services. Prerequisites: HDFS 060; Sophomore standing.

**HDFS 167. D2: Sexual & Gender Identities. 3 Credits.**

Exploration of diverse lesbian, gay, bisexual, and/or transgender identities, families, and communities, and their current personal, social, and cultural meanings and contexts. Prerequisites: HDFS 005, HDFS 060 and HDFS 161; Sophomore standing.

**HDFS 189. Theories of Human Development. 3 Credits.**

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, HDFS 060; Sophomore standing.

**HDFS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisites: HDFS 005, HDFS 161, and Instructor permission.

**HDFS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HDFS 195. Special Topics. 1-18 Credits.**

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Enrollment may be more than once, accumulation up to 12 hours. Prerequisite: Sophomore standing.

**HDFS 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Sophomore standing.

**HDFS 198. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**HDFS 200. Contemporary Issues. 1-6 Credits.**

Prerequisite: Minimum Junior standing.

**HDFS 221. Psychology of Aging. 3 Credits.**

This course provides students with a comprehensive overview of psychological aspects of aging and identifies key lessons and facilitative practices for supporting positive aging. Prerequisites: Human Development and Family Studies majors: HDFS 161, HDFS 189, minimum Junior standing; Gerontology students: HDFS/SOC 020, SOC 120, Instructor Permission; Other students with relevant background: Instructor Permission.

**HDFS 260. Family Ecosystem. 3 Credits.**

Family viewed in and as an environment for human development. The family ecological approach applied to practical family concerns. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing.

**HDFS 263. Advanced Child Development. 3 Credits.**

Survey of professional literature in child development with special emphasis on influence of early life experiences throughout the life cycle. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing.

**HDFS 264. Contemporary Issues Parenting. 3 Credits.**

Contemporary cultural factors that influence adult lifestyles and their relationship to successful parenting. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing. May be repeated up to six credits.

**HDFS 266. Seminar in Human Development. 3 Credits.**

Intensive study of issues in human development and their application in a wide variety of professional areas. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing. May be taken more than once up to a maximum of 12 hours.

**HDFS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisites: HDFS 161, HDFS 189; Senior standing; Instructor permission.

**HDFS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HDFS 295. Special Topics. 1-18 Credits.**

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing. Enrollment may be more than once, accumulation up to twelve hours.

**HDFS 296. Field Experience. 1-15 Credits.**

Professionally-oriented field experience under joint supervision by faculty and community representative, credit arranged up to 15 hours. Prerequisites: HDFS 005, HDFS 060, HDFS 101, HDFS 141, HDFS 161, HDFS 189; Senior standing; Department permission.

**HDFS 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HDFS 298. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

## HUMAN FUNCTIONING AND REHABILITATION SCIENCE (HFRS)

### HUMANITIES (HUMN)

#### Courses

**HUMN 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HUMN 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HUMN 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HUMN 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HUMN 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HUMN 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HUMN 195. Intermediate Special Topics. 1-18 Credits.**

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

**HUMN 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HUMN 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**HUMN 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HUMN 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**HUMN 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**HUMN 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**HUMN 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**HUMN 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## INTERNSHIP (SINT)

#### Courses

**SINT 090. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member/faculty-staff team with member as instructor of record; academic credit not degree eligible; offered at department discretion. May be crosslisted with departmental internship courses.

**SINT 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member/faculty-staff team with faculty member as instructor of record; academic credit not degree eligible; offered at department discretion. May be crosslisted with departmental internship courses.

**SINT 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member/faculty-staff team with faculty member as instructor of record; academic credit not degree eligible; offered at department discretion. May be crosslisted with departmental internship courses.

## ITALIAN (ITAL)

#### Courses

**ITAL 001. Elementary I. 4 Credits.**

Fundamentals of Italian composition, comprehension, pronunciation, speaking, reading, and writing in a cultural context. Classes are conducted in Italian and students engage in active use of the language. No prior knowledge expected.

**ITAL 002. Elementary II. 4 Credits.**

Continuation of ITAL 001. Fundamentals of Italian composition, comprehension, pronunciation, speaking, reading, and writing in a cultural context. Classes are conducted in Italian and students engage in active use of the language. Prerequisite: ITAL 001 or equivalent.

**ITAL 051. Intermediate I. 3 Credits.**

Review of grammar, moving toward increased proficiency in composition, comprehension, pronunciation, speaking, reading, and writing. Emphasis on cultural context. Compositions, oral practice, reading. Prerequisite: ITAL 002 or equivalent.

**ITAL 052. Intermediate II. 3 Credits.**

Continuation of ITAL 051. Grammar review, moving toward increased proficiency in composition, comprehension, pronunciation, speaking, reading, and writing. Emphasis on cultural context. More extensive and sophisticated readings and compositions than in ITAL 051. Prerequisite: ITAL 051 or equivalent.

**ITAL 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ITAL 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ITAL 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ITAL 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ITAL 101. Reading and Writing Workshop. 3 Credits.**

Improvement of reading and writing skills through the analysis and discussion of increasingly complex texts -- literary, filmic, cultural. Prerequisite: ITAL 052 or equivalent.

**ITAL 121. Issues in Italian Culture. 3 Credits.**

An introduction to the cultural realities of Italy, from politics to pop music, food to fashion. Emphasis on improving linguistic fluency. Prerequisite: ITAL 052 or equivalent.

**ITAL 122. History of Italian Cinema. 3 Credits.**

A study of the history of Italian cinema and its role as a window on Italian culture. Emphasis on improving linguistic fluency. Prerequisite: ITAL 052 or equivalent.

**ITAL 125. Italian Food Culture. 3 Credits.**

An exploration of the multiple connections between food and culture in Italy from the Middle Ages to the present day through literature, cookbooks, politics, history, religion, and more. Emphasis on reading and discussion. Prerequisite: ITAL 052.

**ITAL 150. Italian Fairy Tales. 3 Credits.**

A study of Italian fairy tales from the origins of this genre in sixteenth-century Venice to contemporary narratives. Emphasis on reading and discussion. Prerequisite: ITAL 052.

**ITAL 158. Early Italian Lit in Context. 3 Credits.**

An introduction to Italian literature from its beginnings through the early modern period. Authors may include Dante, Boccaccio, Machiavelli. Emphasis on improving linguistic fluency. Prerequisite: ITAL 052 or equivalent.

**ITAL 167. Italian Poetry: Love, Etc.. 3 Credits.**

A study of Italian poetry and related literary and cultural issues across the centuries. Emphasis on reading and discussion. Prerequisite: ITAL 052.

**ITAL 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ITAL 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ITAL 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ITAL 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ITAL 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Permission of Department Chair required.

**ITAL 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Permission of department chair required.

**ITAL 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ITAL 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ITAL 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ITAL 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ITAL 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.



**ITAL 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**JAPANESE (JAPN)****Courses****JAPN 001. Elementary Japanese I. 0 or 4 Credits.**

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. No prior knowledge expected.

**JAPN 002. Elementary Japanese II. 0 or 4 Credits.**

Continuation of JAPN 001. Prerequisite: JAPN 001 or equivalent.

**JAPN 051. Intermediate Japanese I. 4 Credits.**

Continuation of JAPN 002 designed to enable the students to converse in everyday Japanese and to read and write basic texts. Prerequisite: JAPN 002 or equivalent.

**JAPN 052. Intermediate Japanese II. 4 Credits.**

Continuation of JAPN 051. Prerequisite: JAPN 051 or equivalent.

**JAPN 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**JAPN 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**JAPN 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**JAPN 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**JAPN 101. Advanced Japanese I. 3 Credits.**

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. Prerequisite: JAPN 052 or equivalent.

**JAPN 102. Advanced Japanese II. 3 Credits.**

Continuation of JAPN 101. Prerequisite: JAPN 101 or equivalent.

**JAPN 121. Japanese Conversation I. 1-3 Credits.**

Development of speaking and listening skills related to concrete topics through total immersion in Japanese. Prerequisite: JAPN 052 or equivalent.

**JAPN 122. Japanese Conversation II. 1-3 Credits.**

Development of functional skills to carry out daily conversation in varied social contexts. Prerequisite: JAPN 052 or equivalent.

**JAPN 131. Kanji is Key I. 3 Credits.**

A kanji character course designed for teaching 500-600 kanji characters in JLPT Levels 3-2 (N3-N2) and also reinforcing 300 kanji introduced in JAPN 001/002. Teaches basic pictographs and radicals to predict meanings and readings of kanji characters. Prerequisite: JAPN 052.

**JAPN 132. Kanji is Key II. 3 Credits.**

Kanji character course designed for teaching 500-600 kanji characters in JLPT Levels 3-2 (N3-N2) and also reviewing 300 kanji introduced in JAPN 051/052. Teaches basic pictographs and radicals to predict meanings and readings of kanji characters. Prerequisite: JAPN 131.

**JAPN 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**JAPN 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**JAPN 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for special titles.

**JAPN 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for special titles.

**JAPN 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**JAPN 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**JAPN 201. Studies of Japanese Texts I. 3 Credits.**

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.

**JAPN 202. Studies of Japanese Texts II. 3 Credits.**

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.

**JAPN 221. Japanese for Communication I. 1-6 Credits.**

Training in skills to communicate on concrete and abstract topics. Repeatable with different content. Prerequisite: JAPN 102 or equivalent.

**JAPN 222. Japanese for Communication II. 1-6 Credits.**

Development of skills to present information and view points in varied social contexts. Repeatable with different content. Prerequisite: JAPN 102 or equivalent.



**JAPN 251. Japanese in Cultural Context I. 3 Credits.**

Continuing study of Japanese at the advanced level. Utilizes various genres of readings and audiovisual materials. Students will conduct independent research on a Japan related topic of their interests. Prerequisite: JAPN 202 or one year of study in Japan.

**JAPN 252. Japanese in Cultural Context 2. 3 Credits.**

Continuing study of Japanese at the advanced level. Utilizes various genres of readings and audiovisual materials. Students will conduct independent research, write a report, and present in Japanese. Prerequisite: JAPN 251.

**JAPN 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**JAPN 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**JAPN 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**JAPN 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**JAPN 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**JAPN 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**JEWISH STUDIES (JS)****Courses****JS 010. Contemporary Israel. 3 Credits.**

Addresses the modern nation-state of Israel through such topics as media, demographics, politics, religion, immigration, popular culture, and/or urban planning and systems.

**JS 050. Introduction to Jewish Studies. 3 Credits.**

An introduction to Jewish history, religious thought and practice, ethics, and law. Cross-listed with: REL 050.

**JS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**JS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**JS 096. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**JS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**JS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**JS 196. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**JS 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**JS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**JS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**JS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**JS 296. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**JS 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**JS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**LATIN (LAT)****Courses****LAT 001. Elementary. 0 or 4 Credits.**

For students who present less than two years of high school Latin.

**LAT 002. Elementary Latin. 4 Credits.**

For students who present less than two years of high school Latin. Prerequisite: LAT 001 or equivalent.

**LAT 003. Self-Paced Latin. 1-8 Credits.**

Fundamentals of Classical Latin through tutorial instruction, credit dependent on amount of material learned. May be repeated for credit. No credit with LAT 001 and LAT 002.

**LAT 051. Intermediate Latin. 3 Credits.**

Selections from Cicero and other prose authors. Prerequisite: LAT 002 or equivalent.

**LAT 052. Intermediate Latin. 3 Credits.**

Selections from Vergil and Ovid. Prerequisite: LAT 002 or equivalent.

**LAT 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**LAT 095. Introductory Special Topics. 1-18 Credits.**

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

**LAT 096. Introductory Special Topics. 1-18 Credits.**

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

**LAT 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**LAT 101. Survey Latin Literature. 3 Credits.**

Selections from principal Roman authors. Prerequisite: LAT 051 or LAT 052 or equivalent.

**LAT 102. Survey Latin Literature. 3 Credits.**

Selections from principal Roman authors. Prerequisite: LAT 051 or LAT 052 or equivalent.

**LAT 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**LAT 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**LAT 195. Intermediate Special Topics. 1-18 Credits.**

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

**LAT 196. Intermediate Special Topics. 1-18 Credits.**

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

**LAT 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**LAT 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**LAT 204. Roman Epic Poetry. 3 Credits.**

Extensive reading in Lucretius, Vergil, Ovid, and others. Alternate years, as needed. Prerequisite: LAT 101 or LAT 102 or equivalent.

**LAT 211. Latin Prose Style. 3 Credits.**

Readings in literary prose analyzed stylistically and imitated in composition. Required of Latin majors. Prerequisite: LAT 101 or LAT 102 or equivalent. Co-requisite: LAT at the 200-level.

**LAT 212. Latin Prose Style. 3 Credits.**

Readings in literary prose analyzed stylistically and imitated in composition. Required of Latin majors. Prerequisite: LAT 101 or LAT 102 or equivalent. Co-requisite: LAT at the 200-level.

**LAT 227. Roman Lyric Poets. 3 Credits.**

Selections from the works of Catullus, Horace, Propertius, and Tibullus. Alternate years, as needed. Prerequisite: LAT 101 or LAT 102 or equivalent.

**LAT 251. Roman Letters. 3 Credits.**

Letters of Cicero, Horace, and Pliny. Alternate years, as needed. Prerequisite: LAT 101 or LAT 102 or equivalent.

**LAT 253. Roman Oratory. 3 Credits.**

Selections from Cicero's *De Oratore*, *Orator*, *Brutus*, and from his speeches. Historical development of forensic and other rhetorical canons. Alternate years, as needed. Prerequisite: LAT 101 or LAT 102 or equivalent.

**LAT 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**LAT 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**LAT 295. Advanced Special Topics. 1-18 Credits.**

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

**LAT 296. Advanced Special Topics. 1-18 Credits.**

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

**LAT 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**LAT 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## LEADERSHIP AND POLICY STUDIES (EDLP)

### Courses

**EDLP 092. Independent Study. 1-18 Credits.****EDLP 095. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EDLP 096. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDLP 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDLP 195. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**EDLP 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDLP 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDLP 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDLP 199. Practicum. 1-18 Credits.**

A required component of a curriculum that is an on-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded.

**EDLP 268. Educational Law. 2-3 Credits.**

Legal basis for education. State and Federal statutes; related court cases; Attorney General opinions; Special Education procedures; Vermont State Board and State Education Department policies; regulations. Prerequisite: Twelve hours in education or Instructor permission.

**EDLP 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDLP 295. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

**EDLP 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDLP 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDLP 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDLP 299. Practicum. 1-18 Credits.**

A required component of a curriculum that is an on-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded.

## LEARNING COMMUNITY (LC)

### LIBRARY SCIENCE (EDLI)

#### Courses

**EDLI 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDLI 096. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDLI 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDLI 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDLI 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.



**EDLI 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDLI 200. Contemporary Issues. 1-6 Credits.**

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

**EDLI 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDLI 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDLI 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDLI 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## LINGUISTICS (LING)

### Courses

**LING 014. Languages of the World. 2-3 Credits.**

An exploration of the incredible inventory of the world's languages, addressing language universals and the breadth of language variation. Students investigate how linguists group and compare languages and the complex relations between global processes, world languages, and political/cultural boundaries. Cross-listed with: ANTH 014.

**LING 075. QR:Math Foundations of Lang. 3 Credits.**

An introduction to the basic mathematical concepts underlying the scientific study of human language and linguistics. Each core concept is illustrated/applied via language puzzles or aspects of linguistic theory utilizing that concept. No particular background in mathematics or linguistics is required.

**LING 080. Introduction to Linguistics. 3 Credits.**

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.

**LING 081. Structure of English Language. 3 Credits.**

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. Cross-listed with: ENGS 081.

**LING 085. D1:Linguistic Diversity in US. 3 Credits.**

Survey of linguistic diversity in the United States, focusing on language and identity of various ethnic and cultural groups, with strong focus on standard language ideology and how language is used to marginalize and justify discrimination of already subordinated groups.

**LING 088. Writing Systems. 3 Credits.**

Survey of how human languages are represented orthographically, both historically and in the present day. We examine the origins of writing, writing system change over time, and the connections between spoken and written language. Cross-listed with: ANTH 015.

**LING 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**LING 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**LING 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**LING 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**LING 158. Introduction to Morphology. 3 Credits.**

Overview of morphological analysis and theory. Students will engage with linguistic data to understand the broad range of morphological patterns on display in the world's languages. Pre/Co-requisite: LING 080.

**LING 160. Introduction to Phonology. 3 Credits.**

Surveys the study of the organization of sounds and internal word structure, covering a range of phenomena: alternations, constraints, tone, and more. Prerequisite: LING 080.

**LING 161. D2:Contact Langs & Slave Trade. 3 Credits.**

Students will look at languages arising from the trans-Atlantic slave trade; focuses on understanding the theories behind the typological uniqueness of pidgins and creoles and engaging with the primary data for students to evaluate the patterns for themselves. Prerequisite: LING 080.

**LING 162. American English Dialects. 3 Credits.**

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.

**LING 163. QR:Introduction to Semantics. 3 Credits.**

Students will engage with language as a logical system and explore how it is that linguistic utterances mean what they mean. They will learn to express linguistic constituents as logical expressions. Other topics include modification, entailments, quantification, negation, and idioms. Prerequisite: LING 080 or ANTH 028. Cross-listed with: ANTH 113.

**LING 165. Phonetic Theory and Practice. 3 Credits.**

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.

**LING 166. Introduction to Syntax. 3 Credits.**

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 112.

**LING 167. Historical Linguistics. 3 Credits.**

Exploration of how languages change and the methods of historical linguistics. Explores how 'relatedness' among languages is determined and be introduced to linguistic reconstruction. The connection between synchronic variation and long term change will be emphasized. Prerequisite: LING 080.

**LING 168. Introduction to Pragmatics. 3 Credits.**

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.

**LING 170. TESOL and Applied Linguistics. 3 Credits.**

Provides an overview of second language/ESL classroom theory and research. Topics include: teaching approaches, learning environment and outcomes, program planning, syllabus and material design, lesson planning, and assessment. Emphasis on practical application of topics discussed. Prerequisite: LING 080.

**LING 171. Intro to Psycholinguistics. 3 Credits.**

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 PSYS 001. Cross-listed with: PSYS 107.

**LING 174. Language & Gender. 3 Credits.**

Examines the many ways that gendered identities are socially and linguistically constructed through a variety of sociocultural practices, with specific attention throughout on interrogating how language relates to systems of power and oppression. Prerequisite: LING 035 or LING 080 or GSWS 001.

**LING 176. D1: African American English. 3 Credits.**

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. Prerequisite: LING 080 or LING 095: Linguistic Diversity in the US.

**LING 177. Second Language Acquisition. 3 Credits.**

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 or PSYS 001. Cross-listed with: PSYS 108.

**LING 178. Sociolinguistics. 3 Credits.**

Exploration of language and nonverbal interactions as cultural activities. Focus on rules and patterns people display appropriate to communication and social interaction. Prerequisites: ANTH 028 or LING 080. Cross-listed with: ANTH 178.

**LING 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**LING 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**LING 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**LING 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**LING 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**LING 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**LING 225. Field Methods in Linguistics. 3 Credits.**

Covers field linguistics elicitation methodology. Students collect primary linguistic data on an understudies language through tasks they structure on their own, culminating in a final project describing and analyzing a previously unreported/puzzling aspect of the language's grammar. Prerequisite: Three credits in Linguistics at the 100-level.

**LING 250. Linguistics Capstone Seminar. 3 Credits.**

Seminar on a topic in linguistics. Includes a research component, readings, writing, and discussion centered on the topic of focus. Prerequisites: Linguistics major; minimum Junior standing.

**LING 270. Techniques & Procedures in ESL. 4 Credits.**

Designed for students preparing to teach English to speakers of other languages. Teaches best practices for second-language classrooms, and gain extensive first-hand experience in ESL teaching. Also relevant for teaching other foreign languages. Prerequisites: LING 080, LING 170. Pre/co-requisite: LING 081, LING 177.

**LING 280. Memory & Language Learning. 3 Credits.**

Explores the role of memory in the acquisition, processing and use of a second language. We will assess and critique different tests that have been used to measure memory capacity. Prerequisites: LING 080 or equivalent; LING 185 or LING 277 or graduate standing in TESOL and Applied Linguistics.

**LING 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**LING 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**LING 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**LING 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**LING 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**LING 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**LITERACY (EDLT)****Courses****EDLT 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDLT 096. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDLT 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDLT 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDLT 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDLT 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDLT 222. Cultivate Child Lit in El/Mid Sch. 3 Credits.**

Contemporary research and practice related to the development of strategic, motivated, and independent readers and writers. Emphasis on integrating reading and writing within collaborative environments. Prerequisite: Twelve hours in Education and/or related areas including an introductory course in reading or Instructor permission.

**EDLT 236. Multicultural Children's Lit. 3 Credits.**

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.

**EDLT 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDLT 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDLT 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDLT 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MATHEMATICS FOR EDUCATORS (MAED)****Courses****MAED 215. Trig/Algebra for Teachers II. 3 Credits.**

Similar triangles, trigonometric functions, applications to measurement, periodic phenomena; quadratic functions; applications to the K-8 classroom.

**MAED 220. Measure/Probability for Teachers. 3 Credits.**

Measurement (length, area and volume), probability, application to problem solving, and the ways in which these concepts develop across the K-12 curriculum. Prerequisites: MAED 215.

**MAED 225. Number Theory for Teachers. 3 Credits.**

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. Prerequisites: MAED 215.

**MAED 230. Alg/Geom for Teachers III. 3 Credits.**

Exponents, compound interest, exponential functions, logarithms, the base e, growth and decay, research in mathematics education and K-8 curriculum projects. Prerequisites: MAED 215.

**MAED 235. Calculus for Teachers I. 3 Credits.**

Limits, instantaneous change, differentiation, optimization, applications to the K-8 classroom, and K-8 curriculum projects. Prerequisites: MAED 215, MAED 220, and MAED 230.

**MAED 240. Calculus for Teachers II. 3 Credits.**

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. Prerequisite: MAED 235.

**MAED 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.



**MAED 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MAED 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific title.

**MAED 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**MAED 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## MATHEMATICS (MATH)

### Courses

**MATH 009. QR: College Algebra. 3 Credits.**

Sets, relations, functions with particular attention to properties of algebraic, exponential, logarithmic functions, their graphs and applications in preparation for MATH 019. May not be taken for credit concurrently with, or following receipt of, credit for any mathematics course numbered MATH 019 or above. Pre/co-requisites: Two years of secondary school algebra; one year of secondary school geometry.

**MATH 010. QR: Pre-Calculus Mathematics. 3 Credits.**

Skills in working with numerical, algebraic, and trigonometric expressions are developed in preparation for MATH 021. May not be taken for credit concurrently with, or following receipt of, credit for any mathematics course numbered MATH 021 or above. Prerequisite: Two years of secondary school algebra; one year of secondary school geometry.

**MATH 015. QR: Elementary School Math. 3 Credits.**

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. Prerequisite: Three years of secondary school math.

**MATH 016. QR: Fund Concepts Elm School Math. 3 Credits.**

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.

**MATH 017. QR: Applications of Finite Math. 3 Credits.**

Introduction to mathematics of finite systems with applications, such as probability, statistics, graph theory, fair division and apportionment problems, voting systems. Prerequisites: Two years of secondary school algebra or MATH 009 or MATH 010.

**MATH 018. QR: Basic Mathematics. 3 Credits.**

Data, statistics, modeling, algebra, word problems, calculus. Students who do well in the algebra section may continue with MATH 019 or MATH 021. Prerequisite: three years of high school math. No credit for CEMS students.

**MATH 019. QR: Fundamentals of Calculus I. 3 Credits.**

Introduction to limits and differential/integral 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, MATH 021 unless followed by MATH 022. See MATH 023. Prerequisite: MATH 009 or MATH 010, or sufficiently strong background in secondary school algebra and geometry.

**MATH 020. QR: Fundamentals of Calculus II. 3 Credits.**

Techniques and applications of integration. An introduction to multi-variable calculus: partial derivatives and double integrals. Students completing MATH 020 may be admitted to MATH 022; however, MATH 019 and MATH 023 is preferable to MATH 019. Prerequisite: MATH 019 or MATH 021.

**MATH 021. QR: Calculus I. 4 Credits.**

Introduction to calculus of functions of one variable including: limits, continuity, techniques and applications of differentiation and integration. Prerequisites: MATH 010. Credit not given for more than one course in the pair MATH 019, MATH 021 unless followed by MATH 022 or MATH 023.

**MATH 022. QR: Calculus II. 4 Credits.**

Vectors and vector operations. Techniques and applications of integration. Polar coordinates, Taylor polynomials, sequences and series, power series. Prerequisite: C- or better in MATH 021. Credit will not be given for both MATH 022 and MATH 023.

**MATH 023. QR: Transitional Calculus. 5 Credits.**

Intended to make the transition from a B or better in MATH 019 to MATH 121. Topics are similar to MATH 022 but recognizing different backgrounds of students in MATH 019 versus MATH 021. Prerequisite: B or better in MATH 019. Credit will not be given for both MATH 022 and MATH 023.

**MATH 030. QR: Algebra for Educators. 3 Credits.**

Algebraic concepts and relationships are explored and developed. Linear, quadratic, and exponential functions are featured. Prerequisite: 3 credits of Math numbered 015 or above.

**MATH 040. Geometry for Educators. 3 Credits.**

An examination of geometric relationships using reasoning and proof. Topics include Euclidean, non-Euclidean and finite geometries, affine transformations, constructions, and spatial geometry. Provides background for future instruction in middle and high school geometry. Prerequisites: Three credits of Mathematics at MATH 015 or above, minimum Sophomore standing.

**MATH 052. QR: Fundamentals of Mathematics. 3 Credits.**

Emphasizing proofs, fundamental mathematical concepts and techniques are investigated within the context of number theory and other topics. Prerequisite: MATH 021 or MATH 023. Credit not given for more than one of MATH 052, MATH 054 and CS 064.

**MATH 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MATH 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MATH 095. Special Topics. 1-18 Credits.**

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

**MATH 120. Eng Math Linear Algebra Lab. 1 Credit.**

Survey of the fundamental concepts of linear algebra necessary to describe the solution space of a linear differential equation and for solving systems of linear differential equations. May not be taken after MATH 122 or MATH 124. Co-requisites: MATH 022 or MATH 023.

**MATH 121. QR: Calculus III. 4 Credits.**

Vector-valued functions. Calculus of functions of several variables: partial derivatives, gradient, divergence, curl, multiple integrals, line integrals, Stokes' and Green's theorems. Prerequisite: C- or better in MATH 022 or MATH 023.

**MATH 122. QR: Applied Linear Algebra. 3 Credits.**

Vectors, matrices, linear independence, vector spaces (with focus on real  $n$ -space), determinants, linear transformations, eigenvalues and eigenvectors. Applications from engineering and the sciences incorporated through required computer assignments. Credit not given for both MATH 122 and MATH 124. Prerequisite: MATH 022 or MATH 023.

**MATH 124. QR: Linear Algebra. 3 Credits.**

Vector spaces, linear independence, bases, linear transformations, matrices, determinants, change of basis characteristic equations, eigenvalues and eigenvectors, with applications. Emphasis on understanding and gaining facility with these concepts including proofs. Credit not given for both MATH 122 and MATH 124. Prerequisite: MATH 022 or MATH 023. Co-requisite: MATH 121 or MATH 052.

**MATH 141. QR: Real Anlys in One Variable. 3 Credits.**

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 MATH 241. Prerequisite: MATH 052 (preferred) or CS 064.

**MATH 151. QR: Groups and Rings. 3 Credits.**

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 MATH 251. Prerequisite: MATH 052 (preferred) or CS 064.

**MATH 161. Development of Mathematics. 3 Credits.**

Project-based course. Historical development of mathematical sciences emphasizing interrelations among them. Individual assignments correspond to background and interests of students. Prerequisite: Nine hours of college mathematics.

**MATH 166. QR: Intro to Complex Systems. 3 Credits.**

Discrete dynamical systems, continuous time models, chaos, cobweb plots, cellular automata, agent based models, fractals, and introductory network science (including dynamic network models). May not be taken for credit concurrently with, or following receipt of, credit for any of MATH/CSYS 266/300/302/303. Prerequisites: MATH 021 and familiarity with a programming language.

**MATH 173. QR: Basic Combinatorial Theory. 3 Credits.**

Introduction to basic combinatorial principles emphasizing problem-solving techniques. Enumeration, generating functions, Fibonacci numbers, pigeonhole principle, inclusion-exclusion, and graph theory. Prerequisites: MATH 052 (preferred) or CS 064.

**MATH 183. QR: Fndmntls of Financial Math. 3 Credits.**

Students will be introduced to the basic ideas and algebraic structures of interest theory, time-value of money, annuities, loans, bonds, cash-flows and portfolios. Prerequisites: MATH 020, MATH 022 or MATH 023.

**MATH 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MATH 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Junior/Senior standing; approval of Department Chair.

**MATH 193. College Honors. 1-3 Credits.**

Honors studies leading to thesis. Prerequisite: CEMS 101.

**MATH 194. College Honors. 1-3 Credits.****MATH 195. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**MATH 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MATH 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MATH 230. QR: Ordinary Diffrentl Equation. 3 Credits.**

Solutions of linear ordinary differential equations, the Laplace transformation, and series solutions of differential equations. Prerequisite: MATH 121. Corequisite: MATH 122 or MATH 124. Credit not granted for more than one of the courses MATH 230 or MATH 271.

**MATH 235. QR: Mathematical Models&Anlysis. 3 Credits.**

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; MATH 122 or MATH 124 or MATH 230 or MATH 271.

**MATH 237. QR: Intro to Numerical Analysis. 3 Credits.**

Error analysis, root-finding, interpolation, least squares, quadrature, linear equations, numerical solution of ordinary differential equations. Prerequisites: MATH 121; MATH 122 or MATH 124 or MATH 271; CS 020 or CS 021. Cross-listed with: CS 237.

**MATH 240. QR: Fourier Series & Intgrl Trans. 3 Credits.**

Fourier series, orthogonal functions, integral transforms and boundary value problems. Prerequisite: MATH 230 or MATH 271.

**MATH 241. QR: Anyl in Several Real Vars I. 3 Credits.**

Properties of the real numbers, basic topology of metric spaces, infinite sequences and series, continuity. Prerequisites: MATH 141 or MATH 151 or C- or better in Math 052; MATH 121; MATH 122 or MATH 124.

**MATH 242. QR: Anyl Several Real Vrbes II. 3 Credits.**

Differentiation and integration in n-space, uniform convergence of functions, fundamental theorem of calculus, inverse and implicit function theorems. Prerequisite: MATH 241.

**MATH 251. QR: Abstract Algebra I. 3 Credits.**

Basic theory of groups, rings, fields, homomorphisms, and isomorphisms. Prerequisites: MATH 141 or MATH 151 or C- or better in MATH 052; MATH 122 or MATH 124.

**MATH 252. QR: Abstract Algebra II. 3 Credits.**

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: MATH 251.

**MATH 255. QR: Elementary Number Theory. 3 Credits.**

Divisibility, prime numbers, Diophantine equations, congruence of numbers, and methods of solving congruences. A significant portion of the course devoted to individual and/or team projects. Prerequisite: MATH 052.

**MATH 259. QR: Cryptography. 3 Credits.**

A survey of classical and modern cryptography. The strengths and weaknesses of various cryptosystems are discussed. Topics include specific public-key and private-key cryptosystems such as RSA, ElGamal, and elliptic curve cryptosystems, as well as digital signatures and key exchange. Prerequisite: MATH 052 or CS 064; any 100-level MATH course.

**MATH 260. QR: Foundations of Geometry. 3 Credits.**

Geometry as an axiomatic science; various non-Euclidean geometries; relationships existing between Euclidean plane geometry and other geometries; invariant properties. Prerequisite: MATH 022 and MATH 052.

**MATH 266. QR: Chaos, Fractals & Dynmcal Syst. 3 Credits.**

Discrete and continuous dynamical systems, Julia sets, the Mandelbrot set, period doubling, renormalization, Henon map, phase plane analysis and Lorenz equations. Prerequisite: MATH 122 or MATH 124. CS 020 or CS 021 recommended. Cross-listed with: CSYS 266.

**MATH 268. QR: Mathematical Biology & Ecol. 3 Credits.**

Mathematical modeling in the life sciences. Topics include population modeling, dynamics of infectious diseases, reaction kinetics, wave phenomena in biology, and biological pattern formation. Prerequisite: MATH 122 or MATH 124; MATH 230 or MATH 271; or Instructor permission. Cross-listed with: CSYS 268.

**MATH 271. QR: Adv Engineering Mathematics. 3 Credits.**

Differential equations, Laplace transforms, and systems of differential equations; brief introduction to Fourier series. Examples from engineering and physical sciences. Credit not granted for both MATH 230 and MATH 271. No credit for Mathematics majors. Prerequisite: MATH 121. Co-requisites: Preferred: MATH 122 or MATH 124; or MATH 120.

**MATH 272. QR: Applied Analysis. 3 Credits.**

Basics of Fourier series, partial differential equations of mathematical physics, functions of a complex variable, Cauchy's theorem, integral formula. Prerequisites: MATH 230 or MATH 271.

**MATH 273. QR: Combinatorial Graph Theory. 3 Credits.**

Paths and trees, connectivity, Eulerian and Hamiltonian cycles, matchings, edge and vertex colorings, planar graphs, Euler's formula and the Four Color Theorem, networks. Prerequisite: MATH 052.

**MATH 284. Capstone Experience. 1-3 Credits.**

Focused exploration of topics from all areas of mathematics through individual/team projects including a major paper and presentation. Prerequisites: MATH 052; MATH 122 or MATH 124; Junior standing; Mathematics major.

**MATH 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MATH 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MATH 293. Undergraduate Honors Thesis. 3-4 Credits.**

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. Prerequisite: CEMS 101.

**MATH 294. Undergraduate Honors Thesis. 3-4 Credits.**

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.

**MATH 295. Special Topics. 1-18 Credits.**

For advanced students in the indicated fields. Lectures, reports, and directed readings on advanced topics. Credit as arranged. Offered as occasion warrants.



**MATH 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MATH 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MECHANICAL ENGINEERING (ME)****Courses****ME 001. First-Year Design Experience. 0 or 2 Credits.**

Project-based. Introduction to the engineering profession and design. Hands-on experiences that emphasize interdisciplinary teamwork, technical communications, and project design methodologies.

**ME 003. Introduction to Robotics. 1 Credit.**

Introduction to the fundamentals of mobile robotics and associated engineering concepts. Students build and program their own robots to execute specific tasks using sensor data acquisition and processing. The course culminates in a team robot competition.

**ME 012. Dynamics. 3 Credits.**

Kinematics and kinetics of particles and rigid bodies in two and three dimensions. Computer-aided analysis. Prerequisite: CE 001, MATH 121.

**ME 014. Mechanics of Solids. 3 Credits.**

Stress, strain, temperature relationships, torsion, bending stresses and deflections. Columns, joints, thin-walled cylinders. Combined stresses and Mohr's circle. Prerequisites: CE 001 with a grade of C- or better. Cross-listed with: CE 100.

**ME 040. Thermodynamics. 3 Credits.**

Principles of engineering thermodynamics; applications of these principles to thermodynamic cycles. Prerequisites: MATH 022 or MATH 023, PHYS 031 or PHYS 051, CHEM 031.

**ME 042. SU: Applied Thermodynamics. 3 Credits.**

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 with a C- minimum.

**ME 081. Mech Engr Shop Experience. 0-1 Credits.**

Introduction to the machine shop environment; shop safety; proper use of essential shop tools; machining techniques. Pre/co-requisite: Sophomore standing in Mechanical Engineering.

**ME 083. Computational Mech Engr Lab. 1 Credit.**

Introduction to finite element analysis, solid modeling, and stress-strain analysis with post-processing techniques. Prerequisite: CE 001. Co-requisite: ME 014 or CE 100.

**ME 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ME 092. Independent Study. 1-18 Credits.****ME 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. One to three hours with Instructor approval.

**ME 101. Materials Engineering. 3 Credits.**

Atomic structure, crystalline structure, mechanical properties and testing of materials, phase equilibria, processing of metals, polymers, and ceramics. Prerequisite: ME 014.

**ME 111. System Dynamics. 3 Credits.**

Project-based. 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 122 or MATH 124.

**ME 123. Thermo-Fluid Lab. 0 or 2 Credits.**

Engineering measurements, data analysis and theory of experimentation. Experiments with fluids and material testing machines and instrumentation for dynamic measurements. Co-requisite: ME 143.

**ME 124. Materials and Mechanics Lab. 0 or 2 Credits.**

Experimentation, engineering measurements, and data analysis in solid mechanics. Instrumentation for dynamic measurements. Photoelasticity. Mechanical testing and heat treatments of engineering materials. Pre/co-requisite: ME 101.

**ME 143. Fluid Mechanics. 3 Credits.**

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 014 or CE 100, ME 040, MATH 271.

**ME 144. Heat Transfer. 3 Credits.**

One- and two-dimensional steady and unsteady thermal conduction; natural and forced internal and external convection; thermal radiation; heat exchangers; boiling and condensation heat transfer. Prerequisite: ME 143.

**ME 161. Modern Manufacturing Processes. 3 Credits.**

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: Junior standing in Mechanical Engineering.

**ME 162. Modern Manufacturing Systems. 3 Credits.**

Overview of systems used in manufacturing and operations management methods, including: quality systems, material management, lean manufacturing, statistical process control, and sustainable operations. Prerequisites: Senior standing in Mechanical Engineering or Engineering Management.

**ME 171. Design of Elements. 3 Credits.**

Mechanical fatigue criteria, fatigue analysis and design of springs, bolted/welded joints, gearing, shafts, bearings, power transmission. Computer-aided design and analysis. Prerequisite: Junior standing; ME 014.

**ME 185. Capstone Design I. 3 Credits.**

Project-based course. Multidisciplinary teams apply their knowledge to design, analyze, build and test a functional prototype that meets client's requirements and solves unique problems. Teams follow engineering design and project management processes such as periodic reports, presentations, meetings, reviews and demonstrations using standard industry tools. Prerequisite: EE 120 or EE 171, and EE 184 or Instructor permission; or Senior standing in Mechanical or Biomedical Engineering. Cross-listed with: BME 187, EE 187.

**ME 186. Capstone Design II. 0 or 3 Credits.**

Project-based course. Multidisciplinary teams apply their knowledge to design, analyze, build and test a functional prototype that meets client's requirements and solves their problems. Teams follow engineering design and project management processes such as periodic reports, presentations, meetings, reviews and demonstrations using standard industry tools. Prerequisite: Senior standing.

**ME 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ME 191. Senior Thesis. 3 Credits.**

Investigation of a research or design project under supervision of assigned staff member culminating in acceptable thesis. Prerequisite: Senior standing; department permission.

**ME 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ME 193. College Honors. 1-3 Credits.**

Honors studies leading to thesis. Prerequisite: CEMS 101.

**ME 194. College Honors. 1-6 Credits.****ME 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Senior standing in Civil or Mechanical Engineering.

**ME 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ME 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ME 199. Cooperative Ed Experience. 12 Credits.**

On-site, full-time, supervised work experience that satisfies the educational objectives defined by the Department of Mechanical Engineering co-op program. Prerequisite: Sophomore standing.

**ME 201. Biomaterials Engineering. 3 Credits.**

A materials science and engineering approach is used to explore the structure-function relationships of natural and bio-inspired materials for various engineering applications. The emphasis is on mechanical design and function. The medical applications of biomaterials will be discussed. Prerequisite: ME 101.

**ME 203. Machinery Analysis & Synthesis. 3 Credits.**

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.

**ME 206. Biomechanics of Human Motion. 3 Credits.**

Biomechanics of Human Motion will describe the typical processes-from small scale protein interactions to large scale joint torques-that result in human locomotion. Clinical problems and athletic performance will be discussed. Students will learn about musculoskeletal tissues related to force generation/transmission and will perform kinematic/kinetic analyses. Prerequisites: Senior or Graduate student standing in Engineering, Instructor permission. Cross-listed with: BME 206.

**ME 207. Intro Biomedical Engineering. 3 Credits.**

Introduction to bioengineering science including biomechanics, biomaterials, biomedical imaging, rehabilitation engineering, biomedical computing, biomedical instrumentation, and transport phenomena. Prerequisite: Senior standing in all engineering majors other than Biomedical Engineering, Graduate Student standing with Instructor permission. Cross-listed with: EE 207.

**ME 208. Biomechanics: Tissue Engr. 3 Credits.**

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

**ME 209. Biomechanics: Transport Proc. 3 Credits.**

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

**ME 210. Control Systems. 3 Credits.**

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. Credit not given for more than one of the courses EE 110, ME 210. Prerequisites: EE 171 or ME 111. Cross-listed with: EE 210.

**ME 218. Numerical Methods for Engineer. 3 Credits.**

Foundational concepts of numerical integration, numerical differentiation, and numerical approximation and solution of differential and partial differential equations of the type encountered in the analysis of engineering problems and data processing. Prerequisites: MATH 271, CS 020; MATH 122 or MATH 124. Cross-listed with: CE 218.

**ME 230. Astrodynamics. 3 Credits.**

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 111.

**ME 233. Vortex Flows. 3 Credits.**

General theorems of vorticity transport in fluids; methods for solution of vortex flows; application to wake vortices, turbulent wall-layer vortices, wing-tip vortices, intake vortices, vortex-structure interaction, vortex reconnection, vortex breakdown, tornadoes and hurricanes. Prerequisite: ME 143.

**ME 234. Mechanical Vibrations. 3 Credits.**

Analysis, measurement, and control of mechanical vibrations; SDOF, MDOF, and rotating systems, forced, free, and random vibrations. Prerequisite: ME 111 or Senior/ Graduate standing in engineering or physical sciences.

**ME 236. Renewable Energy Harvesting. 3 Credits.**

Covers the engineering fundamentals of different renewable energy technologies, including wind power, tidal power, solar power, biomass, hydropower, etc. Focus placed on the mathematical derivation and application of small scale vibration energy harvesting technologies. Prerequisite: ME 143 or CE 160.

**ME 237. Turbulence. 3 Credits.**

Description of turbulent flows; statistical and modeling of turbulent flows; Navier Stokes as a dynamical system; experimental and numerical approaches. Prerequisite: ME 143.

**ME 238. Energy Systems Engineering. 3 Credits.**

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.

**ME 239. Rocket Propulsion. 3 Credits.**

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 the Instructor.

**ME 240. Compressible Flow. 3 Credits.**

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.

**ME 242. Adv Engr Thermodynamics I. 3 Credits.**

Foundations of statistical mechanics. Gases and crystals. Chemical equilibrium. Irreversible processes. Prerequisite: Senior/Graduate standing or permission.

**ME 243. Incompressible Flow. 3 Credits.**

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.

**ME 245. Advanced Heat Transfer I. 3 Credits.**

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 Instructor permission.

**ME 249. Computational Fluids Engr. 0 or 3 Credits.**

Project-based. Computational methods for solving the Navier-Stokes equations and combined thermo-fluid flows; finite-differences and finite-volume techniques; use of standard commercial CFD software. Prerequisite: ME 143 or equivalent.

**ME 252. Mechanical Behavior Materials. 3 Credits.**

Isotropic and anisotropic elasticity; theory of plasticity; deformation mechanisms in crystalline solids; dislocation theory; creep behavior; advanced fatigue and fracture mechanisms. Prerequisites: ME 101; Instructor permission.

**ME 255. Adv Engineering Materials. 3 Credits.**

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

**ME 257. Composite Materials. 3 Credits.**

Fibers, matrices. Unidirectional and short fiber composites. Experimental characterization. Prerequisite: ME 101.

**ME 259. Computational Solid Mechanics. 3 Credits.**

Project-based. Computational methods using the finite element analysis (FEA) applied to linear elastic and non-linear problems in the mechanics of deformable solids and structures, contact mechanics, and fracture mechanics. Hands-on computational experience using a commercial FEA software. Prerequisites: ME 014, MATH 124, and MATH 271, or equivalent.

**ME 265. QR: Integrated Product Dev. 3 Credits.**

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.

**ME 270. Structural Dynamics. 3 Credits.**

Vibrations, matrices, earthquake engineering, stability and wave propagation. Prerequisites: Senior/Graduate standing in Engineering or physical sciences, or Instructor permission. Cross-listed with: CE 272.

**ME 271. Micro and Nano Systems. 3 Credits.**

Operating principles, fabrication and design of engineered systems with submillimeter dimensions. Prerequisites: Senior/Graduate standing in Engineering or physical sciences.

**ME 281. Seminar. 1 Credit.**

Presentation and discussion of advanced mechanical engineering problems and current developments. Prerequisite: Senior/Graduate engineering enrollment.

**ME 282. Seminar. 1 Credit.**

Presentation and discussion of advanced mechanical engineering problems and current developments. Prerequisite: Senior/Graduate engineering enrollment.



**ME 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ME 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ME 295. Advanced Special Topics. 1-18 Credits.**

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

**ME 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**ME 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ME 299. Cooperative Ed Experience. 12 Credits.**

On-site, full-time, supervised work experience that satisfies the educational objectives defined by the Department of Mechanical Engineering co-op program. Prerequisite: Senior standing.

## MEDICAL LABORATORY SCIENCE (MLS)

### Courses

**MLS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MLS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MLS 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**MLS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MLS 191. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MLS 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**MLS 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MLS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MLS 220. Clinical Practicum: Chemistry. 3 Credits.**

Experiences in an approved clinical laboratory education site in the area of clinical chemistry. Prerequisite: Medical Laboratory Science Seniors only.

**MLS 221. Clinical Chemistry I. 4 Credits.**

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

**MLS 222. Clinical Chemistry II. 3 Credits.**

Advanced instruction in body chemistry and pathophysiology of disease with emphasis on diagnostic lab techniques in chemistry. Prerequisites: MLS 221, PATH 101.

**MLS 230. Clinical Practicum: Hematology. 3 Credits.**

Experiences in approved clinical laboratory education site in the area of clinical hematology. Prerequisite: Medical Laboratory Science Seniors only.

**MLS 231. Hematology. 3-4 Credits.**

Advanced theory and analysis of blood cell physiology and related pathology. Concepts of hemostasis and clinical assessment methods. Prerequisites: One semester of organic chemistry, one semester of biochemistry.

**MLS 250. Clin Practicum: Microbiology. 3 Credits.**

Experiences in an approved clinical laboratory education site in the area of clinical microbiology. Prerequisite: Medical Laboratory Science Seniors only.

**MLS 255. Clinical Microbiology II. 3 Credits.**

Comprehensive study of non-bacterial pathogenic microorganisms and their disease states in humans. Includes medical mycology, parasitology and virology. Prerequisites: MMG 065 or MMG 101.

**MLS 260. Clin Practicum: Immunohematology. 3 Credits.**

Experiences in an approved clinical laboratory education site in the area of clinical immunohematology. Prerequisite: Medical Laboratory Science Seniors only.

**MLS 262. Immunohematology. 4 Credits.**

Advanced theory and experience related to human blood groups and transfusion practice. Prerequisite: MLRS 242 or MMG 223.

**MLS 272. MDS Practicum. 16 Credits.**

Practical experiences in molecular diagnostic applications at various locations which include FAHC Laboratories, State of Vermont Health Department Laboratory and other UVM affiliate sites. Medical Laboratory Science Seniors only.

**MLS 282. Public Health Lab Practicum. 12 Credits.**

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.

**MLS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MLS 291. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MLS 292. Topics in Medical Lab Science. 3 Credits.**

Seminar on topics in the practice and profession of Medical Laboratory Science. Online course. MLS majors only.

**MLS 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**MLS 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MLS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## MICR & MOLECULAR GENETICS (MMG)

### Courses

**MMG 001. First Year Colloquium. 1 Credit.**

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.

**MMG 002. SU:Unseen Wrlds:Microbes & You. 3 Credits.**

Examination of current topics in Microbiology, such as antibiotic resistance, vaccinations, sexually transmitted diseases, and the human microbiome, focusing on the impact of microbes on human and animal health, the environment, agriculture, and modern culture around the world.

**MMG 065. Microbiology & Pathogenesis. 0 or 4 Credits.**

Overview of microbiology, emphasizing the relationships between the structure, metabolism, and genetics of microorganisms and their roles in nature and in pathogenesis. Prerequisite: One semester chemistry. Not intended for students who have completed BIOL 001 and BIOL 002 or equivalent. Fall.

**MMG 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MMG 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MMG 095. Special Topics. 1-18 Credits.**

An approved area of study or project under the guidance of an MMG faculty member and the Academic advisor.

**MMG 096. Special Topics. 1-18 Credits.**

An approved area of study or project under the guidance of an MMG faculty member and the Academic advisor.

**MMG 101. Microbiol & Infectious Disease. 0 or 4 Credits.**

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: One semester Biology and Chemistry. Fall.

**MMG 104. Intro Recombinant DNA Tech. 3 Credits.**

Introduction to the basic principles and techniques used in recombinant DNA technology. Pre/co-requisites: BCOR 011/BCOR 012; Microbiology & Molecular Genetics major or minor restriction. Spring.

**MMG 106. Intr Biomedical Research Meth. 3 Credits.**

Introduces life science majors/minors to the scientific processes involved in biomedical research and to current research techniques and approaches, also introduces reading and interpreting primary literature articles, as well as discussing current topics regarding the ethical concerns of biomedical research. Prerequisite: BCOR 11, BCOR 12 or BCOR 021.

**MMG 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MMG 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MMG 193. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MMG 195. Intermediate Special Topics. 1-18 Credits.**

An approved area of study or project under the guidance of an MMG faculty member and the Academic advisor. Prerequisite: Instructor permission. Credits negotiable.

**MMG 196. Intermediate Special Topics. 1-18 Credits.**

An approved area of study or project under the guidance of an MMG faculty member and the Academic advisor. Prerequisite: Instructor permission. Credits negotiable.

**MMG 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Undergraduate Program Director approval. Offered at department discretion.

**MMG 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Undergraduate Program Director approval. Offered at department discretion.

**MMG 201. Molecular Cloning Lab. 4 Credits.**

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.

**MMG 205. Biochemistry I. 3 Credits.**

Introduction to chemistry and structure of biological macromolecules; examination of mechanisms of chemical processes in biological systems, including enzyme catalysis, biosynthesis, regulation, and information transfer. Prerequisite: CHEM 048 or CHEM 142 or CHEM 144. Cross-listed with: BIOC 205, CHEM 205. Fall.

**MMG 206. Biochemistry II. 3 Credits.**

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

**MMG 207. Biochemistry Lab. 3 Credits.**

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

**MMG 211. Prokaryotic Molecular Genetics. 3 Credits.**

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.

**MMG 220. Environmental Microbiology. 3 Credits.**

The activities of microorganisms, primarily bacteria, in air, soil, and water. Prerequisites: MMG 101 and Organic Chemistry Alternate years.

**MMG 222. Advanced Medical Microbiology. 0 or 4 Credits.**

Comprehensive study of human pathogenic bacteria and their disease states in humans. Laboratory sessions provide practical experience in handling and identifying these pathogens. Alternate years. Spring. Prerequisites: MMG 065 or MMG 101 or equivalent or Instructor permission.

**MMG 223. Immunology. 3 Credits.**

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 permission. Alternate years, Spring.

**MMG 225. Eukaryotic Virology. 3 Credits.**

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.

**MMG 230. D2:SU:Adv St Emerg Infec Dis. 3 Credits.**

Presents an interdisciplinary approach to understanding the emergence, and re-emergence, of infectious diseases in a rapidly changing global environment. Historical, cultural, environmental and biological perspectives are incorporated into the analysis of emerging bacterial, viral and protozoal pathogens. Prerequisites: MMG 101; MMG 225 recommended.

**MMG 232. QR: Advanced Bioinformatics. 3 Credits.**

Advanced data processing and genome assembly analysis, data integration, and machine learning. Python, R, and Linux-scripting are used to assemble genomes, integrate large data sets, and build complex biological models. Topics include genomics, meta-data management, and multi-omics analyses at systems biology levels. Alternate Years. Spring. Prerequisites: MMG 104 or BCOR 101; MMG 231, or Instructor permission.

**MMG 233. Genetics and Genomics. 3 Credits.**

Integrated entry into both genome science and modern genetic analysis. Students will develop skills needed to access, organize and interpret emerging genomic information. Fall. Prerequisite: Junior/Senior/Graduate standing in biological or computational sciences.

**MMG 235. Bioterrorism. 3 Credits.**

Covers the microbiological, epidemiological, social and political aspects of bioterrorism. Also examines potential strategies for bioweapon preparedness and response, with a specific focus on ethical and social issues. Prerequisites: MMG 101 or MMG 002 and PSS 133.

**MMG 240. Macromol Struct Prot&Nucl Acid. 3 Credits.**

Introduction to structural biology and macromolecular structure with an emphasis on protein-protein and protein-nucleic acids interactions. Prerequisites: BIOL 001, BIOL 002; Organic Chemistry; Junior standing recommended; concentration in Physics. Cross-listed with: BIOC 240. Alternate years. Spring.

**MMG 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MMG 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.



**MMG 293. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MMG 295. Advanced Special Topics. 1-18 Credits.**

Supervised investigations in microbiology or molecular genetics. Prerequisite: Instructor permission. Credit as arranged.

**MMG 296. Advanced Special Topics. 1-18 Credits.**

Supervised investigations in microbiology or molecular genetics. Prerequisite: Instructor permission. Credit as arranged.

**MMG 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Undergraduate Program Director approval. Pre/co-requisite: MMG 197, MMG 198 or Advisor Permission. Offered at department discretion.

**MMG 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Undergraduate Program Director approval. Pre/co-requisite: MMG 197 or MMG 198 or Advisor Permission. Offered at department discretion.

**MMG 299. Senior Seminar. 1 Credit.**

This required capstone 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.

## MIDDLE LEVEL TEACHER EDUCATION (EDML)

### Courses

**EDML 024. Foundations of Middle Level Ed. 3 Credits.**

The evolution of middle grades reform, and the nature and needs of young adolescence with a special emphasis on the approximate ages of 10-14 years.

**EDML 055. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDML 056. Teachers & Teaching Process. 3 Credits.**

Examines professional responsibilities of middle level teachers as defined by Vermont and national standards via classroom observations.

**EDML 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDML 171. Mid Level Teaching Practicum I. 3 Credits.**

Second teaching practicum on a middle level team to learn policy, curriculum, exemplary pedagogy, assessment in one of two academic concentrations defined by student's IDIMC plan. Prerequisite: Admission to Middle Level Professional Program.

**EDML 177. Young Adolescent ELA Methods. 3 Credits.**

Examines young adolescent literature and research-based instructional practices for supporting students with reading and writing in middle grades English Language Arts.

**EDML 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDML 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDML 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDML 198. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDML 200. Contemporary Issues. 1-6 Credits.****EDML 207. Adoles Lrng&Beh&Cog Perspect. 3 Credits.**

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. Prerequisite: Acceptance to Master of Arts in Teaching or EDML 171 or Instructor permission.

**EDML 260. Teaching Young Adolescents. 3-6 Credits.**

Focus on understanding and reflecting on an integrative and developmental approach to the design of middle level curriculum, as well as teaching in one area of specialization.

**EDML 261. Mid Lev Teaching Practicum II. 3 Credits.**

Teaching practicum on middle level team in one of two areas of academic concentration, acquiring knowledge of and skills in curriculum, pedagogy, and assessment. Pre/Co-requisite: Admission to Middle Level Professional Program.

**EDML 270. Middle School Org & Pedagogy. 3-6 Credits.**

Focuses on exploring theory and practice in responsive school organization for young adolescents, including interdisciplinary/partner teaming, block scheduling, and teacher advisories, as well as teaching lessons in one area of specialization. Pre/co-requisite: EDML 024, EDML 056.

**EDML 285. Middle Level Student Teaching. 9-12 Credits.**

Full-time supervised student teaching internship as a member of a middle school team. Development of a professional portfolio as stipulated in the Middle Level Program Handbook. Pre/co-requisite: EDML 260, EDML 261, EDML 270, and Instructor permission.

**EDML 286. Internship Support Seminar. 3 Credits.**

Seminar addresses and responds to internship experiences including planning, reflective practice, classroom management, teamwork, and assessment of learning. Guidance in development of Professional Teaching Portfolio. Pre/co-requisites: EDML 260, EDML 261, EDML 270.

**EDML 287. Content Literacy in Mid Grades. 3 Credits.**

Focus on the use of content and disciplinary literacy strategies, including multiliteracies, in middle level content areas. Pre/co-requisite: Minimum Junior standing.

**EDML 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDML 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDML 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDML 298. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

## MILITARY STUDIES (MS)

### Courses

**MS 011. Intro to ROTC & US Army. 0 or 1 Credits.**

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.

**MS 012. Intro Mil Skills&Followership. 0 or 1 Credits.**

Development of basic skills of an Army officer, including navigation and communications. Students are exposed to leadership development exercises during leadership laboratories.

**MS 021. Leadership&Team Development. 0 or 2 Credits.**

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.

**MS 022. Individual&Team Leading. 0 or 2 Credits.**

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.

**MS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MS 096. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**MS 131. Lead&Train Small Organizations. 0 or 3 Credits.**

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.

**MS 132. Lead&Manage Small Organization. 0 or 3 Credits.**

Plan for and adapt to the unexpected in organizations under stress. Examine importance of ethical decisions in a positive climate that enhances team performance. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. Prerequisite: MS 131. Spring.

**MS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MS 196. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**MS 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MS 241. Ldrshp Challenges&Goal Setting. 0 or 3 Credits.**

Plan, conduct, and evaluate activities. Assess organizational cohesion and develop strategies for improvement. Develop confidence in skills to lead people and manage resources. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. Prerequisite: MS 132. Fall.

**MS 242. Lead Org Ethically&Competently. 0 or 3 Credits.**

Identify and resolve ethical dilemmas. Refine counseling and motivating techniques. Examine aspects of tradition and law related to leading as an officer in the Army. Includes a non-credit laboratory to develop, practice and refine leadership skills in a variety of positions. Prerequisite: MS 241. Spring.

**MS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MS 296. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**MS 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## MOLECULAR PHYSIOLOGY & BIOPHYS (MPBP)

### Courses

**MPBP 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MPBP 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MPBP 095. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**MPBP 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MPBP 191. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Department permission.

**MPBP 192. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Department permission.

**MPBP 193. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MPBP 195. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**MPBP 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MPBP 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MPBP 292. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MPBP 293. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MPBP 295. Advanced Special Topics. 1-18 Credits.**

Topics of interest to high level Undergraduate and Graduate students beyond the scope of existing courses.

**MPBP 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

## MUSIC (MU)

### Courses

**MU 001. Exploring Music History. 3 Credits.**

A survey of musical styles from antiquity to the present drawing from the Western concert and other traditions. May not be counted toward the Music major, except for Music majors with a concentration in Technology and Business.

**MU 005. D1: Intro to Jazz History. 3 Credits.**

Survey of jazz from its roots in ragtime and blues of the late nineteenth century to contemporary styles. May not be counted toward the Music major except for Music majors with a concentration in Technology and Business.

**MU 007. D2: Intro World Music Cultures. 3 Credits.**

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. May not be counted toward the Music major except for Music majors with a concentration in Technology and Business.

**MU 009. Music Theory Fundamentals. 3 Credits.**

Fundamentals of music notation, rhythm, melody, scales, and harmony. A course for non-majors or for students preparing to enter MU 103 or MU 109. May not be counted toward the Music major except for Music majors with a concentration in Technology and Business.

**MU 010. D1: Blues & Related Traditions. 3 Credits.**

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.

**MU 012. D1: Music & Culture: New Orleans. 3 Credits.**

Examines the interrelationships between styles of music in New Orleans and the cultures that support them; includes a trip to New Orleans during spring break.



**MU 014. D2: Music of Latin Am & Carib. 3 Credits.**

A study of the culture and history of Latin America and the Caribbean through music. Explores and compares traditional, classical, and popular genres from the pre-conquest to the present with particular attention to Indigenous, African, and European roots.

**MU 015. History of Rock and Roll. 3 Credits.**

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.

**MU 060. Intro to Music Technology. 3 Credits.**

Introductory overview of music technology. Study of acoustic physics, history of music technology, basic hardware set up, computerized music notation, Digital Audio Workstation (DAW) electronic music production, and music video creation. Prerequisite: MU 009 or Instructor permission.

**MU 063. Live Sound Reinforcement. 3 Credits.**

Overview of techniques and tools used in amplification of live sound performance in music, theater, and dance. Study of physical properties of sound, fundamentals of acoustics, and current technology and equipment.

**MU 076. Brass Techniques. 2 Credits.**

Class instruction on trumpet, trombone, and horn including materials and procedures for teaching these instruments in elementary and secondary schools.

**MU 077. String Techniques. 2 Credits.**

Develop basic technical proficiency on violin, viola, cello, and double bass. Emphasis on beginning pedagogy, and teaching string instruments in a classroom setting.

**MU 078. Woodwind Techniques. 2 Credits.**

Class instruction on flute, clarinet, saxophone and oboe/bassoon including materials and procedures for teaching these instruments in elementary and secondary schools.

**MU 079. Percussion Techniques. 2 Credits.**

Class instruction of various orchestral pitched and unpitched percussive instruments including materials and procedures for teaching these instruments in the elementary and secondary schools.

**MU 080. Vocal Techniques. 2 Credits.**

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.

**MU 085. Intro to Music Education. 3 Credits.**

Introduction to the opportunities, challenges, issues, roles, and duties of Pre-K-12 music educators.

**MU 092. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MU 095. Introductory Special Topics. 1-18 Credits.**

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 permission.

**MU 096. Introductory Special Topics. 1-18 Credits.**

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 permission.

**MU 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MU 101. Harmony and Form Lab I. 1 Credit.**

Intensive study of solfege, elementary keyboard harmony, and dictation. Students should also register for MU 109. Prerequisite: Ability to read music and to sing or play a musical instrument at elementary level. Co-requisite: MU 109.

**MU 102. Harmony and Form Lab II. 1 Credit.**

Intensive study of solfege, intermediate keyboard harmony, and dictation. Students should also register for MU 110. Prerequisites: MU 101; MUL 118 or equivalent. Co-requisite: MU 110.

**MU 103. Jazz Harmony. 3 Credits.**

Study of jazz harmony, including essential harmonic progressions, turnarounds, chord substitutions, and melody harmonization. Music majors with concentration in Jazz Studies take MU 104 Jazz Harmony Lab concurrently. Prerequisite: MU 009 or equivalent music theory fundamentals proficiency. Co-requisite: MU 104 is required for Music majors with concentration in Jazz Studies and encouraged for all others enrolled in MU 103.

**MU 104. Jazz Harmony Lab. 1 Credit.**

Musical skills will be sharpened through singing prepared and unprepared material, through practice of rhythmic exercises, and through melodic, harmonic, and rhythmic dictation. Practice in the use of solfege syllables from the moveable do system to aid successful sight singing. Co-requisite: MU 103.

**MU 105. History of Jazz. 3 Credits.**

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. Prerequisites: MU 103 or MU 109.

**MU 107. D2: World Music Cultures. 3 Credits.**

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 permission.

**MU 109. Harmony and Form I. 3 Credits.**

Study of diatonic melody and harmony, phrase structure, and elaborative techniques. Music majors, except those with a concentration in Music Technology and Business or Jazz Studies, are required to take MU 054 concurrently. Prerequisites: MU 009 or equivalent music theory fundamentals proficiency, determined by placement test. Co-requisites: MU 054 is required for Music majors, except those with concentration in Music Technology and Business or Jazz Studies, and encouraged for all enrolled in MU 109.

**MU 110. Harmony and Form II. 3 Credits.**

Study of chromatic harmony (applied chords, modulation) and small forms (binary, ternary, variation). Music majors take MU 056 concurrently. Prerequisite: MU 109 or Instructor permission.

**MU 111. Music History & Literature I. 3 Credits.**

Survey of musical styles through the Baroque. Prerequisites: MU 109 and MU 110; MU 001 is strongly recommended; Majors/minors, or Instructor permission.

**MU 112. Music History & Literature II. 3 Credits.**

Survey of musical styles from 1750 to the present. Prerequisites: MU 109 and MU 110; MU 001 is strongly recommended; Majors/minors; or Instructor permission.

**MU 149. Soph Recital/Performance Sem. 1 Credit.**

B.M. Candidates only.

**MU 150. Junior Recital. 1 Credit.**

B.M. Candidates only.

**MU 154. Harmony and Form Lab III. 1 Credit.**

Intensive study of solfege, chromatic harmony at the keyboard, dictation, and score reading. Prerequisite: MU 056 or Instructor permission. Co-requisite: MU 209.

**MU 156. Harmony and Form Lab IV. 1 Credit.**

Intensive study of solfege, extended tonality and atonality at the keyboard, dictation, and score reading. Prerequisite: MU 154 or Instructor permission. Co-requisite: MU 210.

**MU 157. Composition. 3 Credits.**

Studies in free composition and the mechanics of score preparation, leading to performance of original work on a departmental concert. Prerequisite: MU 110 or Instructor permission.

**MU 159. Theory/Prac Jazz Improv I. 3 Credits.**

Basic repertory, idiomatic usage, aural skills, theoretical constructs, and strategies for the jazz improviser. Prerequisites: MU 103 or MU 109 or Instructor permission; intermediate instrumental skill.

**MU 160. Creating Music for Video. 3 Credits.**

Students will score short films using digital audio software. Emphasis is on 4-5 scoring projects, with additional background reading and written critiques. Prerequisites: MU 009, MU 060.

**MU 161. Studio Production I. 2 Credits.**

Explores the fundamentals of music studio recording production. Topics include recording hardware, ProTools software, microphone technique, signal processing, and post production engineering. Prerequisites: MU 060 or Instructor permission.

**MU 162. Studio Production II. 2 Credits.**

Explores advanced techniques of music studio production. Topics include recording hardware, signal processing, Digital Audio Workstations, and post production engineering (mixing and mastering). Prerequisite: MU 161.

**MU 172. Arts Management. 3 Credits.**

Focuses on the business of presenting the performing arts. Topics include: planning, marketing, logistics and operations of non-profit arts organizations. Prerequisite: Sophomore standing.

**MU 181. Conducting. 3 Credits.**

Baton technique, score reading, and laboratory practice. Preparation and performance of selected scores, including rehearsal procedures. Prerequisites: MU 154 and MU 209.

**MU 185. Music Business and Copyright. 3 Credits.**

Survey of basic concepts and practices in music business including copyright, licensing, publishing, contracts, marketing, agencies, unions and guilds, and career development. Prerequisite: Sophomore standing.

**MU 192. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MU 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MU 195. Intermediate Special Topics. 1-18 Credits.**

Courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisites: MU 109 and MU 110; Majors/minors or Instructor permission.

**MU 196. Intermediate Special Topics. 1-18 Credits.**

Courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisites: MU 109 and MU 110; Majors/minors, or Instructor permission.

**MU 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. faculty member, for which credit is awarded.

**MU 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MU 201. Composer Seminar. 3 Credits.**

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.

**MU 209. Harmony and Form III. 3 Credits.**

Study of advanced chromatic harmony, large forms (sonata, rondo), art song, and free forms. Music majors take MU 154 concurrently. Prerequisite: MU 110 or Instructor permission.

**MU 210. Harmony and Form IV. 3 Credits.**

Study of extended tonality, atonality, and 12-tone techniques. Examples drawn from 20th and 21st century literature. Music majors take MU 156 concurrently. Prerequisite: MU 209 or Instructor permission.

**MU 211. Senior Music History Project. 1 Credit.**

Directed readings and research. Research project. Prerequisites: Music History concentration; Senior standing; Instructor permission.

**MU 256. Advanced Composition. 3 Credits.**

Creative work in free composition culminating in public performance of completed work on a departmental concert. Prerequisite: MU 157.

**MU 257. Jazz Composition and Arranging. 3 Credits.**

Composing and arranging for big band. Practice in techniques of jazz arranging and study of historic works. Final project is jazz standard arranged for big band, read by the UVM Jazz Ensemble. Prerequisite: MU 103 or MU 110 or instructor permission.

**MU 258. Advanced Jazz Comp and Arr. 3 Credits.**

Composing for small jazz ensembles. Practice in 2-, 3-, and 4-horn techniques. This seminar features student-led analysis, discussion, and in-class performances of writing projects. Final project is original composition arranged for small jazz ensemble, performed on departmental concert. Prerequisite: MU 103 or MU 110 or Instructor permission.

**MU 259. Thry & Prac of Jazz Improv II. 3 Credits.**

Chord substitution, re-harmonization, scale alteration, free' improvisation, and other techniques in written assignments and classroom performance of modern jazz repertoire. Prerequisites: MU 159, or Instructor permission.

**MU 260. Sr Composition/Theory Project. 1 Credit.**

Research paper or composition/analysis; topic chosen under direction of a faculty member. Prerequisite: Composition/Theory concentration; Senior standing; Instructor permission.

**MU 261. Studio Production III. 2 Credits.**

Explores professional techniques of music studio production. Topics include recording hardware, signal processing, Digital Audio Workstations, and post production engineering (mixing and mastering). Prerequisite: MU 162.

**MU 262. Senior Project in Music Tech. 1 Credit.**

Project utilizes current music technology. Topic chosen under direction of faculty member. Prerequisite: MU 261 and Senior standing in Music Technology Concentration.

**MU 270. General Music Methods. 3 Credits.**

Methodologies, lesson planning, assessment, and standards-based curriculum development for general music at the elementary and secondary school levels. Pre/co-requisites: MU 085; acceptance into licensure program in Music Education; concurrent enrollment in MU 271.

**MU 271. General Music Practicum. 1 Credit.**

Supervised field experience in general music. Pre/co-requisites: MU 085; acceptance into licensure program in Music Education; concurrent enrollment in MU 270.

**MU 272. Choral Music Methods. 2 Credits.**

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-requisite: MU 085; acceptance into licensure program in Music Education; concurrent enrollment in MU 273.

**MU 273. Choral Music Practicum. 1 Credit.**

Supervised field experience in choral music. Pre/co-requisites: MU 085; acceptance into licensure program in Music Education; concurrent enrollment in MU 272.

**MU 274. Instrumental Music Methods. 2 Credits.**

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 085; acceptance into licensure program in Music Education; concurrent enrollment in MU 275.

**MU 275. Instrumental Music Practicum. 1 Credit.**

Supervised field experience in instrumental music. Pre/co-requisites: MU 085; acceptance into licensure program in Music Ed; concurrent enrollment in MU 274.

**MU 281. Advanced Conducting. 3 Credits.**

Focus on advanced conducting techniques and score preparation. Exploration of instrumental and vocal conducting techniques. Prerequisite: MU 181.

**MU 289. Teaching Internship Seminar. 1 Credit.**

Companion course to supervised field work, giving students experience in specialized areas for their professional development. It is designed to provide context to the field work, resources for effective planning and teaching, and assist in developing the Vermont Licensure Portfolio and achieving InTASC standards. Prerequisite: Senior standing. Co-requisite: MU 290.

**MU 290. Teaching Internship. 11 Credits.**

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Senior standing. Co-requisite: MU 289.

**MU 291. Music Technology Internship. 1 Credit.**

Supervised fieldwork designed to give students experience in specialized areas for their professional development. Prerequisite: MU 261; Music Technology & Business concentration; Senior standing; Instructor permission.

**MU 292. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MU 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MU 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**MU 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**MU 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MU 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.



## MUSIC EDUCATION (EDMU)

### Courses

#### **EDMU 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

#### **EDMU 096. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

#### **EDMU 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

#### **EDMU 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

#### **EDMU 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

#### **EDMU 198. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

#### **EDMU 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

#### **EDMU 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

#### **EDMU 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

#### **EDMU 298. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

## MUSIC ENSEMBLE (MUE)

## MUSIC LESSONS (MUL)

### Courses

#### **MUL 002. Beginning Group Lessons: Piano. 1 Credit.**

Group lessons at the beginning level in piano. May not be counted toward the Music major or minor. May be taken a total of four times for credit.

#### **MUL 003. Beginning Grp Lessons: Guitar. 1 Credit.**

Group lessons at the beginning level in guitar. May not be counted toward the Music major or minor. May be taken up to four times for credit.

#### **MUL 004. Beg Grp Less: Taiko Japan Drum. 1 Credit.**

Group lessons at the beginning level in Taiko Japanese Drumming. May not be counted toward the Music major or minor. May be taken up to four times for credit.

#### **MUL 022. Basic Private Lessons. 1 Credit.**

Private lessons in basic instrumental or vocal skills for non-music majors. A meeting with the teacher is required to assess appropriate placement. May be repeated for credit. Lab fee required. Prerequisites: For piano: MU 021 or equivalent; audition required.

#### **MUL 033. Private Lessons. 1-2 Credits.**

Private instruction on an instrument/voice for non-majors and non-minors. Contact department immediately after registering. Subject to availability of staff. Lab fee required. May be repeated for credit. Not open for credit to Music majors/minors. Prerequisite: Lesson audition required before enrollment confirmed.

#### **MUL 034. Required Secondary Lessons. 1 or 2 Credit.**

Private instruction for Music majors on a required secondary instrument/voice. Subject to staff availability. Lab fee required. May be repeated for credit. Prerequisite: Music majors; successful completion of Level II Examination.

#### **MUL 044. Elective Secondary Lessons. 1 or 2 Credit.**

Private instruction for music majors on an elective, non-required secondary instrument/voice. Subject to staff availability. Lab fee required. May be repeated for credit. Prerequisite: Music majors; successful completion of Level II Examination.

#### **MUL 074. Private Lessons. 1-2 Credits.**

Private lessons on primary instrument or voice for Music Majors with a concentration in Music Technology and Business who have not yet passed the Level II Examination. Prerequisite: Pre-Level II Exam Music major with declared Music Technology and Business concentration.

#### **MUL 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

#### **MUL 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

#### **MUL 096. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

#### **MUL 116. Group Jazz Piano I. 1 Credit.**

Introduction to jazz piano techniques, including rootless voicings, soloing, and comping; and covering basic chord progressions, blues, and standard tunes. Prerequisites: MUL 002; or basic keyboard knowledge and Instructor permission.

**MUL 117. Group Jazz Piano II. 1 Credit.**

Exploration of topics including stride, modal comping, and chord substitution. Some review of concepts from MUL 116. Prerequisites: MUL 116; Music or Music Education majors or minors only.

**MUL 118. Piano Proficiency I. 1 Credit.**

Basic piano technique, harmonizing, and grand staff reading. Prerequisites: MUL 002 or equivalent rudimentary keyboard skills and music reading ability; Music or Music Education majors or Instructor permission only.

**MUL 119. Piano Proficiency II. 1 Credit.**

Functional piano skills for musicians. Scales, technique, harmonizing, sight reading, repertoire. Prerequisites: MUL 118 or equivalent determined by placement test; Music or Music Education majors or Instructor permission only.

**MUL 120. Piano Proficiency III. 1 Credit.**

Preparation for Piano Proficiency Exam. Scales, repertoire, sight reading, chordal accompaniment styles, score reading, transposing. Prerequisites: MUL 119 or equivalent determined by placement test; Music or Music Education majors or Instructor permission only.

**MUL 126. Accompanying. 1-2 Credits.**

Lessons in piano accompanying, taught by piano and instrumental/vocal faculty. Juried and/or public performance with soloist(s) required. Prerequisite: Instructor permission.

**MUL 133. Private Lessons: Music Minors. 1-2 Credits.**

Private instruction on an instrument/voice for Music minors. Subject to availability of staff. Lab fee required. May be repeated for credit. Prerequisites: Music minors; lesson audition required before enrollment confirmed.

**MUL 134. Private Lessons: Music Majors. 1 or 2 Credit.**

Private instruction on an instrument/voice for Music majors. Lab fee required. Juried examinations generally every semester of study. May be repeated for credit. Prerequisites: Music majors; successful completion of Level II Examination.

**MUL 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MUL 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MUL 196. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**MUL 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MUL 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MUL 234. Private Lessons: Music Majors. 1 or 2 Credit.**

Private instruction on an instrument/voice for Music majors. Lab fee required. Juried examinations every semester of study. May be repeated for credit. Prerequisites: Music majors; MUL 134; and successful completion of Level III Examination.

**MUL 250. Senior Recital. 1 Credit.**

The solo recital is the capstone performance experience for music majors. Repertoire for the recital will be chosen in consultation with the private lesson teacher and, where appropriate, the area head. Students should take MUL 234 concurrently. Prerequisites: Music or Music Education majors only; Students must have performed on at least four Student Performance Recitals before they are eligible for this course.

**MUL 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**MUL 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**MUL 296. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**MUL 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**MUL 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NATURAL RESOURCES (NR)****Courses****NR 001. Natural Hist & Human Ecology 1. 0 or 4 Credits.**

Integrates the science of ecology and the science of humans and society to understand the relationship between the natural landscape's effects on society and social organization, and society's effects on the natural landscape.

**NR 002. Natural Hist & Human Ecology 2. 0 or 4 Credits.**

Integrates the science of ecological sciences and the science of humans and society to understand the relationship between the natural landscape's effects on society and social organization, and society's effects on the natural landscape.

**NR 006. D1: Race & Culture in NR. 0 or 3 Credits.**

Introduces First-year students to issues of race and culture and their relevance to society, natural resources, and the environment.

**NR 009. SU:VT: Natural & Cultural Hst. 0 or 4 Credits.**

Introduction to the Vermont landscape that combines elements of natural history, field ecology, and environmental history. Students visit locations around the Champlain Valley as they build observational skills, study natural systems, and examine past and present human relationships with nature.

**NR 015. Ecology of Place. 1 Credit.**

Opportunities for first-time residents of GreenHouse Residential Learning Community to deepen their sense of place through participation in a diversity of environmental explorations.

**NR 016. Ecological Citizenship. 1 Credit.**

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.

**NR 021. Speaking and Listening. 2 Credits.**

Course aids students in learning to speak, listen and critique public speaking. Different delivery styles focus on relevant environmental and natural resource topics.

**NR 061. SU:Foundations of PBE. 3 Credits.**

Introduces the principles and practices of place-based education. Students learn to design place-based curriculum and educative materials from an interdisciplinary analysis of specific places. Cross-listed with: EDTE 061.

**NR 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NR 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NR 095. Introductory Special Topics. 1-18 Credits.**

Introductory topics in environmental and natural resource issues beyond the scope of exiting courses.

**NR 099. Aiken Scholars Seminar. 1 Credit.**

Seminar discussions on current environment issues. Guest speakers and field trips. Prerequisite: Open only to First-Year Aiken Scholars.

**NR 102. SU:Water as a Natural Resource. 3 Credits.**

Uses of water resources and impacts on aquatic systems and human society. Prerequisites: Minimum Sophomore standing.

**NR 103. Ecology, Ecosystems & Environ. 3 Credits.**

Major ecological concepts and their application. Analysis of form, structure, and function of organisms, populations, communities, ecosystems, and landscapes. Prerequisite: Minimum Sophomore standing; restricted to Ecological Agriculture, Environmental Science, Environmental Studies, Forestry, Natural Resources, Parks, Recreation & Tourism, and Wildlife and Fisheries Biology majors.

**NR 104. Social Proc & the Environment. 3 Credits.**

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: NR 002.

**NR 107. SU:Human Health & the Environmt. 3 Credits.**

Offers an introduction to environmental health. Topics include: methods (toxicology, epidemiology), environmental health hazards (physical, biological, chemical) and supports (nature contact), risk analysis, communication and management, health and climate change, food production and access, energy production, and water. Prerequisite: Sophomore standing. Cross-listed with: ENVS 107, HLTH 107.

**NR 137. Landscape Design Fundamentals. 4 Credits.**

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. Prerequisites: Junior standing; at least one course in drawing, design, or mapping, or Instructor permission. Cross-listed with: CDAE 137, ENVS 137, PSS 137.

**NR 140. Applied Environ Statistics. 0 or 4 Credits.**

Introduction to the design, application, interpretation and critical assessment of biostatistical analyses for natural resource applications. Concepts are applied through service learning partnerships. Prerequisite: Sophomore standing.

**NR 141. Intro to Ecological Economics. 3 Credits.**

Introduction to the study of economics as dependent on social and environmental systems and to transdisciplinary problem-solving using ecological economics. Prerequisite: Minimum Sophomore standing. Cross-listed with: ENVS 141.

**NR 143. Intro to Geog Info Systems. 0 or 3 Credits.**

Understanding and application of computer-based, geographically-referenced information systems. Prerequisite: Junior standing.

**NR 146. Remote Sensing of Natural Res. 3 Credits.**

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: Sophomore standing. Cross-listed with: FOR 146, GEOG 185.

**NR 153. Intro Environmental Policy. 3 Credits.**

Introduction to policy aspects of environment and natural resources including policy processes, public governance, and citizen participation with applications to environmental issues. Prerequisite: NR 104 or POLS 021. Cross-listed with: ENVS 142.

**NR 175. D2:Rural Lives in Global World. 3 Credits.**

Uses political economic development theory to explore the livelihoods of rural Costa Ricans on the Osa Peninsula, and the tension between external demands made by a global economy vs. their local capacity for self-determination and control of employment opportunities, cultural identity, and quality of life. Co-requisite: Enrollment in the Costa Rica Semester Abroad Program.



**NR 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NR 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NR 195. Intermediate Special Topics. 1-18 Credits.**

Special topics in natural resources beyond the scope of existing formal courses.

**NR 196. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NR 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**NR 199. Honors Seminar. 1 Credit.**

A discussion and readings seminar that features guest speakers, and is part of the SNR Spring Seminar Series. Focus of the seminars change annually. Can be repeated. Prerequisite: Sophomore standing; open only to SNR Honors Students.

**NR 205. SU:Ecosys Mgt:Intg Sci,Soc&Pol. 3 Credits.**

Integration of natural and social science to formulate solutions and policies to address some of our biggest environmental challenges. Consideration of ecological, social, and economic approaches, as well as human needs and values for environmental decision-making. Prerequisites: NR 103, NR 104.

**NR 206. Env Prob Sol & Impact Assessmt. 0 or 4 Credits.**

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: NR 205.

**NR 207. D1: Power, Privilege & Envrnmt. 1 Credit.**

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: Senior standing in Rubenstein School of Environment and Natural Resources.

**NR 220. Landscape Ecology. 3 Credits.**

The course examines the critical role of landscape pattern in determining ecological process and dynamics, as well as human-ecological interactions. Includes field labs. Prerequisites: NR 103 or BCOR 102; Senior/Graduate standing.

**NR 228. Ecosystems Ecology. 3 Credits.**

Examination of the structure and function of terrestrial ecosystems focusing on carbon and nutrient cycles. Laboratory sessions involve spatial modeling and data analysis. Prerequisites: NR 103, BCOR 102, PSS 161, or Graduate student standing. Cross-listed with: FOR 228.

**NR 242. Adv Geospatial Techniques. 1-3 Credits.**

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: NR 143, GEOG 184, NR 343, NR 146, NR 346, or GEOG 185.

**NR 243. GIS Practicum. 3 Credits.**

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

**NR 250. Limnology. 0 or 4 Credits.**

Ecology of lakes and reservoirs, including their origin, physics, chemistry and biology, and the effects of anthropogenic perturbations. Field and laboratory experience. Prerequisites: BIOL 001 and BIOL 002 or BCOR 011 and BCOR 012, and CHEM 023 and CHEM 026 or CHEM 031 and CHEM 032, and NR 103 or BCOR 102.

**NR 254. Adv Natural Resource Policy. 3 Credits.**

Advanced seminar in environmental and natural resource policy. Prerequisites: NR 153 or ENVS 142 or POLS 130 or Graduate standing.

**NR 264. SL:C Ross Env Pb Srv Practicum. 4-5 Credits.**

Creating proposals for modification and implementation of natural resource and environmental policy in Vermont with emphasis on critical thinking, problem solving and leadership. Prerequisites: NR 104 or POLS 021.

**NR 268. Soil Ecology. 0 or 4 Credits.**

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, Prerequisites: BCOR 102 or NR 103, and PSS 161. Cross-listed with: PSS 268.

**NR 277. Land Use Policy & Economics. 3 Credits.**

Economic and social forces that drive land use patterns and the policy mechanisms designed to intervene in those processes. Prerequisites: EC 012 or CDAE 061 or NR 141 or ENVS 141; Senior or Graduate standing or Instructor permission.

**NR 280. Stream Ecology. 0 or 4 Credits.**

Ecology of streams including hydrodynamics, morphology, sediment transport, chemistry, biology and human impacts. Field and laboratory experience. Prerequisites: BIOL 001 and BIOL 002 or BCOR 011 and BCOR 012, and CHEM 023 and CHEM 026 or CHEM 031 and CHEM 032, and NR 103 or BCOR 102.

**NR 288. Ecol Design & Living Technol. 3 Credits.**

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. Prerequisite: Junior standing.

**NR 289. Advanced Ecological Design. 3 Credits.**

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. Prerequisite: NR 288.

**NR 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NR 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NR 295. Advanced Special Topics. 1-18 Credits.**

Advanced special topics in natural resource planning beyond the scope of existing formal courses.

**NR 296. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member for which credit is awarded. Offered at department discretion.

**NR 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline for which credit is awarded. Offered at department discretion.

**NR 298. Honors 'Project' Planning. 2 Credits.**

Process, procedures, and strategies leading to the development of an individual or group Honors Project Proposal, to be submitted for review and approval. Prerequisite: Junior standing.

**NR 299. Honors. 1-6 Credits.**

Honors project dealing with aquatic resources, terrestrial ecology, or integrated natural resources.

**NEUROSCIENCE (NSCI)****Courses****NSCI 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NSCI 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NSCI 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**NSCI 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**NSCI 111. Exploring Neuroscience. 3 Credits.**

In-depth survey of neuroscience topics, including neuron function, the anatomical and functional organization of the nervous system, and diseases of the nervous system. Prerequisites: PSYS 001; CHEM 023 or CHEM 031; and one of the following: (BIOL 001 and BIOL 002) or (BCOR 011 and BCOR 012) or BCOR 021 or (ANPS 019 and ANPS 020).

**NSCI 112. Exploring Neurosci Laboratory. 1 Credit.**

Laboratory course in neuroscience designed to provide hands-on experience with methods of inquiry in neuroscience. Goals of this course include the development of problem-solving skills, data analysis, the scientific method, and science communication. Neuroscience majors only. Prerequisites: PSYS 001; CHEM 023 or CHEM 031; and one of the following: (BIOL 001 and BIOL 002) or (BCOR 011 and BCOR 012) or BCOR 021 or (ANPS 019 and ANPS 020).

**NSCI 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NSCI 192. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**NSCI 193. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NSCI 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**NSCI 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**NSCI 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NSCI 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NSCI 222. Cellular Neurophysiology. 3 Credits.**

Fundamentals of cellular neurophysiology through lecture, independent student reading and faculty-led group discussions of journal articles. Prerequisites: NSCI 110 or, NSCI 111 and NSCI 112, or Instructor Permission.

**NSCI 225. Human Neuroanatomy. 0 or 3 Credits.**

Functional anatomy of the human nervous system on both the microscopic and macroscopic scales. Focuses on the structures of the peripheral nervous system, spinal cord, and brain, and how they work together to achieve behavior. Lectures and a required laboratory (gross and microscopic anatomy). Prerequisite: NSCI 111.

**NSCI 230. Comparative Neurobiology. 3 Credits.**

Examination of the cellular mechanisms that underlie selective motor and sensory abilities, and unique behaviors that have evolved in various species. Discussion and student presentations. Prerequisite: ASCI 141 or BIOL 106 or NSCI 111 or PSYS 115 or Instructor permission.

**NSCI 255. Neuroregeneration. 3 Credits.**

Clinical neuroscience of injury and healing in the human nervous system, factors leading to different outcomes, and the impact of successful and failed repair on functional recovery. Explores cutting-edge approaches to treating neurological disease. Prerequisite: NSCI 111 or BIOL 261.

**NSCI 270. Diseases of the Nervous System. 3 Credits.**

Senior level, seminar-style 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.

**NSCI 280. Glia: Not Just Neuron Glue. 3 Credits.**

Interdisciplinary course in which students engage in a focused, in-depth exploration of how glial cells contribute to neurological and psychiatric disorders. Prerequisites: NSCI 111; Course director approval. Pre/Co-requisites: NSCI 111; Course Director permission.

**NSCI 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NSCI 292. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**NSCI 293. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NSCI 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**NSCI 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**NSCI 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team specific student, which occurs outside the traditional, for which credit is awarded. Offered at department discretion.

**NSCI 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NURSING & HEALTH SCIENCES (NH)****Courses****NH 050. App to Hlth: From Pers to Syst. 1 Credit.**

This course introduces students to a range of topics related to their chosen majors and future careers. Pre/co-requisite: First year College of Nursing and Health Sciences students.

**NH 051. Examining Inter-Prof Practice. 3 Credits.**

Examines 3 behaviors that lead to 4 conditions which lead to 50% of deaths in Vermont, while investigating the disproportionate impact on people of color. Students will build inter-professional practice skills like teamwork and communication through small group work and case studies.

**NH 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NH 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NH 095. Special Topics. 1-18 Credits.**

Introductory courses on health topics beyond the scope of department or college offerings. See Schedule of Courses for specific titles.

**NH 120. Health Care Ethics. 3 Credits.**

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.

**NH 180. D2: Social Justice and Sport. 3 Credits.**

A discourse in American sports culture which has long been a haven for the most unjust attitudes and ideas including sexism, racism, and homophobia will be juxtaposed with the strong history of athletes using their high-profile stage for social change. Prerequisite: Completion of any course meeting the D1 general education requirement.

**NH 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NH 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NH 195. Intermediate Special Topics. 1-18 Credits.**

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



**NH 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**NH 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NH 199. Honors College Thesis Preparat. 1-3 Credits.**

Supports College of Nursing and Health Sciences' Honors College students begin planning their thesis and developing a research literature review on a specific thesis topic. Prerequisites: Junior standing, College of Nursing and Health Sciences' Honors College student.

**NH 251. HC: Honors Project and Seminar. 1-4 Credits.**

All senior Honors College students are required to complete a senior project. This course will facilitate this project for CNHS students.

**NH 252. HC: Honors Project and Seminar. 1-4 Credits.**

This course facilitates the completion and second half of the Honors College project. All CNHS Honors College students must enroll in the NH 251-NH 252 sequence.

**NH 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NH 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NH 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**NH 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**NH 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## NURSING (NURS)

### Courses

**NURS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NURS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NURS 095. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**NURS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NURS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NURS 196. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**NURS 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**NURS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NURS 200. SU: Health and Sustainability. 3 Credits.**

Designed to introduce students to the concept of sustainability via the integration of basic environmental health science, and the associated environmental and/or health effects of today's modern day production and manufacturing techniques and practices. Prerequisites: Minimum Junior standing, Preference given to Alternate Track Nursing students.

**NURS 220. Pathophysiology. 3 Credits.**

Provides a comprehensive foundation in pathophysiology. The phenomena that result in dysfunction in human physiologic response will be examined. Prerequisites: ANPS 019, ANPS 020, MMG 065 or MMG 101. Co-requisite: PRNU 228.

**NURS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NURS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NURS 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**NURS 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**NURS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## NUTRITION AND FOOD SCIENCES (NFS)

### Courses

**NFS 020. Vtrim for Undergrads. 1 Credit.**

This course is designed to teach healthy eating, exercise and weight management behaviors to college students.

**NFS 033. What's Brewing in Food Science. 3 Credits.**

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.

**NFS 034. Servsafe Certification Course. 1 Credit.**

This course will prepare students for the ServSafe Certification Exam. The topics include food safety and proper food handling in a restaurant setting.

**NFS 043. Fundamentals of Nutrition. 3 Credits.**

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.

**NFS 044. Survey of the Field. 1 Credit.**

Nutrition and Food Sciences introduction to the professional field and career opportunities in dietetics, nutrition and food science. Required of all First-Year and transfer students. Fall. Prerequisite: Nutrition and Food Science majors and Dietetics, Nutrition and Food Science majors only, or Instructor permission.

**NFS 050. D2:Cheese and Culture. 3 Credits.**

The history of cheesemaking is used as a lens through which to view current conflicts in European and American attitudes towards foods.

**NFS 053. Basic Concepts of Foods. 3 Credits.**

Introduces the basic concepts of food central to the disciplines of nutrition, food science and food systems. Introduces these basic concepts in the same way as everyday Americans - through the process of meal preparation.

**NFS 063. D2:Obesity:What,Why,What to Do. 3 Credits.**

Introduction to the causes, consequences, and treatment of obesity. Fall.

**NFS 072. Kitchen Science. 3 Credits.**

Integrated lecture-lab course that explores the scientific concepts underlying why foods do what they do in the kitchen. Applications include topics such as ice cream, gluten, and molecular gastronomy. Labs and final project provide opportunities to design, conduct, and evaluate experiments investigating culinary phenomena.

**NFS 073. D2:SU:Farm to Table: Food Sys. 3 Credits.**

This course provides an introduction to the contemporary food system, focusing on the interdependence of all components, from farm to table.

**NFS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NFS 095. Special Topics. 1-18 Credits.**

Introductory level special topics courses.

**NFS 096. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**NFS 113. U.S. Food Policy and Politics. 3 Credits.**

Provides a systems perspective on U.S. food policies and politics across the food system. Focuses on understanding the U.S. food policy process, policymakers, stakeholders, issues, goals and feedbacks between food policy and politics. Prerequisites: NFS 073 or CDAE 002 or CDAE 004. Cross-listed with: FS 101.

**NFS 114. Human Health in the Food Syst. 3 Credits.**

Explores the multifaceted and evolving intersection of food systems, dietary quality, food availability and human health outcomes. Investigates how political, economic, social and cultural drivers in the food system influence human health outcomes. Prerequisites: NFS 043 or NFS 073. Cross-listed with: FS 103.

**NFS 143. Nutrition in the Life Cycle. 3 Credits.**

Nutritional needs of people throughout the life cycle. Physiological and environmental factors which affect nutritional status. Designed for Nutrition majors. Prerequisite: NFS 043. Fall.

**NFS 153. Principles of Food Technology. 3 Credits.**

Food processing technologies and underlining principles of changes in microbiological quality and safety, chemical composition and nutritional value, and interaction of functional additives and ingredients. Prerequisite: NFS 043, NFS 053; organic chemistry. Spring.

**NFS 154. Principles Food Technology Lab. 1 Credit.**

Experiential learning of principles of major modern food processing and preservation technologies, essential skills of food quality and safety assurance, and new product development. Prerequisite: NFS 153, or concurrent enrollment in NFS 153, organic chemistry; Department majors only.

**NFS 163. Sports Nutrition. 3 Credits.**

Timing and composition of meals for training and pre- and post-competition. Fall/Spring. Prerequisite: NFS 043 or Instructor permission.

**NFS 183. Introduction to Biochemistry. 3 Credits.**

Exploring biological processes at the molecular level and how they are controlled. Topics include enzymes, gene expression, and metabolism of carbohydrates and lipids. Restricted to Nutrition and Food Sciences and Dietetics, Nutrition and Food Sciences majors; others by Instructor permission. Prerequisites: CHEM 042; or CHEM 141 and CHEM 142; or other acceptable coursework in organic chemistry. Cross-listed with: PBIO 185.

**NFS 187. Intro to Biochemistry: Lab. 1 Credit.**

Introduction to techniques used to explore fundamental biochemistry concepts including enzyme kinetics, lipids, carbohydrate chemistry, and gene expression. Includes spectrophotometry, gel electrophoresis, and mass spectrometry. Pre/Co-requisites: PBIO 185, BIOC 201, or NFS 183. Cross-listed with: ASCI 187, PBIO 187.

**NFS 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**NFS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NFS 195. Intermediate Special Topics. 1-18 Credits.**

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Credits negotiable. Enrollment may be more than once, maximum of 12 hours in NFS 195 and NFS 295 combined. Prerequisite: Department permission.

**NFS 196. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Department permission.

**NFS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Department permission.

**NFS 203. Food Microbiology. 3 Credits.**

Desirable and undesirable activities of bacteria in foods. Mechanisms of food-borne infection and intoxication. Laboratory methods to enumerate and identify microorganisms associated with food. Prerequisite: NFS 153 or Instructor permission. Co-requisite: NFS 213.

**NFS 205. Functional Foods:Prncpl & Tech. 3 Credits.**

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

**NFS 213. Food Microbiology Lab. 1 Credit.**

Introduces microbiological techniques such as Gram Stain, Streak for Isolation, dilutions, aseptic technique as well as means of identifying the microbial content of food products. Prerequisites: NFS 153, NFS 154, or Instructor permission. Co-requisite: NFS 203.

**NFS 223. Nutrition Educ & Counseling. 3 Credits.**

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 Prerequisites: NFS 043, NFS 053, NFS 143.

**NFS 243. Advanced Nutrition. 3 Credits.**

Study of nutrients and their specific functions in metabolic process integrating cellular physiology, biochemistry, and nutrition. Prerequisites: NFS 043, ANPS 019, NFS 183 or PBIO 185; minimum Junior standing. Spring.

**NFS 244. Nutr in Hlth & Disease Prevntn. 3 Credits.**

Examination of dietary planning, nutrition assessment, genetics, drug-nutrient interactions, CAM therapies and nutrition related to health and prevention of disease. Pre/co-requisites: NFS 053, NFS 143; minimum Junior standing.

**NFS 250. Foodservice Systems. 4 Credits.**

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 060 or CDAE 158; BSAD 120; minimum Junior standing; Dietetics or Nutrition and Food Sciences, and Dietetics, Nutrition and Food Sciences majors only.

**NFS 253. Food Regulation. 3 Credits.**

Comprehensive examination of U.S. food laws and regulations and their relationships to the safety of the U.S. food supply. Focus on how food-related laws and regulations are enacted and enforced, through detailed examination of selected food regulation topics. Prerequisite: NFS 153 or equivalent course/training with Instructor permission.

**NFS 254. Global Food Safety. 3 Credits.**

An overview of food safety issues, policies, and opportunities around the globe, with a focus on bacterial, viral, and parasite-based food safety challenges. Prerequisites: NFS 113 or NFS 114; NFS 153 or MMG 002 or MMG 101.

**NFS 260. Diet and Disease. 3 Credits.**

Examination of the physiologic, biochemical, and psychosocial basis of several disease states and the application of medical nutrition therapy in treatment. Prerequisite: NFS 053, NFS 143, NFS 243; Senior standing.

**NFS 262. Community Nutrition. 3 Credits.**

Study of U.S. public health nutrition policies, programs and practices. Emphasis on community nutrition program planning including needs assessment, intervention development and evaluation. Prerequisite: Minimum Junior or Graduate standing. Spring.

**NFS 274. Community Practicum. 1-3 Credits.**

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 six credits. Prerequisite: Instructor permission.



**NFS 283. HACCP: Theory & Application. 3 Credits.**

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. Prerequisites: NFS 203 and Instructor permission.

**NFS 286. DNFS Senior Seminar. 1 Credit.**

Designed to help students through the process of identifying what they'd like to do with their dietetics degree after graduating from UVM, as well as prepare students to complete the required materials for future opportunities. Prerequisites: Dietetics, Nutrition and Food Sciences major; Senior standing.

**NFS 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**NFS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**NFS 295. Advanced Special Topics. 1-18 Credits.**

Lectures, laboratories, readings, or projects relating to contemporary areas of study. Credits negotiable. Enrollment may be more than once, maximum of twelve hours in NFS 195 and NFS 295 combined. Prerequisite: Department permission.

**NFS 296. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Departmental permission.

**NFS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**OBSTETRICS & GYNECOLOGY (OBGY)****Courses****OBGY 200. Understanding Human Pregnancy. 3 Credits.**

Healthy pregnancy outcome depends on a confluence of sexual, social and biological processes. Explores the female sexual response, how a child is conceived (or not), maternal gestational physiology and embryology, and medical management of common diseases. Prerequisite: ANPS 019 and ANPS 020, or ASCI 141, or BIOL 255 or Instructor permission.

**OBGY 295. Advanced Special Topics. 1-12 Credits.**

Lectures, readings and discussion for advanced students within areas of expertise of faculty and staff. Prerequisite: Permission of the Instructor.

**ORTHOPEDIC SURGERY (ORTH)****Courses****ORTH 291. Rsch in Orth & Rehab. 3 Credits.**

Work on research problem under the direction of a faculty member. Review of literature, preparation of manuscript. Prerequisite: Instructor Permission. In collaboration with clinical faculty of the Department.

**ORTH 292. Special Topics. 3 Credits.**

Work on research problem under the direction of a faculty member. Review of literature, preparation of manuscript. Prerequisite: Instructor Permission. In collaboration with clinical faculty of the Department.

**ORTH 293. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**OVERSEAS STUDY PROGRAM (OSSP)****Courses****OSSP 000. External to UVM. 0-12 Credits.****OSSP 001. ISEP/UVM Exchange. 12 Credits.****OSSP 002. UVM Exchange. 12 Credits.****OSSP 003. UVM Semester. 0 Credits.****OSSP 004. UVM Exchange. 12 Credits.****PARKS, RECREATION AND TOURISM (PRT)****Courses****PRT 010. Intr Sustainable Rec & Tourism. 3 Credits.**

Introduces students to the field of sustainable recreation and tourism that is economically viable, socially inclusive, and environmentally responsible. Explores how recreation and tourism provides positive leisure experiences that contribute to individual well-being, vibrant livable communities, and healthy natural environments.

**PRT 050. Tourism Planning. 3 Credits.**

Examination of tourism including its economic, environmental, and social effects. Emphasis on planning to maintain the integrity of tourist regions.

**PRT 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PRT 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PRT 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific title.

**PRT 138. Landsc. Arch for Parks & Rec. 0-4 Credits.**

Recreation design methodology applied to the design of public and private recreational facilities.

**PRT 149. Wilderness Educ & Leadership. 3 Credits.**

Provides an understanding of the history, global evolution, current issues, leadership skills, ethics and future trends in WEL; skill mastery in 'hard skills'; and places these skills in a professional context.

Prerequisite: ENVS 001 or NR 001.

**PRT 157. Ski Area Management. 0-4 Credits.**

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 standing.

**PRT 158. Resort Mgmt & Marketing. 3 Credits.**

Study of the management of year-round resort facilities. Emphasis on resort marketing, internal support functions, and associated recreational facilities. Prerequisite: Junior standing.

**PRT 188. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific title. Prerequisite: Junior standing, Instructor permission.

**PRT 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PRT 191. Parks, Rec & Tourism Practicum. 1-3 Credits.**

Supervised field experience with public, national, state, urban/suburban entities (for example: national or state parks, community recreation and similar); or private parks, recreation, tourism, hospitality enterprises. Prerequisites: Junior standing; Parks, Recreation and Tourism major or minor.

**PRT 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PRT 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PRT 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PRT 230. Ecotourism. 3 Credits.**

Study of nature-based travel emphasizing international destinations. Examination of ecotourism as a tool for preservation and economic development. Prerequisite: Minimum Junior standing.

**PRT 235. Outdoor Recreation Planning. 3 Credits.**

Planning large land areas for outdoor recreation use. Emphasis on the planning process relative to the leisure time use of natural resources. Prerequisites: Junior standing; Parks, Recreation and Tourism major or minor.

**PRT 240. Park and Wilderness Management. 3 Credits.**

History, philosophy, and management of wilderness, national parks, and related areas. Prerequisites: Junior standing; Parks, Recreation and Tourism major or minor.

**PRT 255. Environmental Interpretation. 3 Credits.**

Philosophy, principles, and techniques of communicating environmental values, natural history processes, and cultural features to recreation visitors through the use of interpretive media. Prerequisites: Junior standing; Parks, Recreation and Tourism major or minor.

**PRT 258. Entrepreneurship Rec&Tourism. 3 Credits.**

Study of entrepreneurial theories, concepts, and practices and their application to recreation and tourism. Emphasis on preparation of individual business plans. Prerequisites: Junior standing; Parks, Recreation and Tourism major or minor.

**PRT 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PRT 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PRT 296. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific title.

**PRT 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline for which credit is awarded. Offered at department discretion.

**PRT 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PRT 299. Parks, Rec and Tourism Honors. 1-6 Credits.**

Honors project dealing with management of outdoor recreation and tourism. See program chair.

**PATHOLOGY (PATH)****Courses****PATH 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PATH 092. Independent Study. 1-18 Credits.****PATH 095. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**PATH 101. Intro to Human Disease. 3 Credits.**

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: ANPS 019 and ANPS 020.

**PATH 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PATH 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PATH 195. Special Topics. 1-18 Credits.****PATH 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PATH 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PATH 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PATH 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PATH 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PATH 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PATH 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## PHARMACOLOGY (PHRM)

### Courses

**PHRM 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PHRM 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PHRM 096. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**PHRM 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PHRM 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PHRM 193. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PHRM 196. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**PHRM 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PHRM 200. Medical Cannabis. 3 Credits.**

An introduction to the pharmacology underlying recreational and medicinal uses of Cannabis. Focuses on Cannabis taxonomy, chemistry of cannabinoids, physiological effects, and emerging therapeutic applications. Discusses historical, political and socio-economic influences on medical marijuana legislation. Prerequisite: BCOR 103, NSCI 110, NSCI 111 or PHRM 201, or Instructor permission.

**PHRM 201. Introduction to Pharmacology. 3 Credits.**

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

**PHRM 240. Molecules & Medicine. 3 Credits.**

This course conveys an understanding about drug design and the molecular mechanisms by which drugs act in the body. It highlights the importance of medicinal chemistry as it overlaps with the disciplines of chemistry, biochemistry, microbiology, cell biology, and pharmacology. Prerequisites: Intro to Organic Chemistry, Intro to Biology; Permission.

**PHRM 272. Toxicology. 3 Credits.**

This course is intended to provide an understanding of the chemical, biochemical and physiological factors that determine the pathological effects of chemicals in living systems. Prerequisites: Organic chemistry, background in Biology, or Instructor permission.



**PHRM 290. Topics Molecular&Cell Pharm. 3 Credits.**

Focuses on basic principles, drug interactions with receptors, membranes, synapses, neurotransmitters, macromoles, cytoskeleton, ion channels and pumps, and mechanisms of drug resistance. Prerequisite: Introductory course in organic chemistry, background in physiology or health sciences.

**PHRM 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PHRM 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PHRM 293. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PHRM 296. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**PHRM 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Prerequisite: PHRM 201. Offered at department discretion.

**PHILOSOPHY (PHIL)****Courses****PHIL 010. Introduction to Philosophy. 3 Credits.**

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.

**PHIL 013. QR: Introduction to Logic. 3 Credits.**

Study of the basic principles of deductive inference.

**PHIL 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PHIL 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PHIL 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PHIL 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PHIL 101. History of Ancient Philosophy. 3 Credits.**

Study of the works of the Pre-Socratics, Plato, Aristotle, and their successors. Prerequisite: One course in Philosophy.

**PHIL 102. History of Modern Philosophy. 3 Credits.**

Study of works of the major philosophers of the 17th and 18th centuries: Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, Kant, and others. Prerequisite: One course in Philosophy.

**PHIL 108. The Divine Plato. 3 Credits.**

A survey of Plato's works, including the 'early,' 'middle,' and parts of the late' dialogues. Emphasis will be laid on reading the dialogues themselves. Prerequisite: One course in Philosophy or in Classics (Greek culture or Greek). Cross-listed with: CLAS 161.

**PHIL 111. Philosophy of Mind. 3 Credits.**

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. Prerequisite: One course in Philosophy.

**PHIL 112. Philosophy of Science. 3 Credits.**

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.

**PHIL 113. Intermediate Logic. 3 Credits.**

Study of philosophically interesting systems of symbolic logic and their applications. Prerequisite: PHIL 013.

**PHIL 114. Philosophy of Action. 3 Credits.**

Study of the nature of actions and agency. Prerequisite: One course in Philosophy.

**PHIL 115. Free Will. 3 Credits.**

Study of the nature of the will, what it means for the will to be free or unfree, the value of free will, and the relationship between free will and our social practices and institutions. Prerequisite: One course in Philosophy.

**PHIL 117. Philosophy of Language. 3 Credits.**

Study of central problems concerning the nature of language and linguistic representation. Prerequisite: One course in Philosophy. PHIL 013 recommended.

**PHIL 118. Metaphysics. 3 Credits.**

A study of such topics as vagueness, the nature of time, persistence of objects and people through change and whether numbers or properties exist. Prerequisite: One course in Philosophy.

**PHIL 119. Epistemology. 3 Credits.**

Study of the nature of knowledge and justification for our beliefs. Prerequisite: One course in Philosophy.

**PHIL 121. D2: Chinese Philosophy I. 3 Credits.**

Study of the Classical Schools of Chinese thought, including Confucianism, Taoism, Mohism, and Legalism. Prerequisite: One course in Philosophy, Religion, or Asian Studies.

**PHIL 142. Philosophy of Law. 3 Credits.**

Analysis of the nature of law, the relation between law and morality, legal obligation, and the judicial decision. Prerequisite: One course in Philosophy or POLS 041.

**PHIL 145. Killing Things. 3 Credits.**

It is sometimes morally permissible to kill things: you can kill a mosquito biting you, for example. What else is permissible to kill? When? Prerequisite: One course in Philosophy.

**PHIL 170. Feminism:Theories and Issues. 3 Credits.**

Theories of libertarianism, liberalism, and egalitarianism; application to the analysis and evaluation of social issues of contemporary interest, such as abortion and affirmative action. Prerequisite: One course in Philosophy. Cross-listed with: GSWS 120.

**PHIL 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PHIL 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PHIL 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PHIL 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PHIL 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PHIL 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PHIL 205. Seminar:Maj Phil Author/School. 3 Credits.**

Study of major philosophical texts by a single author or school of thought. May be repeated for credit with different content. Prerequisite: One course in Philosophy at the 100-level.

**PHIL 206. Emotions. 3 Credits.**

Study of the nature of emotions and related philosophical issues. Prerequisite: One course in Philosophy at the 100-level.

**PHIL 212. Philosophy of Science. 3 Credits.**

Study in depth of philosophical problems concerning the practices and methods of sciences, the confirmation and interpretation of scientific theories, and the natures of the objects of study of the sciences. May be repeated for credit with different content. Prerequisite: One course in Philosophy at the 100-level.

**PHIL 218. Metaphysics:Advanced Topics. 3 Credits.**

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. May be repeated for credit with different content. Prerequisite: One course in Philosophy at the 100-level.

**PHIL 219. Epistemology:Advanced Topics. 3 Credits.**

In-depth study of select topics concerning theories of knowledge and related concepts such as belief, truth, rationality, evidence, perception, and memory. May be repeated for credit with different content. Prerequisite: One course in Philosophy at the 100-level.

**PHIL 221. D2: Topics in Chinese Phil. 3 Credits.**

Detailed examination of a classical Chinese philosophical text or school. Prerequisite: PHIL 121.

**PHIL 235. Topics in Phil of Religion. 3 Credits.**

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 with different content. Prerequisite: PHIL 101, PHIL 102.

**PHIL 240. Contemporary Ethical Theory. 3 Credits.**

In-depth study of metaethics, emphasizing recent work. Topics include moral objectivity, moral language, moral epistemology, and the relationship between morality and reasons. May be repeated for credit with different content. Prerequisite: One course in Philosophy at the 100-level.

**PHIL 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PHIL 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PHIL 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PHIL 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PHIL 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: an appropriate 200-level course in Philosophy.

**PHIL 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: an appropriate 200-level course in Philosophy.

**PHYSICAL EDUCATION (PEAC)**

## Courses

**PEAC 000. Varsity Sports. 1 Credit.**

**PEAC 005. Club Sports. 1 Credit.**

**PEAC 012. Introduction to Yoga 1-2. 1 Credit.**

Focus on teaching the foundational principles of yoga in a safe, fun, and non-competitive environment. The emphasis will be on building body awareness, connecting movement and breath, alignment and exploration.

**PEAC 017. Military Fitness. 1 Credit.**

Vigorous workout three days a week designed to build both upper body strength and aerobic ability. Classroom participation and a final Army Physical Fitness Test determine student grades. Open to all First-Year/ Sophomore students. Fall/Spring.

**PEAC 018. Rock Climbing. 1 Credit.**

Basic climbing techniques and holds are taught. Additionally, students learn how to belay and become familiar with climbing etiquette and safety practices.

**PEAC 027. Group Fitness. 1 Credit.**

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.

**PEAC 029. Cycling & Heart Rate Training. 1 Credit.**

**PEAC 039. Swim for Fitness. 1 Credit.**

**PEAC 041. Lifeguard Training. 1 Credit.**

**PEAC 044. Restorative Yoga. 1 Credit.**

**PEAC 045. Intermediate Sailing. 0.5-1 Credits.**

**PEAC 047. Scuba. 1 Credit.**

**PEAC 049. Learn to Sail. 0.5-1 Credits.**

**PEAC 052. Yoga & Mindfulness. 1 Credit.**

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.

**PEAC 069. Introduction to Meditation. 1 Credit.**

Guides students through an exploration of a variety of meditation styles and techniques. Reflection on these practices to identify the best style for personal use.

**PEAC 073. Martial Arts: Aikido. 1 Credit.**

Basic Aikido techniques, such as throws and immobilizing holds, are taught in this martial art that emphasizes leverage and circular movements as defensive techniques.

**PEAC 074. Kickboxing for Self-Defense. 1 Credit.**

**PEAC 076. Taekwondo. 1 Credit.**

The basic techniques of the Korean martial art Tae Kwon Do. TKD utilizes dynamic kicking skills used primarily as a means of self-defense. Also teaches the punches, strikes, and blocks of this system through basic patterns.

**PEAC 082. Adv Kickboxing Self-Defense. 1 Credit.**

Advanced techniques of competitive kickboxing and the development of a more specific set of skills while adding elements from a variety of martial arts. Attention will be focused on development of power and movement through repetition building a proficiency in self-defense.

**PEAC 083. Brazilian Jiu Jitsu 1-2. 1 Credit.**

Brazilian Jiu-Jitsu is a grappling-based martial art and sport. Teaches beginners the basic techniques and concepts of BJJ for use in both sport and self-defense scenarios. Designed for beginners with minimal grappling experience and exposure.

**PEAC 084. Group Training. 1 Credit.**

Group Training offers the social dimensions of a team with the accountability and attention of personal training for a two-part fitness regime (cycling & strength). Students will utilize heart rate technology to learn about training zones for different fitness goals.

**PEAC 090. Personal Fitness. 1 Credit.**

Provides students with the opportunity to promote their personal health and wellness through participation in the Campus Recreation offerings. Self-paced and includes student reflection on establishing fitness goals, regular work routine, and identifying strategies to overcome challenges.

**PEAC 094. Squash 1-4. 1 Credit.**

Concentrates on learning the basics of squash. Includes learning the major shots, the rules and positioning in the court. Students will play and concentrate on soft and hard ball squash.

**PEAC 103. Yoga & Ayurveda. 1 Credit.**

**PEAC 115. Yoga & the Chakras. 1 Credit.**

Explores the chakras, yogic anatomy, and a comprehensive yoga practice to increase awareness and foster overall health and well-being. Practice will include Hatha and Kundalini Yoga to include asanas, pranayama, bhandas, mantra, and meditation.

**PEAC 116. Yoga Teacher Training. 1 Credit.**

Yoga teacher training.

**PEAC 119. Juggling & Circus Games. 1 Credit.**

An all-levels juggling fundamentals course designed to promote fitness and as an introduction to a greater circus education.

**PEAC 151. Hip Hop Dance 1-2. 1 Credit.**

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.

**PEAC 199. Physical Education Activities. 0.5-1 Credits.**

## PHYSICAL EDUCATION-PROF (EDPE)

### Courses

**EDPE 023. Amer Red Cross Emergency Resp. 3 Credits.**

To meet the needs of individuals who are in a position to provide first aid and emergency care frequently. Red Cross certification for successful performance in Advanced First Aid Emergency Care. Prerequisite: PE, HDS, and Health majors; others by Instructor permission.



**EDPE 024. Student Athlete Development. 1 Credit.**

This course provides students with skills training for academic and athletic success, leadership development, alcohol education and prevention, and moral reasoning and decision-making.

**EDPE 055. Special Topics I. 1-6 Credits.****EDPE 091. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDPE 094. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDPE 101. Intro to Sports Management. 3 Credits.**

Examination and analysis of contemporary issues and trends in sports management, physical education and athletics. Prerequisite: Minimum Sophomore standing.

**EDPE 104. Phys Educ Teaching Experience. 0 or 4 Credits.**

Experience-based course sequence emphasizing relationship of motor development to learning. Includes age level needs and appropriate physical education activity sequences. First semester: grades K-3; second semester (EDPE 105); grades 4-6. Prerequisite: Physical Education major.

**EDPE 105. Phys Educ Teaching Experience. 0 or 4 Credits.**

Experience-based course sequence emphasizing relationship of motor development to learning. Includes age level needs and appropriate physical education activity sequences. First semester: grades K-3; second semester (EDPE 105); grades 4-6. Prerequisite: Physical Education major.

**EDPE 119. Careers in College Athletics. 3 Credits.**

Provides an overview of how students can apply their experiences and skills in the professional world of collegiate athletics. Students will learn about different careers and have the opportunity to discover relative coursework, internship experiences, networking skills, and resume development.

**EDPE 155. Phys Educ in Secondary Schl. 0 or 4 Credits.**

Theories of teaching which include unit plan development, classification and grouping of students for instruction, and a variety of teaching methods. Laboratory experience in teaching activity skills to youth aged 12-18. Prerequisites: Prerequisite: Physical Education major.

**EDPE 166. Kinesiology. 3 Credits.**

Designed for the teacher/coach to analyze factors of peak physical performance. Muscle actions, mechanical principles, related factors enhancing movement are emphasized. Prerequisites: One year of biological science; PE majors; coaching minors; Sports Nutrition; others by Instructor permission.

**EDPE 167. Exercise Physiology. 0 or 4 Credits.**

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 permission.

**EDPE 173. Practicum in Field Experience. 1-4 Credits.**

Individually prescribed teaching experience involving work with youth groups in activities related to physical education, health, or recreation. Responsibilities approximate those commonly associated with student teaching. Prerequisites: EDPE 104, EDPE 105, or EDPE 155; Instructor permission.

**EDPE 181. Student Teaching. 3-12 Credits.**

Teaching in elementary or secondary schools under guidance of cooperating teachers, principals and college supervisors. A full-time, full semester, 12-credit experience. Prerequisites: Acceptance into the teacher education program; must meet criteria for student teaching. Variable credit, three to twelve hours.

**EDPE 182. Student Teaching Seminar. 2 Credits.**

Provides students opportunities to discuss, process, give and receive input and to receive materials to support and enhance their experience, and develop licensure portfolio. Prerequisite: Concurrent with EDPE 181.

**EDPE 191. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDPE 194. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDPE 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDPE 198. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDPE 200. Contemporary Issues. 1-6 Credits.**

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

**EDPE 220. Sport in Society. 3 Credits.**

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.

**EDPE 230. Philosophy of Coaching. 3 Credits.**

In-depth study of over 100 major philosophical coaching considerations. Lectures by visiting coaches. Study in areas of need and interest. Prerequisite: Junior standing. Undergraduate only.

**EDPE 241. Sem in Phys Educ & Athletics. 2-4 Credits.**

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.

**EDPE 265. Exercise & Sport Science. 3 Credits.**

Discussion and integration of topics related to exercise physiology, kinesiology, motor learning, and sociocultural aspects of sport. Prerequisites: EDPE 166, EDPE 167, EDPE 220, EDPE 240; Senior standing; or Instructor permission.

**EDPE 267. Sci Strength Training&Condtnng. 3 Credits.**

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

**EDPE 291. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDPE 294. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDPE 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDPE 298. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

## PHYSICS (PHYS)

### Courses

**PHYS 009. SU: Energy and the Environment. 3 Credits.**

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.

**PHYS 011. Elementary Physics. 0 or 4 Credits.**

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.

**PHYS 012. Elementary Physics. 0 or 4 Credits.**

Algebra-based survey of electricity, magnetism, optics and modern physics. Appropriate for students in health and life sciences. Accompanying lab: PHYS 022. Prerequisites: PHYS 011 or PHYS 031 or PHYS 051.

**PHYS 013. Conceptual Physics. 3 Credits.**

One-semester conceptual survey. Topics selected from mechanics, electricity, magnetism and modern physics. For students in the College of Nursing and Health Sciences only.

**PHYS 021. Introductory Lab I. 1 Credit.**

Accompanying lecture PHYS 011. Prerequisite: Concurrent enrollment or credit in PHYS 011.

**PHYS 022. Introductory Lab II. 1 Credit.**

Accompanying lecture PHYS 012. Prerequisite: Concurrent enrollment or credit in PHYS 012.

**PHYS 030. Physics Problem Solving I. 1 Credit.**

Problem-solving techniques for first semester Physics with calculus. Accompanying lecture PHYS 031.

**PHYS 031. Physics for Engineers I. 0 or 4 Credits.**

Mechanics including oscillations and waves. With lab. Accompanying optional problem-solving session: PHYS 030. Prerequisite: MATH 021 or MATH 023.

**PHYS 044. The Physics of Music. 3 Credits.**

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. Prerequisite: High school algebra.

**PHYS 051. Fundamentals of Physics I. 0 or 4 Credits.**

Calculus-based introduction to kinematics, dynamics, oscillations, thermal physics. For students in the natural sciences. With lab. Credit not given for both PHYS 051 and PHYS 031. Pre/co-requisite: Credit or concurrent enrollment in MATH 021.

**PHYS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PHYS 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PHYS 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PHYS 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PHYS 123. Physics Problem Solving II. 1 Credit.**

Problem-solving techniques for second semester Physics with calculus. Accompanying lecture PHYS 125.

**PHYS 125. Physics for Engineers II. 0 or 3 Credits.**

Electricity, magnetism, electromagnetic waves, optics. Without lab. Accompanying optional problem-solving session: PHYS 123. Prerequisites: PHYS 031 and MATH 022 or MATH 023; concurrent enrollment in MATH 121.

**PHYS 128. Waves and Quanta. 0-4 Credits.**

Classical and electromagnetic waves, relativity, wave-particle phenomenology, wave mechanics, and applications of the Schrodinger equation. With laboratory. Prerequisites: PHYS 152 or PHYS 125. Co-requisite: MATH 121.

**PHYS 152. Fundamentals of Physics II. 0 or 4 Credits.**

Calculus-based introduction to electricity, magnetism and optics. For students in the natural sciences. With lab. Credit not given for both PHYS 125 and PHYS 152. Prerequisites: PHYS 031 or PHYS 051, credit or concurrent enrollment in MATH 022.

**PHYS 175. Topics in Modern Physics. 1-3 Credits.**

Research seminar that exposes Physics majors to modern research topics in physics. The course will be offered every semester by different faculty to maintain engagement with students. Prerequisites: PHYS 128, Physics majors, Instructor permission.

**PHYS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PHYS 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PHYS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: PHYS 128; Department permission.

**PHYS 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: PHYS 128; Department permission.

**PHYS 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: PHYS 128; Department permission.

**PHYS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: PHYS 128; Department permission.

**PHYS 199. Experimental Physics I. 3 Credits.**

Classic physics experiments with a strong emphasis on experimental setup, data collection and analysis, error estimation, and writing/presentation of results. The laboratory work is centered around three experiments: Poisson statistics, Cavendish balance, and Kater pendulum. Prerequisite: PHYS 152 or PHYS 125.

**PHYS 202. Experimental Physics II. 3 Credits.**

Experiments in classical and modern physics. Prerequisites: PHYS 128; MATH 121; Junior standing.

**PHYS 211. Classical Mechanics. 3 Credits.**

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.

**PHYS 213. Electricity & Magnetism. 3 Credits.**

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 or PHYS 125 and MATH 121. Credit not given for more than one of PHYS 213 or EE 141.

**PHYS 214. Electromagnetism. 3 Credits.**

Introduction to time dependent electromagnetic fields. Maxwell's equations in vacuum and in matter. Electromagnetic waves and radiation. Prerequisite: PHYS 213. Credit not given for more than one of PHYS 214 or EE 241.

**PHYS 222. Biological Physics. 3 Credits.**

Physical laws, processes, and interactions pertaining to biological systems. Prerequisites: PHYS 012 or PHYS 152, MATH 121.

**PHYS 242. Intro to Solid State Physics. 3 Credits.**

Introduction to crystal structures, reciprocal lattices, lattice vibrations. Thermal properties of solids and free electron theory of metals and semiconductors. Elementary band theory and introduction to electronic transport theory. Prerequisite: PHYS 128.

**PHYS 256. Computational Physics. 3 Credits.**

Introduction to modern computational techniques focusing on the simulation or solution of the behavior of physical systems. Examples will be drawn from classical, statistical, and quantum mechanics, electromagnetism, and chaos. Prerequisites: PHYS 125 or PHYS 152; MATH 121.

**PHYS 264. Nuclear & Elem Particle Physic. 3 Credits.**

Introduction to theoretical and experimental aspects of nuclear and elementary particle physics. Prerequisite: PHYS 128; Junior standing.

**PHYS 265. Thermal & Statistical Physics. 3 Credits.**

Thermodynamics, kinetic theory, statistical mechanics. Prerequisites: PHYS 152 or PHYS 125 and MATH 121.

**PHYS 273. Quantum Mechanics I. 3 Credits.**

Introduction to nonrelativistic quantum mechanics. Schrodinger equation and applications to simple systems. Prerequisite: PHYS 128, PHYS 211.

**PHYS 274. Applctns of Quantum Mechanics. 3 Credits.**

Applications of Quantum Mechanics including Quantum Statistical Mechanics, Time-Independent and Time-Dependent Perturbation Theory, WKB Approximation, Variational Principle and Scattering. Prerequisite: PHYS 273.

**PHYS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PHYS 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PHYS 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PHYS 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PHYS 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.



**PHYS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PLANT BIOLOGY (PBIO)****Courses****PBIO 004. SU: Intro to Botany. 0 or 4 Credits.**

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 004 and BIOL 001.

**PBIO 006. SU: The Green World. 3 Credits.**

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 006 as part of program distribution requirements.

**PBIO 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PBIO 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PBIO 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PBIO 104. Plant Physiology. 0 or 4 Credits.**

Study of the plant as a whole, growth and development, water and mineral relations, environmental factors, and regulatory processes. Prerequisites: BCOR 011 and BCOR 012, or BIOL 001 and BIOL 002, or BCOR 021; and CHEM 031 and CHEM 032, or CHEM 023 and CHEM 026, or CHEM 031 and CHEM 026; or Instructor permission.

**PBIO 108. Morph & Evo of Vascular Plants. 0 or 4 Credits.**

Evolutionary relationships of vascular plants as inferred from plant structure, ecology, geography, and reproductive biology. Synthesis includes both fossil and extant groups. Prerequisites: PBIO 004 or BIOL 002 or BCOR 012 or BCOR 021 or Instructor permission. Alternate years.

**PBIO 109. Plant Systematics. 0 or 4 Credits.**

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. Prerequisites: PBIO 004 or BIOL 002 or BCOR 012 or BCOR 021 or Instructor permission.

**PBIO 117. Plant Pathology. 0 or 4 Credits.**

Introduction to the causes of plant disease including the relationship of the plant, pathogen, and environment in disease development and disease management. Prerequisites: PBIO 004, or BIOL 001 and BIOL 002, or BCOR 011 and BCOR 012, or BCOR 021, or Instructor permission. Cross-listed with: PSS 117. Alternate years.

**PBIO 133. SU:How Plants Can Save World. 3 Credits.**

The overarching course question is the following: How can plants be used to design sustainable solutions to problems resulting from existing, unsustainable practices in agriculture, energy, and health? Prerequisites: BIOL 001 and BIOL 002, or BCOR 011 and BCOR 012, or PBIO 004, or PBIO 006.

**PBIO 151. Plant Anatomy. 3 Credits.**

Introduction to the structural and developmental anatomy of roots, stems, and leaves, including basic tissue types, vascular anatomy, woody plant anatomy, and reproductive anatomy. Prerequisites: BIOL 001 or BCOR 011 or BCOR 021.

**PBIO 177. Biology of Fungi. 4 Credits.**

Collect, identify and study major fungal groups, especially basidiomycetes (mushrooms, rusts and smuts), ascomycetes (cup fungi, yeasts and mildews), and affiliated taxa. Extensive field and lab work, with thematic lectures. Prerequisite: PBIO 004 or BIOL 002 or BCOR 12 or BCOR 021 or Instructor permission.

**PBIO 185. Introduction to Biochemistry. 3 Credits.**

Exploring biological processes at the molecular level and how they are controlled. Topics include enzymes, gene expression, and metabolism of carbohydrates and lipids. Restricted to Nutrition and Food Sciences and Dietetics, Nutrition and Food Sciences majors; others by Instructor permission. Prerequisite: CHEM 042; or CHEM 141 and CHEM 142; or other acceptable coursework in organic chemistry. Cross-listed with: NFS 183.

**PBIO 187. Intro to Biochemistry: Lab. 1 Credit.**

Introduction to techniques used to explore fundamental biochemical concepts including enzyme kinetics, lipids, carbohydrate chemistry, and gene expression. Includes spectrophotometry, gel electrophoresis, and mass spectrometry. Pre/co-requisite: PBIO 185, BIOC 201, or NFS 183. Cross-listed with: ASCI 187, NFS 187.

**PBIO 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PBIO 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PBIO 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PBIO 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PBIO 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Department permission.

**PBIO 209. Biology of Ferns. 3 Credits.**

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: PBIO 108 or PBIO 109 (BCOR 101 recommended). Alternate years.

**PBIO 223. Fundamentals of Field Science. 3 Credits.**

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.

**PBIO 232. Plant Systematics in Costa Rica. 2 Credits.**

Intensive field trip to Costa Rica with the goal of comparing the diversity of flowering plants and ferns in four distinct tropical American forests. Emphasis on field recognition of flowering-plant families, with an appreciation of the relationship between the Costa Rican people and their landscape. Prerequisites: PBIO 109; Instructor permission.

**PBIO 241. Tropical Plant Systematics. 3 Credits.**

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

**PBIO 261. Plant Growth & Development. 3 Credits.**

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

**PBIO 281. Botany Seminar. 0 Credits.**

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.

**PBIO 282. Botany Seminar. 0 Credits.**

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.

**PBIO 288. The Evolution of Development. 3 Credits.**

Highlights how the integration of key concepts from developmental biology has contributed to our understanding of the proximate causes of plant and animal diversification. Prerequisite: BCOR 102 or equivalent, BCOR 101 or equivalent.

**PBIO 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PBIO 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PBIO 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PBIO 294. Ecological Modeling. 3 Credits.**

Provide an introduction to the modeling of ecological processes and data, emphasizing likelihood and Bayesian approaches to data modeling and analytical and computational models of ecological process. Uses R, Python, and Wolfram programming languages. Prerequisite: BCOR 102 or Instructor permission.

**PBIO 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PBIO 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Department permission.

**PLANT & SOIL SCIENCE (PSS)****Courses****PSS 010. Home & Garden Horticulture. 3 Credits.**

Planning, selecting, and maintaining shrubs, trees, flowers, lawns, fruits, and vegetables around the home. Suitable for students in any major.

**PSS 015. Home & Garden Horticulture Lab. 1 Credit.**

This lab provides practical, hands-on horticultural skills both in and around the home. Co-requisite: PSS 010.

**PSS 021. SU: Intro to Agroecology. 3 Credits.**

Analyzes factors driving current agricultural production systems, the problems associated with the industrial agriculture model, and the variety of approaches and practices for producing food in an ecologically sound and socially just manner.

**PSS 028. A Bug's Life. 3 Credits.**

An introduction to the world of insects and their impact on our everyday lives, from the food we eat to solving murder crimes.

**PSS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PSS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PSS 095. Introductory Special Topics. 1-18 Credits.**

Courses or seminars on topics beyond the scope of existing department offerings.

**PSS 096. Special Topics. 1-18 Credits.**

Courses or seminars on topics beyond the scope of existing department offerings.

**PSS 106. Entomology & Pest Mgmt. 0 or 4 Credits.**

Covers basic entomology, insect diversity and identification, and the basic principles of pest management. Prerequisites: BIOL 001 and BIOL 002, or BCOR 011 and BCOR 012.

**PSS 112. Weed Ecology & Management. 0 or 3 Credits.**

Identification, ecology, and management of weeds and other invasive plants in agriculture, urban/suburban landscapes, and natural areas. Prerequisites: PSS 010 or PSS 021, or PBIO 004, or Instructor permission.

**PSS 117. Plant Pathology. 4 Credits.**

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 004, or BIOL 001 and BIOL 002, or BCOR 011 and BCOR 012 or Instructor permission. Cross-listed with: PBIO 117. Alternate years.

**PSS 120. Cold Climate Viticulture. 3 Credits.**

Students will learn principles and practices of commercial cold-climate grape production, including: site selection and preparation; cold hardiness development; varietal selection; vine training and trellising systems; nutrient, water and pest management; harvest and postharvest considerations, including basic winemaking principles. Prerequisites: PSS 010 or PSS 021 or Instructor permission.

**PSS 121. Indoor Plants. 1 Credit.**

Indoor flowers, culture, related topics such as design. Prerequisite: PSS 010 or PSS 021, or one semester of Biology, or Instructor permission.

**PSS 123. Garden Flowers. 2 Credits.**

Outdoor flowers, culture, related topics. Prerequisite: PSS 010 or PSS 021, or one semester of Biology, or Instructor permission.

**PSS 124. Agroecology of Vegetable Crops. 0 or 4 Credits.**

The course will introduce students to agroecological research in vegetable cropping systems, farm management, and current trends in organic and conventional vegetable production. Prerequisite: BIOL 001 and BIOL 002 or Instructor permission. Alternate years.

**PSS 125. Woody Landscape Plants. 0 or 4 Credits.**

Identification, climatic requirements, cultural management, and use of ornamental plant materials in landscape planting. Prerequisite: PSS 010 or PSS 021, or one semester of Biology, or Instructor permission.

**PSS 127. Greenhouse Operations & Mgmt. 0 or 4 Credits.**

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, PSS 021, one semester Biology, or Instructor permission. Alternate years.

**PSS 137. Landscape Design Fundamentals. 4 Credits.**

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. Prerequisites: Junior standing; at least one course in drawing, design, or mapping, or Instructor permission. Cross-listed with: CDAE 137, ENVS 137, NR 137.

**PSS 138. Commercial Plant Propagation. 0 or 4 Credits.**

Principles and practices involved in propagating herbaceous and woody plants by seeds, division, layering, cuttings, budding, grafting, and aseptic culture. Prerequisite: PSS 010, PSS 021, one semester Biology, or Instructor permission.

**PSS 143. Forage and Pasture Mgmt. 4 Credits.**

Forage crops and grasslands play a central role in sustainable and diversified agriculture. Covers the scientific principles and practical applications of the production, management, and utilization of perennial and annual forage crops used by livestock and equine. Pre/co-requisites: BIOL 001 or BIOL 002 or BCOR 011 or BCOR 012 or PBIO 004 or PBIO 006 or Instructor permission. Cross-listed with: ASCI 143.

**PSS 145. Turfgrass Management. 3 Credits.**

Establishment, maintenance, and utilization of turf for aesthetic, athletic and utility functions. Pre/co-requisite: PSS 010, PSS 021, one semester of Biology, or Instructor permission. Alternate years.

**PSS 154. Composting Ecology & Mgmt. 3 Credits.**

Examines ecological, physical and chemical principles, the practical management of the composting process, and benefits of using compost in plant and soil ecosystems. Prerequisite: Three credits in basic biological or ecological science or Instructor permission.

**PSS 156. Permaculture. 0 or 3 Credits.**

Design of agriculturally productive environments that have the diversity, stability, and resilience of the natural biosphere to harmoniously integrate landscape and people. Prerequisite: PSS 021 or BIOL 002 or NR 103 or BCOR 012 or BCOR 102 or other basic ecology course or Instructor permission. Cross-listed with: ENVS 156.

**PSS 158. Internship:Eco Ag/Landscape Hrt. 1-3 Credits.**

Academically oriented hands-on experience in agriculture and horticulture under the joint supervision of instructor and host. Pre/co-requisite: Must be a Junior/Senior in the Ecological Agriculture Major or the Sustainable Landscape Horticulture Major or Instructor permission.

**PSS 161. SU:Fundmntls of Soil Science. 0 or 4 Credits.**

Biological, chemical, and physical properties of the dynamic soil system as related to plant growth and environmental problems. Prerequisite: Inorganic chemistry or permission.



**PSS 162. Soil Fertility & Conservation. 3 Credits.**

An ecological approach to soil management including nutrient supply and uptake, rhizosphere-microbial interactions, soil conservation, and nutrient management strategies. Prerequisite: PSS 161 or Instructor permission.

**PSS 172. Crop Breeding. 0 or 4 Credits.**

Service learning course; acquaints students with the primary objectives and tools of plant breeding theory, practice, and history through engagement in breeding activities with community partners. Builds understanding of how crops are improved to meet farmer demands. Prerequisite: PSS 021 or PSS 010 or PBIO 006 or BIOL 001 or BCOR 011.

**PSS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PSS 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PSS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PSS 195. Special Topics. 1-18 Credits.**

Courses or seminars on topics beyond the scope of existing department offerings. Prerequisite: Instructor permission.

**PSS 196. Special Topics. 1-18 Credits.**

Courses or seminars on topics beyond the scope of existing department offerings. Prerequisite: Instructor permission.

**PSS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Permission. More than a total of six credits per semester requires the permission of the Department Chair.

**PSS 208. Diversified Farm Planning. 3 Credits.**

Students study diverse farming systems to gain financial, management, and technical knowledge to plan a new or evaluate and existing farm enterprise. Prerequisites: PSS 021 and one 100-level PSS course, equivalent experience, or Instructor permission.

**PSS 209. Diversified Farm Operations. 6 Credits.**

An experiential course in sustainable, diversified vegetable production that includes soil fertility, weed, insect and disease control, crop planning and farm management skills. Prerequisites: PSS 021 and one 100-level PSS course, equivalent experience, or Instructor permission.

**PSS 212. SU: Advanced Agroecology. 0 or 4 Credits.**

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. Prerequisites: PSS 021 or one semester ecology at the 100-level or above or Instructor permission. Cross-listed with: ENVS 212.

**PSS 221. Sustainable Orchard Management. 3 Credits.**

Principles and practices of commercial tree fruit production, including site considerations; cultivars; training; nutrient, water and pest management; harvest and postharvest considerations. Special emphasis on environmental and economic sustainability of the orchard system. Pre/Co-requisites: PSS 10 or PSS 21 or BIOL 001 or 002 or BCOR 011 or BCOR 012; and PSS 161.

**PSS 232. Biological Control. 3 Credits.**

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.

**PSS 238. Ecological Landscape Design. 4 Credits.**

Studio course synthesizing work from fields of landscape ecology and landscape design, exploring ecological design alternatives at multiple scales, and developing multifunctional landscape solutions. Prerequisites: Junior standing; PSS 137 or one course in ecology plus one course in design or drawing.

**PSS 261. Soil Morph Class & Land Use. 0 or 3 Credits.**

Field techniques that describe soil properties, formation, and classification. The principles and processes of soil genesis, land use classification systems, and land use challenges. Prerequisite: PSS 161 or Instructor permission. Alternate years.

**PSS 264. Chemistry of Soil & Water. 0 or 4 Credits.**

An environmentally oriented study of the colloidal chemistry of soil and its interfaces with roots, water, and air. Prerequisites: PSS 161, two semesters Chemistry or Instructor permission. Alternate years.

**PSS 268. Soil Ecology. 0 or 4 Credits.**

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, and PSS 161. Cross-listed with: NR 268.

**PSS 269. Soil/Water Pollution/Bioremed. 3 Credits.**

Examines key issues in pollution of soil and water. Topics include type of pollutants, their reactions in soil and water, pollution prevention and bioremediation. Prerequisites: PSS 161 or Instructor permission. Alternate years.

**PSS 281. Prof Dev:Eco Ag/Sust Lndsc Hrt. 1 Credit.**

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 Instructor permission.

**PSS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PSS 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PSS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PSS 295. Advanced Special Topics. 1-18 Credits.**

Lectures, laboratories, readings, field projects, surveys, or research designed to provide specialized experience in horticulture, agronomy, soils, entomology, and integrated pest management. Prerequisite: Instructor permission.

**PSS 296. Advanced Special Topics. 1-18 Credits.**

Lectures, laboratories, readings, field projects, surveys, or research designed to provide specialized experience in horticulture, agronomy, soils, entomology, and integrated pest management. Prerequisite: Instructor permission.

**PSS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission. More than a total of six credits per semester requires Chair permission.

## POLITICAL SCIENCE (POLS)

### Courses

**POLS 021. American Political System. 3 Credits.**

Institutions, processes, and problems of American government.

**POLS 030. Politics of Environmentalism. 3 Credits.**

The phenomenon of global environmentalism--critics, connections with other social movements, and significance for sustainability governance, global politics, and the domestic politics of industrial democracies, autocracies, and developing countries. The role of politics in any potential achievement of protection, preservation, and improvement of the human habitat.

**POLS 041. Intro to Political Theory. 3 Credits.**

Examination of basic problems in political philosophy, e.g. morality and law; punishment; freedom; equality; obligation and disobedience.

**POLS 051. Intro International Relations. 3 Credits.**

Examines the major theories of international relations, important concepts in the study of international relations (such as the balance of power and democratic peace theory), dilemmas leaders face when formulating foreign policies, and current international events.

**POLS 071. Comparative World Politics. 3 Credits.**

An examination of questions such as why some countries are democratic and others authoritarian, and why some countries are poor and others wealthier. The course considers important political questions like these through the study and comparison of domestic politics across countries.

**POLS 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**POLS 094. LASP Seminar Pol. Science. 3-4 Credits.**

Seminar for students enrolled in the Liberal Arts Scholars Program for Social Science Scholars. Course explores political science perspectives and methods for understanding critical social problems. May be repeated for credit with different content. Co-requisite: Enrollment in Liberal Arts Scholars Program for Social Science Scholars.

**POLS 095. Special Topics. 1-18 Credits.**

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

**POLS 096. Special Topics. 1-18 Credits.**

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

**POLS 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**POLS 119. D2: LGBT Politics and History. 3 Credits.**

This course explores the history, strategies, conflicts, and issues surrounding the various movements advancing the claims of LGBT rights, as well as the roles LGBTQ people play as participants in American politics and culture. Prerequisite: POLS 021, GSWS 001, or Instructor permission. Cross-listed with: GSWS 105.

**POLS 120. The Politics of Sex. 3 Credits.**

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. Prerequisite: POLS 021 or GSWS 001. Cross-listed with: GSWS 155.

**POLS 121. Law & Politics. 3 Credits.**

Examination of the U.S. courts focusing on the legal and political factors that influence court action, and judicial action that affects public policy. Prerequisite: POLS 021.

**POLS 122. Constitutional Law: Gov Powers. 3 Credits.**

Emphasis on developing skills of legal analysis. Historical origins and general principles of constitutionalism. Prerequisite: POLS 021.

**POLS 123. The Vermont Political System. 3 Credits.**

Analysis of the political processes and institutions of governance in Vermont in the context of the federal system and other American states. Prerequisite: POLS 021.

**POLS 124. The Presidency. 3 Credits.**

The functions and activities of the president and staff. Prerequisite: POLS 021.

**POLS 125. Political Parties & Elections. 3 Credits.**

Analysis of U.S. political parties and elections, including partisan realignments throughout history, campaign technology, and voting for president and Congress. Prerequisite: POLS 021.

**POLS 127. The Congressional Process. 3 Credits.**

Organization, procedure, and behavior of the chambers of the U.S. Congress. Prerequisite: POLS 021.

**POLS 129. D1:Const Law:Civil Rights Amer. 3 Credits.**

Critical examination of role of judiciary in enforcing 14th Amendment's 'Equal Protection Clause. Prerequisite: POLS 021.

**POLS 137. Politics and Media. 3 Credits.**

The role of the media in politics, including how media presentation and interpretation of events affect public opinion, political institutions, and public policy. Prerequisite: POLS 021.

**POLS 138. Const Law: Civil Liberties. 3 Credits.**

Investigation of the Supreme Court's interpretation of the First Amendment, rights of the accused, and the right to privacy. Prerequisite: POLS 021.

**POLS 139. Public Policy:Tools&Processes. 3 Credits.**

Examination of public policy process with particular focus on tools used to fashion public policy such as contracts, regulations, legislation, and presidential orders. Prerequisite: POLS 021.

**POLS 140. American Political Thought. 3 Credits.**

Introduction to the main currents of political thought in America today (including liberalism, conservatism, libertarianism, and more), considering their moral and philosophical foundations and investigating them in historical perspective. Prerequisite: Minimum Sophomore standing.

**POLS 141. History of Political Thought. 3 Credits.**

Development of Western political thought from Plato to Aquinas. Prerequisite: POLS 041.

**POLS 142. History of Political Thought. 3 Credits.**

Modern political thought from Machiavelli to Nietzsche. Prerequisite: POLS 041.

**POLS 147. 20thC Political Thought. 3 Credits.**

This course examines selected major works by the leading political thinkers of the twentieth century. Prerequisite: POLS 041.

**POLS 148. Democratic Theory. 3 Credits.**

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.

**POLS 149. Intermediate Political Theory. 3 Credits.**

Intermediate courses on topics in political theory beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: POLS 041.

**POLS 150. International Security. 3 Credits.**

Theoretical and empirical examination of the security of the international system and the states within it, with particular emphasis on 21st century security challenges. Prerequisite: POLS 051.

**POLS 154. Internatl Political Economy. 3 Credits.**

Examination of the major theories in international political economy. Specific topics include trade, finance, development, foreign direct investment, and the multinational corporation. Prerequisite: POLS 051 or EC 011.

**POLS 157. D2:Int'l Politics Middle East. 3 Credits.**

Survey of the politics of the Middle East since World War II. Includes sessions on specific countries, discussions of topics ranging from democratization to terrorism to social media use, and debate on current policy dilemmas in the region. Prerequisite: POLS 051. Cross-listed with: GRS 157.

**POLS 159. Int'l Environmental Governance. 3 Credits.**

Examination of official and informal processes and institutions that have developed among, across, and beyond nation states for global environmental governance. Prerequisite: POLS 051.

**POLS 162. D2:Global Gender Inequality. 3-4 Credits.**

Examination of the causes of dramatic variations in the status of women in different countries. Exploration through individual research projects that use the scientific method. May not be taken for credit concurrently with, or following receipt of, credit for POLS 094: Global Gender Inequality. Prerequisite: POLS 051 or POLS 071.

**POLS 167. D2:Terrorism&Counterterrorism. 3 Credits.**

Overview of scholarly research on terrorism and counterterrorism efforts, engagement with debates on the appropriateness of the term terrorism, information on terrorist movements (both historical and contemporary), and a discussion of policy responses to terrorism. Prerequisite: POLS 051. Cross-listed with: GRS 167.

**POLS 172. Politic&Society in Russian Fed. 3 Credits.**

Examines the nature of politics and the development of post-Soviet social and economic institutions in Russia. Prerequisite: POLS 071.

**POLS 173. Canadian Political System. 3 Credits.**

Institutions, process, and problems of the Canadian polity. Prerequisite: POLS 071.

**POLS 174. D2: Latin American Politics. 3 Credits.**

Comparative examination of selected Latin American political systems. Prerequisite: POLS 071 or HST 063 or SPAN 145 or SPAN 146.

**POLS 176. D2:Govt & Politics of Japan. 3 Credits.**

Institutions, processes, and problems of government in Japan. Prerequisite: POLS 071.

**POLS 177. D2: Pol Sys of Trop Africa. 3 Credits.**

Development of differing political systems in African countries located south of the Sahara and north of South Africa. Prerequisite: POLS 071, or one course in African Prerequisite: POLS 071, or one course in African Studies.

**POLS 180. SU:Comparative Envir Pol. 3 Credits.**

The politics of environmentalism and sustainability from a cross-national perspective, covering social mobilization and nonstate actors, party politics, institutions and governance, policy development, and the role of culture, values, and knowledge in the convergence and divergence of political response. Prerequisite: POLS 071.



**POLS 181. Fund of Social Research. 4 Credits.**

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. Prerequisites: STAT 051 or STAT 111 or STAT 141 or higher; three hours of Sociology or Political Science; minimum Sophomore standing. Cross-listed with: SOC 100.

**POLS 182. Ancient Law. 3 Credits.**

Comparative study of three major ancient legal systems and their roles in their respective societies: ancient Near East (Sumerian to Hittite), Greek, and Roman. Prerequisite: Three credits in Classics, History, Philosophy, or Political Science. Cross-listed with: CLAS 147, HST 147.

**POLS 189. Politics of Climate Warming. 3 Credits.**

The political responses to continuing and accelerating human disruption of the climate. The implications of this disruption for practical domestic and global governance and the challenges it poses for our understanding of politics, policy, democracy, and governance. Prerequisite: POLS 021.

**POLS 190. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**POLS 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**POLS 192. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**POLS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**POLS 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**POLS 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**POLS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**POLS 228. Congress & Foreign Policy. 3 Credits.**

Congress's role in foreign policy making, emphasizing congressional action in the post-Vietnam period. Prerequisite: POLS 021, three hours at the 100-level.

**POLS 229. Seminar in American Politics. 3 Credits.****POLS 230. VT Legislative Research Srvc. 3 Credits.**

Involves students in policy research for the Vermont State Legislature on a wide range of topics, including the environment, health, and welfare. Prerequisite: Instructor permission.

**POLS 234. Topics in Public Opinion. 3 Credits.**

This course will examine the quality and sophistication of public attitudes, and the motivations that underlie political participation and electoral choice. Prerequisites: POLS 021, three hours at the 100-level.

**POLS 235. Gender and Law. 3 Credits.**

Examination of the interaction between gender and law in American society. Topics covered include workplace law, family law, and personal autonomy. Prerequisites: POLS 021, three hours at the 100-level. Cross-listed with: GSWS 258.

**POLS 237. Pol Effects of Entertain Media. 3 Credits.**

Investigates the relationship between popular film, TV, books, and/or video games and people's perspectives on politics. Prerequisite: POLS 021; three hours of Political Science at the 100-level; minimum Junior standing.

**POLS 241. Justice & Equality. 3 Credits.**

Examination of contemporary normative theories of distributive justice and equality. Prerequisites: POLS 041 and three hours at the 100-level, or PHIL 140, PHIL 142, PHIL 143, or PHIL 144.

**POLS 245. Ethics and Public Policy. 3 Credits.**

Over the course of the semester, we explore some of the most difficult moral questions that confront citizens and policymakers today. Topics include the ethics of war and torture, abortion and euthanasia, hate speech, immigration, and other related issues. Prerequisite: POLS 041, PHIL 010, PHIL 141, or SOC 101.

**POLS 246. Global Justice. 3 Credits.**

Addresses normative political theory that asks what obligations, if any, citizens and their states have internationally. Topics include human rights, immigration, global poverty, humanitarian military intervention, and more. Prerequisite: POLS 041.

**POLS 249. Seminar in Political Theory. 3 Credits.****POLS 259. Sem in International Relations. 3 Credits.****POLS 270. D2: Mexican Politics. 3 Credits.**

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 and three hours at the 100-level; or appropriate International Studies background.

**POLS 279. Sem in Comparative Politics. 3 Credits.****POLS 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**POLS 292. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**POLS 293. Senior Honors Seminar I. 3 Credits.**

Examination of major contemporary research topics in political science. Admission by invitation only.

**POLS 295. Advanced Special Topics. 1-18 Credits.**

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

**POLS 296. Advanced Special Topics. 1-18 Credits.**

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

**POLS 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**POLS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## PORTUGUESE (PORT)

### Courses

**PORT 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PORT 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PORT 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PORT 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PORT 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PORT 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PORT 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PORT 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PORT 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PORT 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PORT 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PORT 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PORT 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PORT 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PORT 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PORT 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## PROFESSIONAL NURSING (PRNU)

### Courses

**PRNU 060. Trans to Cntmp Prof Nursing. 3 Credits.**

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 Alternate Track - VT RN program.

**PRNU 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PRNU 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PRNU 110. Art & Science of Nursing. 3 Credits.**

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. Pre/co-requisites: One course in Sociology, PSYS 001, ENGS 001.

**PRNU 111. Research in Nursing. 3 Credits.**

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 STAT 141.

**PRNU 113. Health Assessment. 0 or 3 Credits.**

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 019, NFS 043, HDFS 005, PRNU 110. Pre/co-requisites: PRNU 111, PRNU 114, ANPS 020, MMG 065, MMG 101 or MLRS 054, MLRS 056.

**PRNU 114. Intro to Clinical Practice. 0 or 3 Credits.**

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-requisite: PRNU 113.

**PRNU 121. Gerontology. 0-3 Credits.**

This course emphasizes the challenges of older adults and methods to minimize the risk of morbidity, functional decline and hospitalization. Prerequisite: PRNU 114.

**PRNU 129. Women & Newborn Nurs: Thy&Ptm. 0 or 4 Credits.**

Through classroom & practicum experiences, students learn essential nursing interventions for childbearing women, neonates, and families. Prerequisites: PRNU 113, PRNU 114. Co-requisites: PRNU 128, NURS 120.

**PRNU 131. Health Alterations. 3 Credits.**

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: PRNU 121, PRNU 128, NURS 120.

**PRNU 134. Adlt Hlth Nursing I Thy & Ptm. 0 or 6 Credits.**

Through classroom and practicum, students learn essential interventions for adults/elders/families experiencing health alterations. Prerequisites: NURS 120, PRNU 121, PRNU 128. Pre/co-requisite: PRNU 131.

**PRNU 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PRNU 194. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PRNU 196. Special Topics. 0 or 3 Credits.**

See Schedule of Courses for specific title. Prerequisites: Senior standing; Majors only.

**PRNU 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Agreement from a faculty sponsor and approval by the Baccalaureate Education Committee.

**PRNU 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PRNU 228. Pharmacology. 3 Credits.**

Examination and application of knowledge of pharmacotherapeutic principles to nursing practice. Prerequisites: ANPS 019, ANPS 020, MMG 065 or MMG 101. Co-requisite: NURS 220.

**PRNU 231. Chronic & Palliative Care Nurs. 3 Credits.**

Nursing care of clients experiencing complex alterations in health related to the human experience of chronic illness and end of life issues. Prerequisite: PRNU 131.

**PRNU 232. Child & Adolescent Nursing. 0-5 Credits.**

Through classroom and practicum, students learn essential nursing interventions for children/adolescents/ families experiencing health alterations. Prerequisites: PRNU 129 (UG only), PRNU 228, NURS 220. Co-requisites: PRNU 131 or GRNS 310.

**PRNU 234. Adlt Hlth Nurs II: Thy & Ptm. 0 or 6 Credits.**

Through classroom and practicum experiences students learn essential nursing interventions for adults/elders/ families experiencing complex health alterations. Prerequisite: PRNU 134. Pre/co-requisite: PRNU 231.

**PRNU 235. Psych/MH Nurs: Thy & Ptm. 0 or 5 Credits.**

Through classroom and practicum experience students learn essential nursing interventions for clients with acute and chronic psychiatric disorders. Prerequisite: PSYS 170. Corequisite: PRNU 131.

**PRNU 240. Iss & Ldrs Prf Nurs Thr & Ptm. 0 or 6 Credits.**

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. Prerequisite: PRNU 234. Co-requisite: PRNU 241.

**PRNU 243. Transition to Prof Practice. 1 Credit.**

This seminar is designed to provide practical guidance and strategies for success in the transition from the student role to the professional nursing role. Prerequisites: PRNU 234. Co-requisites: PRNU 240, PRNU 241.

**PRNU 245. Public Health Nursing. 3 Credits.**

Focuses on populations at risk and community partnerships. Various issues, models, and concepts that impact the health of populations will be explored. The role of the nurse in community and public health will be emphasized. Prerequisite: PRNU 134. Co-requisite: PRNU 234.



**PRNU 246. Practicum Pub Health Nursing. 3 Credits.**

Students will be engaged in a community-based project with a community partner (collaboration, coalition, network, and agency) and will work in collaboration with professionals in a variety of settings. Prerequisites: PRNU 245; Senior standing.

**PRNU 248. Applied Patho-pharmacology. 2 Credits.**

Integration and application of principles and knowledge gained through the study of pathophysiology and pharmacology. A holistic and lifespan approach will be used in examining the nursing care of clients within all nursing specialties. Prerequisite: Senior standing. Co-requisite: PRNU 243.

**PRNU 249. Nsg Care of Crit Ill Adults. 2 Credits.**

Focuses on the role of the professional nurse in the delivery of holistic nursing care for adults in the critical care setting. A variety of critical care concepts are explored and interprofessional practice is highlighted. Prerequisites: PRNU 232, PRNU 234, PRNU 235, Instructor permission required. Co-requisites: PRNU 231, PRNU 240.

**PRNU 260. Chronic Disease Management. 3 Credits.**

Introduces the RN to the multifaceted approach of coordinating care and improving the quality of health for individuals with chronic diseases in the community. Examines programs such as the Blueprint for Health, etc. Prerequisites: PRNU 060, PRNU 111; Nursing Alternative Track major.

**PRNU 263. Prof Nursing Pract&Soc Justice. 3 Credits.**

Course will focus on social justice for individuals, families, and groups recognized as marginalized within our society. Prerequisite: Admission to Alternate Track - VT RN program.

**PRNU 264. Public Health Nursing for RN. 3 Credits.**

Introduces the RN student to public health nursing concepts. Key elements are examined for their effect on the health of our society. Various issues, influences, and concepts that impact the health of populations are explored. Prerequisites: PRNU 060, PRNU 111; Nursing Alternative Track major.

**PRNU 265. Intro Health Care Fin & Policy. 3 Credits.**

This survey course provides an overview of US health care organization, structure, policies, and financing, inclusive of selected international comparisons. Prerequisite: Matriculation in the RN to BS program.

**PRNU 266. Theories for Nursing Practice. 3 Credits.**

This course is a survey and introduction to the theories and concepts that undergird nursing practice, with an emphasis on middle range theories originating both within and outside of nursing, and selected grand theories of nursing. Prerequisites: Current status as a registered nurse and matriculated in the RN to BS program.

**PRNU 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PRNU 294. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PRNU 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PRNU 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PRNU 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PSYCHOLOGICAL SCIENCE (PSYS)****Courses****PSYS 001. Intro to Psychological Science. 3 Credits.**

Introduction to the entire field, emphasizing the behavior of the normal adult human being.

**PSYS 005. Intro to Major in Psyc Science. 1 Credit.**

Introduction to the profession of Psychological Science and preparation for success as a Psychological Science major at UVM. Enriches experience of PSYS 001.

**PSYS 053. Research Methods. 0 or 3 Credits.**

Basic course in principles of research methodology, including design and reporting. Prepares students to understand and evaluate psychological research in a variety of areas of psychology. Prerequisite: PSYS 001.

**PSYS 054. Statistics for Psych Sci. 0 or 4 Credits.**

Analysis of quantitative data in psychology. Calculation and interpretation of common statistical tests, including t-test, correlation, regression, chi-square, and ANOVA. Laboratory experiences. Prerequisite: PSYS 053.

**PSYS 070. D2:TAP: Meanings of Madness. 3 Credits.**

Students consider the many 'meanings of madness' and how psychological science can advance our understanding, prevention and treatment of mental health challenges. Prerequisites: First-time, first-year students only.

**PSYS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Will include an in-class component. Offered at department discretion.

**PSYS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PSYS 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PSYS 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PSYS 107. Intro to Psycholinguistics. 3 Credits.**

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 PSYS 001. Cross-listed with: LING 171.

**PSYS 108. Second Language Acquisition. 3 Credits.**

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 or PSYS 001. Cross-listed with: LING 177.

**PSYS 111. Learning, Cognition & Behavior. 3 Credits.**

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. Prerequisite: PSYS 001.

**PSYS 115. Biopsychology. 3 Credits.**

Biological bases of behavior: classical and contemporary issues, including introduction to nervous system, behavioral effects of drugs, chemical bases of behavioral disorders. Prerequisites: PSYS 001, BIOL 001 or BCOR 011.

**PSYS 130. Social Psychology. 3 Credits.**

An introduction to theory and research on the science of how one's situation influences individual thoughts, feelings, and behavior. Prerequisite: PSYS 001.

**PSYS 150. Developmental Psych: Childhood. 3 Credits.**

Survey of research and theories on child development from conception to adolescence emphasizing experimental analyses of early social and cognitive development. Prerequisite: PSYS 001.

**PSYS 168. Applied Psychological Research. 3 Credits.**

Builds on the content of an introductory research methods course and provides students with an overview of applied research methods in the field of psychology with a specific focus on research in school settings. Prerequisites: PSYS 053 or RMS 220.

**PSYS 170. Abnormal Psychology. 3 Credits.**

Describing and defining abnormal behavior; models of etiology; research evidence for biological and social models; methods of intervention and prevention. Prerequisite: PSYS 001.

**PSYS 178. Mentored Clinical Internship. 3 Credits.**

Clinical internship placement for two semesters (6 credits). Every effort will be made to assist students in finding a placement that fits their interests. A weekly seminar will offer an opportunity for all interns to share experiences and learn the importance of ethics and confidentiality. Prerequisites: PSYS 053, PSYS 054; Senior standing; Instructor permission; Juniors may qualify if space is available.

**PSYS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Will include an in-class component. Offered at department discretion.

**PSYS 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**PSYS 195. Intermediate Special Topics. 1-18 Credits.**

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: PSYS 001.

**PSYS 196. Intermediate Special Topics. 1-18 Credits.**

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: PSYS 001.

**PSYS 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**PSYS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**PSYS 211. Learning. 3 Credits.**

Analysis of theory and research on the basic learning process and behavior. Prerequisites: PSYS 053, PSYS 111.

**PSYS 212. Cognition. 3 Credits.**

Research and theories on the major areas within cognition: perception, attention, pattern recognition, memory, knowledge representations, mnemonic strategies, problem-solving and neurocognition. Prerequisites: PSYS 053 and PSYS 111.

**PSYS 213. Motivation. 3 Credits.**

Theory and research on motives, including hunger, fear, sex drive, and addiction, their influence on behavior, relationship to other psychological processes, and biological correlates. Prerequisites: PSYS 053; PSYS 111 or PSYS 115.

**PSYS 214. Adv Cognitive Neuroscience. 3 Credits.**

Cognitive Neuroscience studies thinking processes (e.g., attention, memory, problem solving) by investigating brain function. Focuses on dominant theories and relevant empirical data including a focus on non-invasive brain imaging of humans. Prerequisites: PSYS 053; PSYS 111 or PSYS 115 or NSCI 111.

**PSYS 215. Physiological Psychology. 0 or 4 Credits.**

Structure and function of mammalian nervous system, emphasizing neurological correlates of sensory experience and perception. Individual laboratory experience. Prerequisites: PSYS 053; PSYS 115 or NSCI 111.

**PSYS 216. Psychopharmacology. 3 Credits.**

Effects of drugs (both medical and recreational) on behavior. Topics such as drug effects on learning, memory, motivation, perception, emotions, and aggression. Prerequisites: PSYS 053; PSYS 115 or NSCI 111.

**PSYS 218. Hormones and Behavior. 3 Credits.**

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. Prerequisites: PSYS 053; PSYS 115 or NSCI 110 or NSCI 111.

**PSYS 220. Behavioral Genetics. 3 Credits.**

Students will gain conceptual understanding of the contributions of genes, environments, and the interplay of these and other factors, to various behaviors. Addresses variety of approaches to behavioral genetics research, including family and twin studies, animal studies, genome-wide association studies and the candidate gene approach. Prerequisite: (PSYS 053, PSYS 115) or NSCI 111 or BIOL 001 or BCOR 011.

**PSYS 230. Advanced Social Psychology. 3 Credits.**

In-depth discussion of select topics centering on how situations influence individuals' thoughts, feelings, and behaviors. Prerequisite: PSYS 053, PSYS 130.

**PSYS 232. Self and Social Cognition. 3 Credits.**

An advanced course in social psychology that covers theory and research on the self and social cognition. Prerequisites: PSYS 053, PSYS 130.

**PSYS 240. Organizational Psychology. 3 Credits.**

Study of the psychological impact of macro and micro features of organizations upon leadership, decision making, workforce diversity, group process, conflict, and organizational performances. Prerequisite: PSYS 053; and PSYS 111 or PSYS 130 or PSYS 150 or PSYS 170.

**PSYS 252. Emotional Devlmt & Temperament. 3 Credits.**

Development of emotion and temperament from infancy through middle childhood, including links between these topics and physiology, and context (e.g. attachment, parenting, family conflict). Prerequisites: PSYS 053 and PSYS 150.

**PSYS 254. Social Development. 3 Credits.**

Examination of theory and research concerning interpersonal development in humans from infancy through adulthood. Emphasizes relationships among language, cognition, and social development. Prerequisites: PSYS 053, PSYS 150.

**PSYS 255. Psychology of Gender. 3 Credits.**

Examines psychological theories, methods, and research about gender. Explores social, situational, individual, and biological explanations of gender similarities and differences and their development. Prerequisites: PSYS 053 and PSYS 150.

**PSYS 257. Adolescence. 3 Credits.**

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. Prerequisites: PSYS 053, PSYS 150.

**PSYS 259. Psychology of Families. 3 Credits.**

An introduction to the theory and research in the study of families. Topics include dating, mate selection, adult attachment, marriage, parenting, divorce, single parenting, remarriage, and issues pertaining to race, ethnicity, and culture. Prerequisites: PSYS 053; and PSYS 150 or PSYS 170.

**PSYS 268. Fit Kids Applied Research. 0 or 3 Credits.**

Covers the science and practice of using structured physical activity to promote better school readiness, performance, and adjustment in young children. Students will learn how to implement age-appropriate physical activity in the context of a combined service learning/research experience. Prerequisites: PSYS 001 or EDSP 005 or EDEC 001; Junior Standing; Instructor Permission.

**PSYS 269. Fit Kids: Special Populations. 3 Credits.**

Examines how physical activity (PA) may assist in managing symptoms of attention-deficit/hyperactivity disorder and other common conditions such as anxiety, depression, and autism. Students spend one hour/week in the UVM classroom with remaining time spent implementing PA in educational settings. Prerequisites: PSYS 001 or EDSP 005 or EDEC 001; Instructor permission.

**PSYS 270. Behav Disorders of Childhood. 3 Credits.**

An overview of theory, research, and practice in developmental psychopathology from infancy through adolescence. The major disorders of social and emotional development reviewed. Prerequisites: PSYS 053; and PSYS 150 or PSYS 170.

**PSYS 271. Intro to Clinical Psychology. 3 Credits.**

Study of basic principles of interviewing, testing, assessment from life situations, and report writing. Examination of the most common approaches to psychotherapy. Prerequisites: PSYS 053, PSYS 170.

**PSYS 274. Advanced Behavior Change. 3 Credits.**

This course covers theoretical background for behavioral interventions with children, practical applications, and case studies. Through an integration of these methods, students will develop a working knowledge of best practices for working with children with behavioral challenges. Prerequisites: PSYS 053, PSYS 170.

**PSYS 276. D1:Cross-Cultrl Psyc:Clin Pers. 3 Credits.**

Introduction to issues posed for psychologists in their work with African, Latino/a, Native American, Asian American, and international populations. Prerequisites: PSYS 053, PSYS 170.

**PSYS 278. Science of Traumatic Stress. 3 Credits.**

More than 85 percent of adults in the US will experience a traumatic event, yet only a fraction of these individuals will develop conditions such as posttraumatic stress disorder. Explores why this outcome occurs and the clinical skills needed to treat this condition. Prerequisites: PSYS 053, PSYS 170.



**PSYS 279. Intro to Health Psychology. 3 Credits.**

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. Prerequisites: PSYS 053, PSYS 170.

**PSYS 281. Advanced Fit Kids: Applied Res. 0 or 3 Credits.**

Mentorship and close supervision for advanced students serving as on-site supervisors for a structured physical activity curriculum in local schools. Also provides in-depth critical discussion of research on use of physical activity to promote school adaptation. Prerequisites: PSYS 268 or PSYS 269; Instructor permission.

**PSYS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Will include an in-class component.

**PSYS 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PSYS 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: PSYS 053; and PSYS 111 or PSYS 115 or PSYS 130 or PSYS 150 or PSYS 170.

**PSYS 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: PSYS 053; and PSYS 111 or PSYS 115 or PSYS 130 or PSYS 150 or PSYS 170.

**PSYS 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PSYS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PUBLIC ADMINISTRATION (PA)****Courses****PA 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PA 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PA 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PA 206. Intro Cont Public Affairs. 3 Credits.**

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: CDAE 100 level course.

**PA 260. Smart Resilient Communities. 3 Credits.**

Focus on social ecological systems integration framework to determine community resilience, enable smart design processes at the nexus of food, energy and water systems and learn practical skills, such as early warning systems, ubiquitous computing and interactive scenario planning techniques. Prerequisites: CDAE 102 or Graduate standing. Cross-listed with: CDAE 260.

**PA 295. Advanced Special Topics. 1-18 Credits.**

Current issues and new developments in public policy and public administration. Prerequisite: Permission.

**PA 296. Advanced Special Topics. 1-18 Credits.**

Current issues and new developments in public policy and public administration. Prerequisite: Permission.

**PUBLIC HEALTH (PH)****Courses****PH 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PH 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PH 096. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**PH 100. Careers in Public Health. 1 Credit.**

Students learn the public health functions and services through the lens of the public health workforce. Careers in public health and related fields are explored.

**PH 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PH 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PH 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PH 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PH 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PH 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**PH 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**PH 296. Special Topics. 1-18 Credits.****PH 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**PH 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## RADIATION THERAPY (RADT)

### Courses

**RADT 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**RADT 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**RADT 096. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title. Offered at department discretion.

**RADT 152. Prin of Radiation Therapy. 3 Credits.**

Introduction to the practice and theory of radiation therapy through lectures and discussions. Prerequisite: MLRS 140.

**RADT 173. Intro to Clinical Practice. 3 Credits.**

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.

**RADT 174. Clinical Practicum II. 2 Credits.**

Students participate and observe in the University of Vermont Medical Center Radiation Therapy Department. Prerequisite: RADT 173.

**RADT 176. Clinical Radiation Oncology. 3 Credits.**

The various types of neoplasms, methods of diagnosis of treatment, and elementary pathology are presented. Radiation Therapy majors only. Prerequisites: ANPS 019 - ANPS 020 and concurrent enrollment in RADT 174.

**RADT 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**RADT 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**RADT 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title. Offered at department discretion.

**RADT 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**RADT 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**RADT 199. Clinical Practicum. 2 Credits.**

Radiation Therapy students actively participate in the delivery of radiation therapy at the department of Radiation Oncology at the University of Vermont Medical Center. Students will also rotate through other areas in the hospital pertinent to their profession. Prerequisite: RADT 173.

**RADT 215. CT Procedures. 3 Credits.**

Provides in-depth study of the concepts, use and practice of CT Procedures related to Nuclear Medicine Technology and Radiation Therapy. Prerequisites: ANPS 019, ANPS 020, BHSC 175.

**RADT 223. Clinical Practicum III. 3 Credits.**

A continuation of RADT 174 emphasizing increasing clinical capabilities. Prerequisite: RADT 174.

**RADT 244. Essentials of Patient Care. 3 Credits.**

Presents all aspects of care associated with the treatment of cancer when patients receive Radiation Therapy. Prerequisites: RADT 152 and RADT 173. Co-requisites: RADT 174 and RADT 176; RADT majors only.

**RADT 270. Dosimetry Concepts. 3 Credits.**

This course introduces students to dosimetry, treatment planning and quality assurance concepts to prepare for clinical Dosimetry rotations. Pre/co-requisites: MLRS 140, MLRS 141, MLRS 175, MLRS 215; RADT 174, RADT 176.

**RADT 274. Clinical Practicum IV. 11 Credits.**

RADT 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. Spring. Prerequisites: Successful completion of all previous required major courses and concurrent enrollment in RADT 280.

**RADT 275. Dosimetry. 3 Credits.**

Treatment plan verification using three-dimensional computer models, simulation data, and knowledge of treatment unit capabilities. RADT majors only. Prerequisites: RADT Senior Standing.

**RADT 277. Techniques Radiation Therapy. 4 Credits.**

Instructs students in advanced theory and clinical application of radiotherapeutic techniques. Radiation Therapy majors only. Prerequisite: Concurrent enrollment in RADT 223 and RADT 275.

**RADT 278. Senior Seminar in Rad Therapy. 2 Credits.**

Evaluate current trends in advanced treatment techniques with the premise of clinical research and modern technology used in oncology. Helps prepare students for the American Registry of Radiologic Technologists national certification exam. Prerequisites: RADT 244, RADT 275. Co-requisites: RADT 223, RADT 277.

**RADT 279. Final Clinical Pract Overview. 1 Credit.**

To orient the student to a new radiation oncology department; understand basic patient flow and essential equipment. The student is also responsible for completing all necessary orientation requirements at the organization, department level, or both. This includes understanding relevant policies and procedures and SOP's. Prerequisites: RADT 275, RADT 176, RADT 174, RADT 244; Senior standing. Co-requisites: RADT 274, RADT 280.

**RADT 280. Qual Assurance&Treatment Plan. 2 Credits.**

The integration of clinical oncology, radiobiology, dosimetry, and treatment planning, and how they affect patient outcomes. Prerequisites: RADT 223, RADT 277, RADT 278; Senior standing. Co-requisite: RADT 274.

**RADT 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**RADT 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**RADT 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title. Offered at department discretion.

**RADT 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**RADT 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**REHABILITATION & MOVEMENT SCI (RMS)****Courses****RMS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**RMS 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**RMS 157. Prevention & Care Athletic Inj. 3 Credits.**

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.

**RMS 188. D2:Org&Ldrship in AthTrn&Ex Sc. 3 Credits.**

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.

**RMS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**RMS 191. Iceland Ther Thermal Springs. 3 Credits.**

Travel study course to Southern Iceland; explores the therapeutic effects of thermal water as part of an integrative approach to healthcare and wellness; an elective for students interested in integrative healthcare, wellness, human physiology. Prerequisites: Minimum Junior standing; Instructor permission.

**RMS 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**RMS 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**RMS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: RMS 220.



**RMS 220. Research Methods I. 3 Credits.**

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

**RMS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**RMS 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**RMS 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**RMS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: RMS 220.

## RELIGION (REL)

### Courses

**REL 020. D2: Comparing Religions. 3 Credits.**

Comparison of diverse practices and beliefs from selected religious traditions and cultures.

**REL 021. D2: Religions in Asia. 3 Credits.**

Study of the Hindu, Buddhist, and East Asian religious traditions as expressed in their basic symbolisms, writings, practices, and cultural forms.

**REL 023. D2: What is the Bible?. 3 Credits.**

An introduction to the study of religion through an examination of the creation of biblical and related texts of ancient Babylon, Israel, and the early Christian movement. Investigate their diverse religious practices and our own assumptions about unfamiliar cultures.

**REL 026. D2: Religions in Africa. 3 Credits.**

Introduction to the study of religion with an emphasis on African religious beliefs, practices and experiences.

**REL 029. D2: Religion and Globalization. 3 Credits.**

Study of the global dimensions of religion, including the impact of globalization on religious communities, and the effect of religious movements on global processes.

**REL 030. D2: Introducing Islam. 3 Credits.**

Introduces Islam in the context of the study of religion, focusing especially on its variation over time and location, as evidenced by texts, rituals, festivals, and competing interpretations.

**REL 031. D2: Introducing Hinduism. 3 Credits.**

Introduction to some of the major topics and themes in Hindu religious traditions, tracing their development from Vedic times to the present day.

**REL 032. LASP Religion Seminar. 3 Credits.**

Seminar for students enrolled in the Liberal Arts Scholars Program for Humanities Scholars. Introduces students to the study of religion as part of the interdisciplinary work in the Humanities, in coordination with the annual HS theme. May be repeated for credit with different content. Co-requisite: Enrollment in Liberal Arts Scholars Program for Humanities Scholars.

**REL 040. D2: Religion, Health, & Healing. 3 Credits.**

Comparative and cross-cultural exploration of the relationships between religion, health, and healing. Cross-listed with: ANTH 076.

**REL 050. Introduction to Jewish Studies. 3 Credits.**

An introduction to Jewish history, religious thought and practice, ethics, and law. Cross-listed with: JS 050.

**REL 085. On the Meaning of Life. 3 Credits.**

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.

**REL 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**REL 095. Intro Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**REL 096. Intro Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**REL 100. Interpretation of Religion. 3 Credits.**

Examination of major theories and methods used in studying and interpreting religious phenomena. Prerequisite: Three hours in Religion.

**REL 104. Mysticism, Shamanism & Possessn. 3 Credits.**

Comparative study of ways in which the inward dimension of religious life finds expression. Prerequisite: Three hours in Religion.

**REL 105. Religious Literacy. 3 Credits.**

Religious literacy entails understanding the history and contemporary manifestations of religion, including the central texts, beliefs and practices as they are shaped within specific contexts. Introduces ways of thinking about the public expression of religion and profession-specific engagements with religion. Prerequisite: Three hours in Religion.

**REL 109. Ritualization: Rel, Body, Culture. 3 Credits.**

A cross-cultural examination of ritual strategies for integrating personal and social experience, with attention to various theories and types of religious ritual. Prerequisite: Three hours in Religion.

**REL 110. Religion and Ways of Knowing. 3 Credits.**

How do religious people know? How do we know about religion? Examines some of the diverse ways in which human beings, in a variety of cultural contexts, have claimed knowledge that transcends empirically gained and verifiable perceptions. Prerequisite: Three hours in Religion.

**REL 112. Religious Literacy Practicum. 1 Credit.**

Students pursuing the Religious Literacy in Professions certificate will develop research and reflection projects integrating theories of religious literacy with research methods specific to their disciplines. Pre/Co-requisites: REL 105.

**REL 124. Christianity. 3 Credits.**

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.

**REL 125. Women in Christianity to 1500. 3 Credits.**

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. Prerequisite: Three hours in Religion. Cross-listed with: GSWS 114.

**REL 128. D1: Religion in America. 3 Credits.**

Study of the relationship between religion, the cultural ethos, and identity in America. Prerequisite: Three hours in Religion.

**REL 129. Religion&Pop Culture in the US. 3 Credits.**

Introduces concepts and theories developed in Religion about the intersection of religion and popular culture in contemporary America. Prerequisite: Three hours in Religion.

**REL 132. D2: Buddhist Traditions. 3 Credits.**

A survey of Buddhist beliefs and practices in a diversity of cultures, including some modern developments. Prerequisite: Three hours in Religion.

**REL 133. D2: Islam and Modernity. 3 Credits.**

An exploration of Muslims' responses to various challenges in the modern era. Examines the ways in which religious actors shaped and altered religious ideals, identities, and ideologies via theoretical texts and case studies. Prerequisites: Three hours in Religion.

**REL 141. D2: Religion in Japan. 3 Credits.**

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.

**REL 145. D2: Religion in China. 3 Credits.**

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.

**REL 164. D1: Religion and Race in US. 3 Credits.**

Examination of how religion and race mutually inform shared understandings of moral and political identities, hierarchies, and boundaries across a variety of religious movements and institutional settings from the nineteenth century through the present. Prerequisite: Three hours in Religion.

**REL 165. D1: Islam and Race. 3 Credits.**

Islam is not a race (religions are not races) but Islam and religions are racialized. Examines how Islam and Muslims come to be seen as a race and the effects thereof in the North American context. Prerequisite: Three hours in Religion.

**REL 180. Moral&Rel Persp on Holocaust. 3 Credits.**

A study of the Holocaust in relation to questions of moral responsibility, justice, guilt, and human suffering, focusing on Jewish responses. Prerequisite: Three hours in Religion or Instructor permission. Cross-listed with: HS 180.

**REL 190. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**REL 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**REL 192. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**REL 195. Intermediate Special Topics. 1-18 Credits.**

Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: Three hours in Religion.

**REL 196. Intermediate Special Topics. 1-18 Credits.**

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

**REL 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**REL 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**REL 202. Research in Religion Practicum. 1 Credit.**

Research practicum taken concurrently with a 200-level seminar in the Religion Department. It is designed to support Religion majors in their development of effective research and writing skills as part of their work in the major. Prerequisites: Religion major; Junior/Senior standing. Co-requisite: Concurrent enrollment in a three-credit Religion 200-level course.

**REL 203. Senior Colloquium. 1 Credit.**

Capstone course for Religion majors. Participants substantially revise their REL 202 seminar paper and present their research to the colloquium. Prerequisites: REL 202; Religion major; Senior standing.

**REL 224. Studies in Christianity. 3 Credits.**

Examination of selected issues, movements, periods, or individuals within the Christian tradition. Prerequisites: Nine hours in Religion (REL 124 or REL 125 recommended). May be repeated up to six hours.

**REL 234. D2:Buddhism in Sri Lanka. 3 Credits.**

An examination of Theravada Buddhist belief and practice in the context of Sri Lankan culture, with attention to lay and monastic interaction. Prerequisite: Nine hours in Religion with three hours at the intermediate level, or REL 132.

**REL 254. Religion and Empire. 3 Credits.**

An exploration of the definitions of religion as they relate to, were impacted by, and fostered the expansion of empires and imperialism. Topics include: history & definitions of religion; race & racialization; gender; colonialism; imperialism. Prerequisite: Nine hours in Religion.

**REL 255. Religion, Nation, and State. 3 Credits.**

Exploration of religion in the public life of the modern nation-state. Focusing on the relationship of nationalism and religion, examines how religion is both a source of mobilization by the state and a means of resistance to it. Prerequisite: 9 credit hours in Religion.

**REL 259. Religion and Secular Culture. 3 Credits.**

Comparison of religious and secular systems of meaning, value, and practice. Prerequisite: Nine hours in Religion, with three hours at the intermediate level.

**REL 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**REL 293. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**REL 294. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**REL 295. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**REL 296. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**REL 297. Interdisciplinary Seminar. 3 Credits.**

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 permission.

**RUSSIAN (RUSS)****Courses****RUSS 001. Elementary Russian. 4 Credits.**

An introduction to all aspects of contemporary standard Russian: speaking, listening, reading, writing. Cultural components include topics such as music, art, literature, and current events. No previous knowledge of Russian needed for RUSS 001.

**RUSS 002. Elementary Russian. 4 Credits.**

An introduction to all aspects of contemporary standard Russian: speaking, listening, reading, writing. Cultural components include topics such as music, art, literature, and current events. Prerequisite: RUSS 001 or equivalent.

**RUSS 011. Experience Russian. 1 Credit.**

Students will engage in a variety of events that will enhance their understanding and appreciation of Russian language and culture. Provides opportunities to experience Russian through a variety of interactive contexts.

**RUSS 051. Intermediate Russian. 4 Credits.**

Continued practical work in all language skills (speaking, listening, reading, writing), with more analysis of the structure of Russian. Continuation of cultural components. Prerequisite: RUSS 001, RUSS 002.

**RUSS 052. Intermediate Russian. 4 Credits.**

Continued practical work in all language skills (speaking, listening, reading, writing), with more analysis of the structure of Russian. Continuation of cultural components. Prerequisite: RUSS 051.

**RUSS 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**RUSS 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**RUSS 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**RUSS 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**RUSS 101. Phonology. 3 Credits.**

Practical work on Russian intonation, element order, and phonetics, using primarily Russian materials. Classroom and language laboratory work. May be taken together with RUSS 052. Prerequisite: RUSS 052 or concurrent enrollment in RUSS 052.

**RUSS 121. Composition & Conversation. 3 Credits.**

Continued practical work on all four language skills. Emphasis on oral and written self-expression. Presentations and compositions based on Russian-language media and literature. Prerequisite: RUSS 052.

**RUSS 122. Composition & Conversation. 3 Credits.**

Continued practical work on all four language skills. Emphasis on oral and written self-expression. Presentations and compositions based on Russian-language media and literature. Prerequisite: RUSS 052.



**RUSS 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**RUSS 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**RUSS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**RUSS 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**RUSS 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**RUSS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**RUSS 201. Survey of Russian Literature. 3 Credits.**

Readings and discussions about Russian literature to the rise of modernism. Particular attention to the social and historical context of the 19th century novel. Prerequisite: RUSS 052. WLIT 118 recommended.

**RUSS 202. Survey 20th Century Russ Lit. 3 Credits.**

Readings and discussions about Russian literature from the rise of modernism to present. Particular attention to function of literature in Soviet society. Prerequisite: RUSS 052. WLIT 118 recommended.

**RUSS 221. Cult & Civ to 1905 Revolution. 3 Credits.**

Social, cultural, and political institutions from the time of Peter the Great to the 1905 revolution. Particular attention to Russian music, art, and literature. Prerequisite: RUSS 052.

**RUSS 222. Cult & Civ in the 20th Century. 3 Credits.**

Social, cultural, and political institutions from the 1905 revolution to the present. Particular attention to tensions between official and unofficial culture during the Soviet period. Prerequisite: RUSS 052.

**RUSS 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**RUSS 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**RUSS 295. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**RUSS 296. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**RUSS 297. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**SECONDARY EDUCATION (EDSC)****Courses****EDSC 011. Ed Tech in Sec Ed Classroom. 3 Credits.**

Students are introduced to a variety of uses for information technology in education with particular applications to stimulate and manage a student-centered classroom.

**EDSC 055. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDSC 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSC 157. QR: Intro to Teaching Math. 3 Credits.**

Provides an introduction to the field of mathematics education. Explores the knowledge and skills required to teach middle and secondary mathematics, investigate how people learn mathematics, and study current issues and research in mathematics education.

**EDSC 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSC 196. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDSC 197. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSC 198. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDSC 207. Development: Theory & Applctn. 3 or 4 Credits.**

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.

**EDSC 209. Practicum in Teaching. 3 or 4 Credits.**

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

**EDSC 215. Reading in Secondary Schools. 3-4 Credits.**

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-requisites: EDSC 207 and EDSC 209.

**EDSC 216. Curr,Instr&Assmt Sec Schl Tchr. 3 Credits.**

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.

**EDSC 225. Tchg Soc Studies in Sec Schls. 3 Credits.**

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.

**EDSC 226. Teaching Internship. 8-12 Credits.**

Collaboration with professional teachers in design and implementation of effective instruction, with special focus on developing programs in a high school setting. Prerequisite: EDSC 203, EDSC 207, EDSC 209, EDSC 215, EDSC 216, and Special Methods.

**EDSC 227. Tchng Science in Sec Schls. 3 Credits.**

Consideration of science curricula and instructional strategies for grades 7-12. Topics may include: teaching science as problem solving, research in science teaching, affective education through science. Prerequisite: Twelve hours in education and related areas or Instructor permission.

**EDSC 230. Teaching for Results. 3 Credits.**

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.

**EDSC 237. Tching Computer Science in Sec. 3 Credits.**

Explores theories and practices of teaching, learning and assessing computer science in middle school and high school. Topics include the structure of computer science disciplines, computer science learning standards, best practices of teaching/assessing computer science, and social and ethical issues in computer science. Prerequisite: EDSC 216.

**EDSC 240. Teach English:Secondary School. 3 Credits.**

Approaches to teaching composition, literature, and the English language in secondary school. Prerequisite: Acceptance into licensure program.

**EDSC 257. QR:Tchg Math in Sec Schls. 3 Credits.**

Contemporary secondary school mathematics curricula and instructional strategies for grades 7-12. Topics may include problem solving, research in mathematics education, use of calculators and computers, manipulatives, and evaluation. Prerequisite: Twelve hours in education and related areas or permission.

**EDSC 259. Tchg Foreign Lang in Sec Schls. 3 Credits.**

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.

**EDSC 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSC 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDSC 297. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSC 298. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**SOCIAL WORK (SWSS)****Courses****SWSS 002. Foundations of Social Work. 3 Credits.**

An introduction to the profession of social work, its functions, values, knowledge, and the problems it addresses. Methods include: speakers from human service organizations, case examples, a field trip and unique final exam using a community experience and reflection.

**SWSS 004. Working with Refugees. 3 Credits.**

Provides students an interdisciplinary, entry-level opportunity to learn about the social construction of refugees, the experiences and circumstances of people who become refugees and the apparatus set up to support them using social work/social justice approach.

**SWSS 005. Biosociopolitical Issues SW. 3 Credits.**

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: Social Work major or Instructor permission.

**SWSS 008. Civic Engagemnt&Self-Reflectn. 1 Credit.**

This seminar is specifically designed for Dewey House residents to accompany their residential learning experiences and their collective and individual service in the community.

**SWSS 009. Soc Just, Pov, & Inequ in Amer. 3 Credits.**

Designed to provide an exploration of the social construction of poverty and the discourses and practices that surround it, in both popular and academic work, and the impact of that construction on the lives of those who experience poverty, as well.

**SWSS 055. Special Topics. 1-18 Credits.**

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.

**SWSS 058. Civic Engagemnt, Ldrshp, Pub Spk. 1 Credit.**

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.

**SWSS 060. D1: Racism & Contemporary Issue. 3 Credits.**

Study of perception, conceptualization, and comprehension of racism. Strategies, techniques, and procedures to identify and decrease many facets of racism.

**SWSS 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SWSS 099. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**SWSS 140. D1: SW w/Indigenous: VT Abenaki. 3 Credits.**

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. Prerequisite: Sophomore standing; Social Work major.

**SWSS 147. D2: Theories in Social Work I. 3 Credits.**

Critical examination of traditional and contemporary theories of social work and human behavior and their application in generalist direct practice social work. Prerequisites: SWSS 002.

**SWSS 148. D2: Theories in Social Work II. 3 Credits.**

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 147.

**SWSS 150. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SWSS 163. Theory & Integration Prep Sem. 3 Credits.**

This course is a bridge between theories studied in pre- and co-requisite courses and senior year. It prepares the student for their field practicum. Prerequisites: SWSS 002, SWSS 147, SWSS 164, SWSS 165. Pre/Co-requisites: SWSS 004, SWSS 060. Co-requisites: SWSS 148, SWSS 166.

**SWSS 164. Intro Social Work Research. 3 Credits.**

Introduction to models and methods of social research from a social work perspective. Prerequisite: SWSS 002.

**SWSS 165. Iss & Pol in Social Welfare I. 3 Credits.**

An introduction to economic, political, historical, and social forces that influence the development and implementation of social welfare policy. Prerequisite: SWSS 002.

**SWSS 166. Iss & Pol in Social Welfare II. 3 Credits.**

In-depth examination of social welfare policy and accompanying social services in the U.S.; major policy analysis models presented and used. Prerequisite: SWSS 165.

**SWSS 168. Social Work Practice I. 3 Credits.**

Social work theory and practice methods employed by social workers in providing services to individuals, families, and small groups. Prerequisite: Senior standing. Co-requisites: SWSS 171, SWSS 173.

**SWSS 169. Social Work Practice II. 3 Credits.**

Social work theory and practice methods employed by social workers in providing services to groups, organizations, and communities. Prerequisites: SWSS 168; Senior standing. Co-requisites: SWSS 172, SWSS 174.

**SWSS 171. Field Experience Seminar I. 3 Credits.**

Weekly integrative seminar; discussion of practice within field agency. Co-requisites: SWSS 168, SWSS 173.

**SWSS 172. Field Experience Seminar II. 3 Credits.**

Weekly integrative seminar; discussion of practice within field agency. Prerequisites: SWSS 171, SWSS 173. Co-requisites: SWSS 169, SWSS 174.

**SWSS 173. Field Experience I. 6 Credits.**

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. Prerequisite: Senior standing. Co-requisites: SWSS 168, SWSS 171.

**SWSS 174. Field Experience II. 6 Credits.**

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. Prerequisites: SWSS 171, SWSS 173; Senior standing. Co-requisites: SWSS 169, SWSS 172.

**SWSS 189. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**SWSS 193. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.



**SWSS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SWSS 199. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Pre/co-requisite: Social Work major; Instructor permission; pre-arrangement.

**SWSS 200. Contemporary Issues. 1-6 Credits.**

Content and structure may accommodate special issues not especially appropriate within the boundaries of an existing course. Prerequisite: Instructor Permission.

**SWSS 212. Social Work Practice I. 3 Credits.**

A comprehensive introduction to concepts and skills employed by social workers in interactions and interventions with individuals, families, and groups is provided. Prerequisite: MSW standing; or Instructor permission.

**SWSS 213. Social Work Practice II. 3 Credits.**

Knowledge and skills of social work practice with organizations and communities is emphasized. Prerequisite: Completion of SWSS 212; MSW advanced standing; or Instructor permission.

**SWSS 216. Th Found of Hum Beh&Soc Envr I. 3 Credits.**

This course introduces students to the biological, psychological, cultural/social, and economic forces that influence human behavior and their implication for social work practice. Prerequisite: MSW standing; or Instructor permission.

**SWSS 217. Th Found Hum Beh&Soc Envr II. 3 Credits.**

Focus is on theories regarding the nature and functioning of human service organizations and communities in relation to meeting human needs. Prerequisite: SWSS 216 or Instructor permission.

**SWSS 220. Soc Welfare Pol & Services I. 3 Credits.**

An introduction to history and philosophy of social work and social welfare and the structure of service programs is provided. Prerequisite: MSW standing or Instructor permission.

**SWSS 221. Soc Welfare Pol & Services II. 3 Credits.**

Focus is on the analysis of the economic, political, and social forces that influence the development and implementation of social welfare policy. Prerequisite: SWSS 220; or Instructor permission.

**SWSS 224. Child Abuse & Neglect. 3 Credits.**

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.

**SWSS 227. Found of Social Work Research. 3 Credits.**

An introduction to qualitative and quantitative methods of applied social research including program evaluation and the evaluation of practice and application to social work is taught. Prerequisite: MSW standing or Instructor permission.

**SWSS 229. D2:Soc Work&Disability Rights. 3 Credits.**

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.

**SWSS 289. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**SWSS 290. Foundation Yr Field Practicum. 3-4 Credits.**

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.

**SWSS 293. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**SWSS 294. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**SWSS 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SWSS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SWSS 299. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**SOCIOLOGY (SOC)****Courses****SOC 001. SU: Introduction to Sociology. 3 Credits.**

Fundamental principles and problems in the sociological analysis of the structure and dynamics of modern society.

**SOC 011. Social Problems. 3 Credits.**

Introduction to sociology through detailed examination of a selected number of major structural problems characteristic of contemporary societies. Problems treated may vary.

**SOC 014. Deviance & Social Control. 3 Credits.**

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.

**SOC 019. D1: Race Relations in the US. 3 Credits.**

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. May not be taken for credit concurrently with, or following receipt of, credit for CRES 065.

**SOC 020. Aging: Change & Adaptation. 3 Credits.**

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: HDFS 020.

**SOC 022. Sociology of Sexualities. 3 Credits.**

Examination of the social construction of sexuality with emphasis on theories, concepts, and cultural ramifications of a range of sexual practices and identities. Cross-listed with: GSWS 022.

**SOC 029. Sociology of the Family. 3 Credits.**

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.

**SOC 032. Social Inequality. 3 Credits.**

Introduction to structured class inequality in the United States, causes and consequences. Focus on wealth, prestige, and power. Inequalities of age, gender, and ethnicity also examined.

**SOC 054. Health Care in America. 3 Credits.**

Examination of the organization and financing of the U.S. health care system. Focus on health disparities, health care policy, and cross-national comparisons. Cross-listed with: HSOC 054.

**SOC 057. Drugs & Society. 3 Credits.**

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.

**SOC 085. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Instructor permission.

**SOC 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**SOC 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**SOC 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SOC 100. Fund of Social Research. 4 Credits.**

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. Prerequisites: STAT 051 or STAT 111 or STAT 141 or higher; three hours of Sociology or Political Science; minimum Sophomore standing. Cross-listed with: POLS 181.

**SOC 101. Developm't Sociological Theory. 3 Credits.**

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: SOC 001; three additional hours of Sociology; minimum Sophomore standing.

**SOC 102. Population, Environment & Soc. 3 Credits.**

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.

**SOC 109. The Self & Social Interaction. 3 Credits.**

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.

**SOC 112. D2: Global Deviance. 3 Credits.**

Studies different theoretical approaches to deviance and social control, empirical patterns of deviant behaviors, and temporal, spatial, and cultural variations in these patterns, in a global context. Prerequisite: Three hours of Sociology or Global and Regional Studies.

**SOC 115. Crime. 3 Credits.**

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.

**SOC 119. D1: Race & Ethnicity. 3 Credits.**

Description and analysis of ethnic, racial, and religious groups in the United States. Examination of social/cultural patterns in the larger society and in these groups themselves. Prerequisite: Three hours of Anthropology or Sociology. Cross-listed with: ANTH 187.

**SOC 120. Aging in Modern Society. 3 Credits.**

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 HDFS 020.

**SOC 121. SU:Sociology of Disaster. 3 Credits.**

Examination of disasters (natural, technological, intentional) using a sociological, critical lens. Analysis of research, theories, and current debates in the field of disaster sociology. Prerequisite: Three hours of Sociology.

**SOC 128. Sociology of Childhood. 3 Credits.**

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. Prerequisite: Three hours of Sociology.

**SOC 132. Affluence & Poverty in Mod Soc. 3 Credits.**

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.

**SOC 140. Gender, Sexualities & Medicine. 3 Credits.**

Examines medicine through a sociocultural lens, drawing on sociological, historical, anthropological, philosophical, feminist, queer, and critical race studies perspectives in order to explore the intersections of sex, gender, sexuality, and medicine. Prerequisites: Three hours of Sociology; or GSWS 001; or Health and Society major or minor. Cross-listed with: GSWS 140.

**SOC 151. Sociology of Religion & Ideology. 3 Credits.**

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. Prerequisite: Three hours of Sociology.

**SOC 155. D2: Culture, Health and Healing. 3 Credits.**

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. Prerequisite: Three hours of Sociology or ANTH 021 or ANTH 028. Cross-listed with: ANTH 174.

**SOC 157. QR: Population Health Research. 3 Credits.**

Overview of research methods used to examine population health dynamics. Topics include measuring health outcomes such as life expectancy and morbidity and examining the impact of sociological variables such as race and gender on health using domestic and international data. Prerequisite: Three hours of Sociology.

**SOC 160. Our Consuming Society. 3 Credits.**

A critical look at the things we buy and our motivations for buying them, and a consideration of collective action solutions to over-consumption. Prerequisite: Three hours of Sociology.

**SOC 171. D2: Soc Chng & Dev Persp Gl South. 3 Credits.**

Perspectives on development in the global south. Prerequisite: Three hours of Sociology.

**SOC 185. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisites: Three hours of Sociology; Instructor permission.

**SOC 188. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion. Prerequisites: Three hours of Sociology; Instructor permission.

**SOC 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Three hours of Sociology.

**SOC 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Three hours of Sociology.

**SOC 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Three hours of Sociology; Instructor permission.

**SOC 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Three hours of Sociology; Instructor permission.

**SOC 211. Soc Mvmts & Collective Action. 3 Credits.**

Introduction to the sociology of social movements, including examination of central topics such as movement emergence and formation, mobilization and participation, and tactical repertoires, in conjunction with explorations of specific movements both in the past and the present. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 212. D2: Int'l Migration & U.S. Soc. 3 Credits.**

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: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 216. Criminal Justice. 3 Credits.**

Analysis of social structures and processes in criminal justice arenas, the labeling of criminal offenders, and other issues related to crime, punishment, and justice. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing. Declared Law & Society minors may substitute SOC 014 for other prerequisite coursework in Sociology.

**SOC 218. D2: Disability as Deviance. 3 Credits.**

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: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 219. D1: Race Relations. 3 Credits.**

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. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 220. Internship in Gerontology. 3 Credits.**

Supervised service or research internship integrating theoretical and practical gerontological issues. Prerequisite: Minimum Junior standing; Instructor permission.

**SOC 223. Sociology of Reproduction. 3 Credits.**

Examines reproduction of cultural values in relation to social conduct of reproduction of human life (childbearing) under advanced capitalism. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing. Cross-listed with: GSWS 250.

**SOC 229. Family as Social Institution. 3 Credits.**

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. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 231. Transgender Studies. 3 Credits.**

Introduction to the interdisciplinary field of transgender studies. Exploration of trans studies in the social sciences and gender and queer studies and examination of the field's contributions to shifting understandings of sex, gender, identity, and the body. Prerequisites: SOC 001 or GSWS 001; SOC 090 or SOC 100 or SOC 101 or three credits in Gender, Sexuality, and Women's Studies at the 100-level; minimum Junior standing. Cross-listed with: GSWS 231.



**SOC 232. Social Class & Mobility. 3 Credits.**

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. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 240. Political Sociology. 3 Credits.**

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. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 243. Mass Media in Modern Society. 3 Credits.**

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. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 250. Sociology of Culture. 3 Credits.**

The relations of cultural forms and subjective experience to social structure and power; in-depth applications of interpretive approaches in contemporary sociology. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 258. Sociology of Law. 3 Credits.**

Analysis of sociocultural structure of the legal institution and its relationships to other institutions: the social organization of the legal profession, lawmaking, and the courts. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing. Declared Law & Society minors may substitute SOC 014 for other prerequisite coursework in Sociology.

**SOC 260. Sociology of Education. 3 Credits.**

Examines stratification in the school system, exploring the ways in which class, race, and gender affect the organization of schools and student performance. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 272. D2: Soc of African Societies. 3 Credits.**

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. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 274. Qualitative Research Methods. 3 Credits.**

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: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 275. Meth of Data Anyl in Soc Rsch. 3 Credits.**

Quantitative analysis of sociological data; includes table, regression, and path analysis, scaling and factor analysis, and the analysis of variance emphasizing multivariate techniques. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 285. Internship. 1-18 Credits.**

On-site supervised work experience with structured academic learning plan directed by faculty/ faculty-staff team with faculty as instructor of record, for credit. Offered at department discretion. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing; Instructor permission. Declared Law & Society minors may substitute SOC 014 for other prerequisite Sociology coursework.

**SOC 288. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing; Instructor permission.

**SOC 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing.

**SOC 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing; Instructor permission.

**SOC 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: SOC 001; SOC 090 or SOC 100 or SOC 101; minimum Junior standing; Instructor permission.

**SPANISH (SPAN)****Courses****SPAN 001. Elementary I. 4 Credits.**

Fundamentals of Spanish composition, comprehension, pronunciation, speaking, reading, and writing in a cultural context. Classes are conducted in Spanish and students engage in active use of the language. No prior knowledge expected.

**SPAN 002. Elementary II. 4 Credits.**

Continuation of SPAN 001. Fundamentals of Spanish composition, comprehension, pronunciation, speaking, reading, and writing in a cultural context. Classes are conducted in Spanish and students engage in active use of the language. Prerequisite: SPAN 001 or equivalent.

**SPAN 010. Elem Span for Special Purposes. 1-3 Credits.**

Elementary language study targeted to specialized vocabulary needs, such as health, ecology, community development, etc.. Prerequisite: SPAN 002 or Instructor permission.

**SPAN 051. Intermediate I. 3 Credits.**

Significant review of grammar, moving toward increased proficiency in composition, comprehension, pronunciation, speaking, reading, and writing. Emphasis on cultural context. Compositions, oral practice, reading. Prerequisites: SPAN 002, SPAN 009 or equivalent.

**SPAN 052. Intermediate II. 3 Credits.**

Continuation of SPAN 051. Grammar review, moving toward increased proficiency in composition, comprehension, pronunciation, speaking, reading, and writing. Emphasis on cultural context. May not be taken for credit concurrently with, or following receipt of, credit for SPAN 080. Prerequisite: SPAN 051 or equivalent.

**SPAN 080. SU: Intermediate II. 3 Credits.**

Continuation of SPAN 051. Students improve grammar, proficiency and their knowledge of the Hispanic world, while acquiring a Global South perspective surrounding sustainability. May not be taken for credit concurrently with, or following receipt of, credit for SPAN 52. Prerequisite: SPAN 051.

**SPAN 089. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**SPAN 095. Introductory Special Topics. 1-18 Credits.**

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

**SPAN 096. Introductory Special Topics. 1-18 Credits.**

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

**SPAN 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SPAN 101. Topics in Composition & Convs. 3 Credits.**

Writing practice, sentence structure, correct expression, and guided discussions in Spanish of cultural topics. A good command of basic grammar expected. Prerequisite: SPAN 052 or SPAN 080 or Instructor permission.

**SPAN 105. Phonetics & Phonology. 3 Credits.**

The sound system of Spanish: Spanish/English pronunciation contrasted; vowels, consonants, rhythms, intonation. Counts as major/minor elective, not for A&S language requirement. Prerequisite: SPAN 052 or SPAN 080 or Instructor permission.

**SPAN 109. Spanish Grammar. 3 Credits.**

An intensive study of Spanish grammar. Topical approach. Prerequisite: SPAN 052 or SPAN 080 or Instructor permission.

**SPAN 111. SU:Race,Identity&Migrant Labor. 3 Credits.**

Spanish composition and conversation course that explores the Mexican and Mexican-American experience in the United States during the nineteenth, twentieth, and twenty-first centuries and focuses on issues of sustainability, food sovereignty and institutionalized racism in service-learning and global contexts. Prerequisites: SPAN 052 or SPAN 080 or equivalent; GRS 001 recommended. Cross-listed with: GRS 111.

**SPAN 140. Analyzing Hispanic Literatures. 3 Credits.**

Introduction to basic genres of Hispanic literatures (narrative, poetry, drama, essay); development of analytical and critical reading/discussion skills. Short analytical papers and ample class discussion. Prerequisite: SPAN 101 or concurrent enrollment with Instructor permission.

**SPAN 143. Spain: Diversity & Expansion. 3 Credits.**

An introductory literature course; students will read and analyze texts associated with the diverse cultures of Spain as it began the period of colonial expansion. Prerequisite: SPAN 140.

**SPAN 144. Spain: Monarchy to Democracy. 3 Credits.**

An introductory literature course; students read and analyze literature and film written and produced in Spain from the neoclassical period until the present day. Prerequisite: SPAN 140.

**SPAN 145. D2:LatAm:Colonialism&Resistnce. 3 Credits.**

An introductory literature course; students read and analyze Latin American texts from the period before the conquest to the 1898 Spanish American War. Prerequisite: SPAN 140.

**SPAN 146. D2:LatAm:Revolutn&Globalizatn. 3 Credits.**

An introductory literature course; students read and analyze Latin American literature and film produced in the tumultuous 20th and 21st centuries. Prerequisite: SPAN 140.

**SPAN 188. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**SPAN 189. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**SPAN 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: SPAN 140.

**SPAN 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: SPAN 140.

**SPAN 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Permission of chair required. Prerequisite: SPAN 140.

**SPAN 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Permission of Chair required. Prerequisite: SPAN 140.

**SPAN 201. Adv Composition & Conversation. 3 Credits.**

To improve both written and oral proficiency. Textbook supplemented by panel discussions, debates, translation, and a weekly composition. Prerequisite: SPAN 101 or Instructor permission.

**SPAN 202. Topics in Spanish Lang Study. 3 Credits.**

Varied topics devoted to a special area such as translation, creative writing, Spanish for the professions (medicine, business, journalism, law), etc. Prerequisite: SPAN 101 or Instructor permission.

**SPAN 212. Intro to Hispanic Linguistics. 3 Credits.**

Introduction to the field of Hispanic linguistics, exploring the structures, sounds, semantics, and history of Spanish and its varieties around the world. Prerequisite: Six credits at 100 level.

**SPAN 217. Spanish Dialectology. 3 Credits.**

Study of the dialectal features that differentiate Latin American and peninsular Spanish and factors that have contributed to this process. Prerequisite: Six credits at 100 level.

**SPAN 237. Issues in Early Spanish Lit. 3 Credits.**

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: SPAN 140.

**SPAN 259. 20-21 Cent. Poetry of Spain. 3 Credits.**

A topical exploration of Spanish poetry. Themes may include the innovations of Modernismo, the Generation of '98, the Generation of '27, the 'Novisimos,' the 'Postnovisimos, and recent hypertextual trends. Prerequisites: SPAN 140.

**SPAN 264. D1: Border Literatures. 3 Credits.**

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: SPAN 140.

**SPAN 269. D2: Latin Amer City in Lit/Film. 3 Credits.**

A cultural studies approach to the representation of major Latin American cities in literature, film, and cultural critique. Topics may include: marginality, minorities, globalization, and social constructions of space. Prerequisite: SPAN 140.

**SPAN 273. Latin American Short Story. 3 Credits.**

A study of the 'masters' of the Latin American short story (Borges, Cortazar, Rulfo) and of non-canonical writers of the 20th and 21st centuries. Prerequisite: SPAN 140.

**SPAN 279. Performance and Politics. 3 Credits.**

A study of the relationship between Latin-American performance and its political contexts. Emphasis is placed on works particularly concerned with reshaping culture, politics, and aesthetics. Prerequisite: SPAN 140.

**SPAN 287. Early Span Narratives Americas. 3 Credits.**

Readings and analysis of late 15th and 16th century narratives. Discussion of European and Native American perspectives, religious disputes, and the 'Leyenda Negra (Black Legend). Prerequisite: SPAN 140.

**SPAN 288. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**SPAN 289. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**SPAN 290. Hispanic Films in Context. 3 Credits.**

Approaching film as reflection and shaper of Hispanic cultures through comparison with texts relevant to cultural context. Includes study of film terminology and analysis. Prerequisite: SPAN 140.

**SPAN 291. Early Cultures of Spain. 3 Credits.**

A study of the Spanish cultures from earliest times through 1700, emphasizing major intellectual, political, and artistic developments. Prerequisite: SPAN 140.

**SPAN 294. D2: Modern Latin Amer Cultures. 3 Credits.**

An overview of the cultures of Latin America with a multidisciplinary approach to understanding cultural constructions. Themes included: the city, nationhood, subjectivity, marginality. Prerequisite: SPAN 140.

**SPAN 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: SPAN 140.

**SPAN 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: SPAN 140.

**SPAN 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Permission of Chair required. Prerequisite: SPAN 140.

**SPAN 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Permission of Chair required. Prerequisite: SPAN 140.

**SPECIAL EDUCATION (EDSP)****Courses****EDSP 005. D2: Iss Aff Persons W/Disabil. 3 Credits.**

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.

**EDSP 093. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.



**EDSP 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSP 117. Behavior Management. 3 Credits.**

Discussion of theories and models developed for behavior management, and the translation of those theories into practical intervention techniques, both for the individual student and classroom groups. Emphasis on the use of interpersonal relationships as a means of changing child and youth behavior. Prerequisite: EDSP 005.

**EDSP 192. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDSP 193. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDSP 194. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSP 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSP 200. Contemporary Issues. 1-3 Credits.**

Designed so that its content and structure may accommodate special issues outside the boundaries of an existing course. Prerequisite: Twelve hours in education and related areas.

**EDSP 201. D2:Foundations of Special Ed. 3 Credits.**

Examination of historical and current trends in the treatment of individuals with disabilities including effects of discrimination, advocacy, litigation, legislation and economic considerations on educational services and community inclusion. Prerequisite: Twelve hours in Education and related areas, or Instructor permission.

**EDSP 202. Severe Disabil Char&Intervent. 3 Credits.**

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.

**EDSP 224. Meeting Inst Needs/All Stdnts. 3 Credits.**

Students apply principles of learning and social development to improve academic and social skills of all individuals with a focus on those who present academic and behavioral challenges. Prerequisite: Instructor permission.

**EDSP 274. D2:Culture of Disability. 3 Credits.**

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/ Graduate standing. Cross-listed with: CSD 274.

**EDSP 275. Voc Instr Students W/Spec Need. 3 Credits.**

Development of instructional strategies for including students with disabilities in vocational education. Procedures for developing, implementing, and evaluating individualized vocational plans. Prerequisite: Admission to an approved teacher certification program or Instructor permission.

**EDSP 280. Assessment in Special Ed. 3 Credits.**

Course covers assessment knowledge and skills essential for special educators, including test selection, administration and scoring, and legal issues related to special education assessment. Prerequisite: Admission to Graduate Program in Special Education or permission of the Instructor.

**EDSP 282. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDSP 287. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSP 290. Early Lit and Math Curriculum. 3 Credits.**

Study of curriculum and technology areas related to development, adaptation, and assessment of early literacy and mathematics instruction for elementary age students with disabilities. Prerequisite: Instructor Permission.

**EDSP 293. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDSP 294. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDSP 295. Laboratory Exp in Education. 1-6 Credits.**

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

**EDSP 296. Laboratory Exp in Education. 1-6 Credits.**

Credit as arranged.

**EDSP 297. Adolescent Lit & Math Curric. 3 Credits.**

Development, adaptation and assessment of literacy and mathematics curriculum for adolescent age students with disabilities. Prerequisite: Instructor Permission.

**EDSP 298. Special Educ Practicum. 1-6 Credits.**

Students provide direct instruction for six learners with learning disabilities, cognitive disabilities, behavior disorders, and/or multidisabilities. Prerequisite: Instructor permission.

**EDSP 299. Global Resilience Fam-Schl-Com. 3 Credits.**

Students travel outside of the continental US to gain a global perspective culturally diverse strategies for building resilience, enhancing equity, and responding to trauma and adversity. Prerequisites: EDSP 005, EDSP 117, minimum Junior standing, and Instructor permission.

**SPEECH (SPCH)****Courses****SPCH 011. Effective Speaking. 3 Credits.**

Fundamentals course in effective, informative, and persuasive public speaking and critical listening. Includes theory and practice.

**SPCH 031. Argument & Advocacy. 3 Credits.**

Introduces argumentation theory and develops advocacy and critical reasoning skills through writing and oral argument. Students will recognize and craft organized, well-supported, and ethical arguments in the context of controversial social issues.

**SPCH 071. Fundamentals of Debate. 3 Credits.**

An introduction to intercollegiate debate, students learn basics of argumentation, refutation, interpreting and evaluating arguments, and debating formats. Prepares students with skills in reasoning, critical thinking, and advocacy.

**SPCH 072. Citizen Advocacy & Debate. 3 Credits.**

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.

**SPCH 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**SPCH 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**SPCH 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Spring only.

**SPCH 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SPCH 180. Communicating Masculinities. 3 Credits.**

An exploration of how our culture communicates about and defines masculinity, what the effects are for individuals and institutions, and the alternative possibilities for creating new masculinities. Pre/Co-requisites: GSWS 001. Cross-listed with: GSWS 180.

**SPCH 181. Presidential Campaign Rhetoric. 3 Credits.**

Students learn about theories, style, construction, strategies, and the criticism and evaluation of rhetoric as applied to the presidential campaign. Prerequisites: SPCH 011, SPCH 031, SPCH 051, SPCH 082, or SPCH 083.

**SPCH 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**SPCH 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**SPCH 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**SPCH 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**SPCH 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SPCH 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SPCH 283. Seminar. 3 Credits.**

Seminar topics include: Nonverbal Communication, Rhetorical Criticism, Advanced Argumentation, Advanced Persuasion, Debate, Interpersonal Communication in Group Interaction, Communication in Conflict Management. Prerequisites: Six hours of Speech, of which at least three hours must be at the 100 level. Fall only.

**SPCH 284. Seminar. 3 Credits.**

Seminar topics include: Nonverbal Communication, Rhetorical Criticism, Advanced Argumentation, Advanced Persuasion, Debate, Interpersonal Communication in Group Interaction, Communication in Conflict Management. Prerequisites: Six hours of speech, of which at least three hours must be at the 100 level. Spring only.

**SPCH 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**SPCH 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**SPCH 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**SPCH 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**SPCH 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SPCH 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**STATISTICS (STAT)****Courses****STAT 051. QR: Probability With Statistics. 3 Credits.**

Introduction to probabilistic and statistical reasoning, including probability distribution models and applications to current scientific/social issues. Roles of probability, study design, and exploratory/confirmatory data analysis. Prerequisite: Two years high school algebra. No credit for Sophomores, Juniors, or Seniors in the mathematical and engineering sciences.

**STAT 052. D2: QR: Stat & Social Justice. 3 Credits.**

Introduction to probabilistic and statistical reasoning, including applications to current scientific/social issues, with special focus on issues of poverty, criminal justice, environmental justice, and voting, and impact on diverse and disadvantaged populations. Prerequisites: Two years High School algebra; no credit for Sophomores, Juniors, or Seniors in the mathematical and engineering sciences; credit for only one of STAT 051 and STAT 052.

**STAT 087. QR: Intro to Data Science. 3 Credits.**

Basic techniques of data harvesting and cleaning; association rules, classification, clustering; analyze, manipulate, visualize data using programming languages. Basic principles of probability and statistical modeling/inference to make meaning out of large datasets. No credit given after STAT 200 or greater. Cross-listed with: CS 087.

**STAT 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**STAT 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**STAT 095. Special Topics. 1-18 Credits.**

Lectures, reports, and directed readings at an introductory level. Prerequisite: As listed in schedule of courses.

**STAT 111. QR: Elements of Statistics. 3 Credits.**

Basic statistical concepts, methods, and applications, including correlation, regression, confidence intervals, and hypothesis tests. Prerequisites: Two years of high school algebra.

**STAT 141. QR: Basic Statistical Methods 1. 3 Credits.**

Foundational course for students taking further quantitative courses. Exploratory data analysis, probability distributions, estimation, hypothesis testing. Introductory regression, experimentation, contingency tables, and nonparametrics. Computer software used. Credit not given for more than one of STAT 141 or STAT 143.

**STAT 143. QR: Statistics for Engineering. 3 Credits.**

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. Credit not given for more than one of STAT 141 or STAT 143. Prerequisites: MATH 020 or MATH 022; Sophomore standing.

**STAT 151. QR: Applied Probability. 3 Credits.**

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 MATH 022 or MATH 023.

**STAT 181. Introduction to Coding in R. 1 Credit.**

Fundamentals of coding in the R programming language, including base package and other packages, for the purpose of data wrangling, data visualization, data analysis and modeling. Prerequisite: Any introductory-level or intermediate-level Statistics course. Pre/Co-requisite: Minimum Sophomore standing.

**STAT 183. QR: Basic Statistical Methods 2. 3 Credits.**

Quantitative statistical methodologies useful across disciplines. Analysis of variance, multiple and logistic regression, time series analysis, non-parametric methods, Bayesian statistics and decision analysis. Prerequisite: A grade of C or better in any of STAT 141, STAT 143, STAT 211, or EC 170.

**STAT 187. QR: Basics of Data Science. 3 Credits.**

Basic data science techniques, from import to cleaning to visualizing and modeling, using the R language. Machine learning methods include regression, classification and clustering algorithms. Programming methods include user-defined functions. Prerequisite: STAT 111 or STAT 141 or STAT 143 or STAT 211. Cross-listed with: CS 187.

**STAT 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**STAT 191. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Junior standing; permission of Program Director.

**STAT 195. Intermediate Special Topics. 1-18 Credits.**

Lectures, reports, and directed readings. Prerequisite: As listed in schedule of courses.



**STAT 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**STAT 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**STAT 200. QR: Med Biostat&Epidemiology. 3 Credits.**

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, STAT 141, STAT 143, or STAT 211.

**STAT 201. QR:Stat Computing&Data Anlysis. 3 Credits.**

Fundamental data processing, code development, graphing and analysis using statistical software packages, including SAS and R. Analysis of data and interpretation of results. Project-based. Prerequisite: STAT 141 or STAT 143 or STAT 211; or STAT 111 with Instructor permission.

**STAT 211. QR: Statistical Methods I. 3 Credits.**

Fundamental concepts for data analysis and experimental design. Descriptive and inferential statistics, including classical and nonparametric methods, regression, correlation, and analysis of variance. Statistical software. Prerequisite: Minimum Junior standing or STAT 141 or STAT 143 and Instructor permission.

**STAT 221. QR: Statistical Methods II. 3 Credits.**

Multiple regression and correlation. Basic experimental design. Analysis of variance (fixed, random, and mixed models). Analysis of covariance. Computer software usage. Prerequisite: STAT 143 or STAT 211 with a grade of C or better; or STAT 141 and Instructor permission.

**STAT 223. QR:Appld Multivariate Analysis. 3 Credits.**

Multivariate normal distribution. Inference for mean vectors and covariance matrices. Multivariate analysis of variance (MANOVA), discrimination and classification, principal components, factor and cluster analysis. Prerequisite: STAT 221, matrix algebra recommended.

**STAT 224. QR:Stats for Quality&Productvty. 3 Credits.**

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. Prerequisite: STAT 141, STAT 143, or STAT 211.

**STAT 229. QR:Survivl/Logistic Regression. 3 Credits.**

Models and inference for time-to-event and binary data. Censored data, life tables, Kaplan-Meier estimation, logrank tests, proportional hazards models. Logistic regression-interpretation, assessment, model building, special topics. Prerequisite: STAT 221.

**STAT 231. QR: Experimental Design. 3 Credits.**

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. Prerequisite: STAT 221; or STAT 211 and STAT 201.

**STAT 235. QR: Categorical Data Analysis. 3 Credits.**

Measures of association and inference for categorical and ordinal data in multiway contingency tables. Log linear and logistic regression models. Prerequisite: STAT 211.

**STAT 241. QR: Statistical Inference. 3 Credits.**

Introduction to statistical theory: related probability fundamentals, derivation of statistical principles, and methodology for parameter estimation and hypothesis testing. Prerequisites: A grade of C or better in one of STAT 151, STAT 153, or STAT 251; STAT 141 or equivalent; MATH 121.

**STAT 251. QR: Probability Theory. 3 Credits.**

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 STAT 153 recommended.

**STAT 261. QR: Statistical Theory. 3 Credits.**

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. Prerequisite: STAT 251.

**STAT 281. Capstone Experience. 1-3 Credits.**

Intensive experience in carrying out a complete statistical analysis for a research project in substantive area with close consultation with a project investigator. Project-based. Prerequisite: STAT 200 or STAT 201 or STAT 221 through STAT 237 or STAT 253; some statistical software experience; Instructor permission.

**STAT 287. QR: Data Science I. 3 Credits.**

Data harvesting, cleaning, and summarizing. Working with non-traditional, non-numeric data (social network, natural language textual data, etc.). Scientific visualization using static and interactive 'infographics'. A practical focus on real datasets, and developing good habits for rigorous and reproducible computational science. Project-based. Prerequisites: CS 020 or CS 021; STAT 141 or STAT 143 or STAT 211; CS 110 and MATH 124 recommended. Cross-listed with: CS 287.

**STAT 288. QR: Statistical Learning. 3 Credits.**

Statistical learning methods and applications to modern problems in science, industry, and society. Topics include: linear model selection, cross-validation, lasso and ridge regression, tree-based methods, bagging and boosting, support vector machines, and unsupervised learning. Prerequisites: STAT 143, STAT 183 or STAT 211. Cross-listed with: CS 288.

**STAT 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**STAT 291. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**STAT 293. Undergrad Honors Thesis. 1-18 Credits.**

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. Prerequisite: CEMS 101.

**STAT 294. Undergrad Honors Thesis. 1-8 Credits.**

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.

**STAT 295. Advanced Special Topics. 1-18 Credits.**

For advanced students. Lectures, reports, and directed readings on advanced topics. Prerequisite: As listed in schedule of courses.

**STAT 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**STAT 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## SURGERY (SURG)

### Courses

**SURG 090. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**SURG 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SURG 096. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**SURG 190. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**SURG 191. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**SURG 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SURG 193. Special Topics. 1-18 Credits.**

See schedule of courses for specific titles.

**SURG 194. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SURG 200. Emergency Medicine Research I. 4 Credits.**

Lecture course with 4 hour lab. Introduction to research in Emergency Medicine with clinical exposure including shadowing EMTs, RNs, and MDs. Students will learn about research ethics, informed consent, and clinical epistemology. Prerequisites: Minimum Sophomore standing and Instructor permission; First-Year students who have prior clinical experience (e.g. EMTs) or are non-traditional students are considered on a case-by-case basis.

**SURG 201. Emergency Medicine Research II. 4 Credits.**

Advanced discussion and research training in emergency medicine with continued emergency department-based human subjects laboratory. Includes eight hours of clinical time per week helping recruit patients for ongoing research projects as well as a one hour seminar per week. Prerequisites: SURG 200 with minimum grade B; Instructor permission.

**SURG 220. Emerg. Medicine Research III. 3 Credits.**

Emergency medicine research under guidance of a faculty member, including facilitating study enrollment and implementation of research project proposed during SURG 201. Prerequisites: SURG 200, SURG 201; Instructor permission.

**SURG 290. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**SURG 291. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**SURG 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SURG 294. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**SURG 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Instructor permission.

## TEACHER EDUCATION (EDTE)

### Courses

**EDTE 001. Teaching to Make a Difference. 3 Credits.**

This course serves as an introduction to the field of education and how teaching can foster a more just and humane world.

**EDTE 055. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**EDTE 061. SU:Foundations of PBE. 3 Credits.**

Introduces the principles and practices of place-based education. Students learn to design place-based curriculum and educative materials from an interdisciplinary analysis of specific places. Cross-listed with: NR 061.

**EDTE 074. SU:Science of Sustainability. 3 Credits.**

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.

**EDTE 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDTE 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDTE 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**EDTE 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDTE 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDTE 251. Place-Based Education Capstone. 3 Credits.**

The capstone experience for undergraduate students participating in the Place-Based Education Certificate Program; provides a structured opportunity for students to engage in dialogue and critical reflection, and to design a robust PBE experience in collaboration with a community partner. Prerequisites: EDTE 061 or NR 061; one of CDAE 102, EDEC 181, EDEL 157, EDML 171, ENVS 173, ENVS 181, ENVS 187, PRT 149. Pre/Co-requisites: Minimum Junior standing or Instructor permission.

**EDTE 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**EDTE 296. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**EDTE 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**EDTE 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**THEATRE (THE)****Courses****THE 010. Acting I: Intro to Acting. 3 Credits.**

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.

**THE 013. Improvisation Workshop. 3 Credits.**

Instruction on methods and theories of improvisation as a means of developing character and authenticity for the stage as well as for social and professional contexts that require creative problem solving and collaboration.

**THE 017. Performance and Society. 3 Credits.**

Study of the many facets of live performance. Application of critical theory and social frameworks to determine relevance and meaning in our historical moment. Investigation into how production translated from page to live performance and the complexities of artistic choices.

**THE 020. Fundamentals of Lighting. 4 Credits.**

Primary course in the area of stage lighting design and execution. Includes Lab.

**THE 030. Fundamentals of Scenery. 0 or 4 Credits.**

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.

**THE 040. Fundamentals of Costuming. 0 or 4 Credits.**

Primary course in area of costume design and construction. Includes Lab. Fall.

**THE 050. Dramatic Analysis. 3 Credits.**

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 and Instructor permission.

**THE 075. D1:Diversity:Cont US Theatre. 3 Credits.**

An exploration of plays and playwrights in contemporary theatre focusing on themes pertaining to race, sexuality, gender, and the physically challenged. Prerequisite: Minimum Sophomore standing. Cross-listed with: CRES 075.

**THE 077. D2:Intro Asian Theatre & Dance. 3 Credits.**

Survey of traditional dance/theatre forms in Asia, including performance traditions from China, Korea, Japan, India, Indonesia and other locations, focusing on the religious, historical, and cultural backgrounds and their influences on contemporary performance. Cross-listed with: DNCE 006.

**THE 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.



**THE 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Fall. Prerequisite: Instructor permission.

**THE 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific topics.

**THE 110. Acting II: Contemporary Scene Study. 3 Credits.**

Continuation of Acting I. Development of acting techniques through intensive scene work: refining script analysis and performance skills using contemporary scenes. Prerequisites: THE 010; Sophomore standing.

**THE 111. Acting III: Voice & Speech. 3 Credits.**

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. Prerequisite: THE 010 and Instructor permission.

**THE 112. Acting IV: Movement. 3 Credits.**

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 Instructor permission.

**THE 119. Performing Musical Theatre. 3 Credits.**

Provides students with a sound foundation in the craft of musical theatre performance. Instruction guides students to connect vocally, emotionally, and physically to musical materials that reflect various historical periods and styles of musical theatre. Prerequisite: THE 010.

**THE 120. Lighting Design. 3 Credits.**

Explores, through classroom instruction and projects, the development of lighting designs for a variety of live performance situations. Prerequisite: THE 020. Fall only.

**THE 130. Scene Design. 3 Credits.**

A practical application of the elements, principles, and styles of theatrical stage design through research, sketching, and rendering techniques. Prerequisite: THE 030. Spring only.

**THE 131. Scene Painting Concepts & Appl. 3 Credits.**

Lab course to study practical application of painting techniques used in theatre, trompe l'oeil. Develops skills introduced in THE 030. Alternates with THE 230. Prerequisite: THE 030 or Instructor permission.

**THE 140. Costume Design. 3 Credits.**

Elements, principles, and styles of design applied to the visual creation of a dramatic character. Prerequisites: THE 040, with THE 041 highly recommended. Spring only.

**THE 150. Hist I: Class/Med/Ren Thtr. 3 Credits.**

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.

**THE 160. Stage Management. 3 Credits.**

Theory and practice for stage managing in the non-commercial theatre. Prerequisites: THE 010 and Pre/co-requisites: THE 010 and one of: THE 020, THE 030, THE 040. Spring.

**THE 170. Playwriting and Dramatic Forms. 3 Credits.**

Students study models of dramatic structure and contemporary concepts of writing for the stage and apply principles to the creation of original works. Prerequisite: THE 050 or ENGS 053.

**THE 190. Theatre Practicum. 0.5-3 Credits.**

Students are required to earn credit through production activities. Project proposals must be approved by department faculty. Students may not complete more than 2 credits in any one area of production (acting, production crew, front of house, marketing, and design). Prerequisite: Instructor permission.

**THE 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**THE 192. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**THE 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Fall. Prerequisite: Instructor permission.

**THE 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Spring. Prerequisite: Instructor permission.

**THE 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor Permission.

**THE 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Instructor Permission.

**THE 200. Professional Preparation. 1-3 Credits.**

Topics include preparing for auditions, portfolio reviews, interviews, and research papers for entrance into graduate schools or professional theatre venues. Prerequisite: Junior/Senior standing and by Instructor permission only.

**THE 212. Mask: Transformational Acting. 3 Credits.**

Mask is used to provoke actor's imagination through improvisation, physical gesture, creation of original works, and storytelling. Prerequisites: THE 010, THE 110, or Instructor permission.

**THE 250. Directing I. 3 Credits.**

Theory of theatrical directing, including script analysis; approaches to audition, rehearsal, and performance; coaching actors. Prerequisites: THE 010, THE 020, THE 030, THE 040, THE 050, THE 110, THE 150, either THE 120, THE 130, or THE 140; Senior standing or Instructor permission. Fall.

**THE 252. History II: 17th - 21st Century. 3 Credits.**

A study of historical context, theatrical conventions, and dramas representative of the restoration, sentimental neo classicism, romanticism, realism, and anti-realism to the contemporary. Prerequisite: THE 150.

**THE 283. Seminar - Design. 3 Credits.**

Senior Theatre projects for students in areas of design. Prerequisites: Senior standing; THE 010, THE 020, THE 030, THE 040, THE 050, THE 150, THE 252; and THE 120, THE 130, or THE 140; and by Instructor permission only.

**THE 284. Seminar: Act, Dir, SM, Write. 3 Credits.**

Senior Theatre projects for students in the areas of acting, directing, playwriting, and stage management. Prerequisites: Senior standing; THE 010, THE 020, THE 030, THE 040, THE 050, THE 150, THE 252; and by Instructor permission only. In addition: for Actors: THE 110; for Stage Managers: THE 160; for Playwrights: THE 170; for Directors, THE 250.

**THE 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**THE 292. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**THE 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Pre/co-requisite: Instructor permission only.

**THE 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Pre/co-requisite: Instructor permission only.

**THE 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**THE 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**TRANSPORTATION RSCH CTR (TRC)****Courses****TRC 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**VERMONT STUDIES (VS)****Courses****VS 052. Sustainable Vermont. 3 Credits.**

Survey of the state's history, environment, energy use, politics, small towns, landscape, food systems, and culture. Includes field trips to Vermont landmarks and meeting some key Vermonters.

**VS 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**VS 095. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**VS 096. Introductory Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**VS 097. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**VS 164. D1: Indians of the NE: Vermont. 3 Credits.**

Native peoples of Vermont from their earliest appearance in the region until today. Archaeological and ethnographic data reviewed in the broader perspective of aboriginal Northeastern cultural history. Prerequisites: ANTH 021 or ANTH 024. Cross-listed with: ANTH 164.

**VS 184. Vermont History. 3 Credits.**

Survey of Vermont history from early times to the present. Prerequisite: Three hours of History. Cross-listed with: HST 184.

**VS 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Nine hours of Vermont Studies; Junior/Senior standing.

**VS 193. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**VS 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**VS 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**VS 197. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Declared minor in Vermont Studies.

**VS 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Declared minor in Vermont Studies.

**VS 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**VS 293. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**VS 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Junior/Senior/Graduate standing.

**VS 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisite: Junior/Senior/Graduate standing.

**VS 297. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Declared minor in Vermont Studies.

**VS 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Declared minor in Vermont Studies.

**WILDLIFE & FISHERIES BIOLOGY (WFB)****Courses****WFB 013. Intro to Wildlife Tracking. 1 Credit.**

This outdoor course is designed to introduce the student to wildlife track identification and analysis at the UVM Jericho Research Forest.

**WFB 014. Wildlife Trail Analysis. 1 Credit.**

This outdoor course is designed to introduce the student to analysis and interpretation of wildlife trails at the UVM Jericho Research Forest.

**WFB 015. Wildlife Track Analysis. 1 Credit.**

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.

**WFB 074. SU: Wildlife Conservation. 3 Credits.**

Historical and contemporary values of wildlife; impacts on habitats and populations; strategies for conservation, allocation, and use. Nonmajors only.

**WFB 091. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**WFB 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**WFB 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific title.

**WFB 117. Scientific Writing and Interpr. 3 Credits.**

Focus on effective communication within the genre of scientific research by focusing on technical writing, revising and editing, interpreting data, creating figures and tables, critically reading and data mining the literature, and producing an original scientific research manuscript. Prerequisites: BIOL 001 or BCOR 011; Wildlife and Fisheries Biology majors; Minimum Sophomore standing.

**WFB 130. Ornithology. 3 Credits.**

Taxonomy, classification, identification, morphology, physiology, behavior, and ecology of birds. Prerequisites: BIOL 001 or BCOR 011; BIOL 002 or BCOR 012.

**WFB 131. Field Ornithology. 2 Credits.**

Identification and field studies of birds, emphasizing resident species. Two weeks in summer. Prerequisite: WFB 130 Prerequisite: WFB 130.

**WFB 141. Field Herpetology. 4 Credits.**

Introduction to the identification, life histories, habitats, conservation, and field study of Vermont's reptiles and amphibians.

**WFB 150. Wldlf Habitat & Pop Measrmnt. 1 Credit.**

Field methods for measuring habitat variables and estimating population parameters. One week in summer. Prerequisite: FOR 021.

**WFB 161. Fisheries Biology & Techniques. 0 or 4 Credits.**

Introduction to freshwater fish, habitats, and life histories. Overview of fishery techniques, including sampling and assessment methods, stocking, harvest regulations, population and habitat evaluation. Prerequisites: BIOL 001 or BCOR 011 and BIOL 002 or BCOR 012.

**WFB 174. Prin of Wildlife Management. 3 Credits.**

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. Prerequisite: NR 103 or BCOR 102.

**WFB 176. Florida Ecology Field Trip. 2 Credits.**

Major ecosystems and associated wildlife, ranging from north Florida flatwoods to south Florida Everglades. Field trip over spring recess. Prerequisite: WFB 130. Alternate years.

**WFB 187. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small research projects under the supervision of a faculty member for which credit is awarded. Formal report required. Offered at department discretion.



**WFB 191. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**WFB 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**WFB 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**WFB 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, Offered at department discretion.

**WFB 224. Conservation Biology. 0 or 4 Credits.**

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. Prerequisites: NR 103 or BCOR 102; BIOL 001 and 002, or PBIO 004, or BCOR 011 and BCOR 012.

**WFB 232. Ichthyology. 3 Credits.**

Biology of fishes. Focus is on form and function, morphology, physiology, behavior, life history, and ecology of modern fishes. Prerequisites: BIOL 001 and BIOL 002, or BCOR 011 and BCOR 012; Junior standing. Alternate years.

**WFB 261. Fisheries Management. 3 Credits.**

Principles of fisheries management, including population assessment, analytical methods, harvest allocation models, human dimensions, policy and emerging issues. Prerequisites: BIOL 001 or BCOR 011; BIOL 002 or BCOR 012; WFB 161.

**WFB 275. Wildlife Behavior. 3 Credits.**

Behavior and social organization of game and nongame species as they pertain to population management. Prerequisites: BIOL 001 or BCOR 011, BIOL 002 or BCOR 012, NR 103 or BCOR 102.

**WFB 279. Marine Ecology & Conservation. 3 Credits.**

The science of conservation biology and ecology in marine systems. Topics such as the components and processes of marine ecosystems, fisheries management, endangered species, and marine protected areas will be explored. Prerequisites: NR 103 or BCOR 102; Junior standing.

**WFB 283. Terrestrial Wildlife Ecology. 4 Credits.**

Wildlife ecology with an emphasis on the management and conservation of species, populations, and ecosystems. Prerequisite: WFB 174, and NR 103 or BCOR 012.

**WFB 287. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**WFB 291. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**WFB 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**WFB 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**WFB 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

**WFB 299. Wildlife & Fisheries Honors. 1-6 Credits.**

Honors project dealing with wildlife or fisheries biology.

**WORLD LITERATURE (WLIT)****Courses****WLIT 017. German Lit in Translation. 3 Credits.**

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).

**WLIT 018. Russian Lit in Translation. 3 Credits.**

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).

**WLIT 020. D2: Literatures of Globalizatr. 3 Credits.**

How writers imagine themselves and their relationship with others in a globalizing world.

**WLIT 024. Myths & Legends of Trojan War. 3 Credits.**

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

**WLIT 025. D2:Tales from the Global City. 3 Credits.**

Examines the individual's search for connectedness, purpose, and beauty in the international metropolises of New York, Shanghai, Buenos Aires, and Mexico City through literary fiction and nonfiction, framed by the lenses of urban theory and architecture.

**WLIT 042. Mythology. 3 Credits.**

Greek myth in literature, art, and music from antiquity to modern times. Cross-listed with CLAS 042.

**WLIT 090. Internship. 1-3 Credits.**

An on-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**WLIT 092. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**WLIT 095. Special Topics. 1-18 Credits.**

Special topics in literary studies. Individual courses might include comparative study of particular literary genres, periods, authors or works from varied international literatures.

**WLIT 096. Special Topics. 1-18 Credits.**

Special topics in literary studies. Individual courses might include comparative study of particular literary genres, periods, authors or works from varied international literatures.

**WLIT 109. D2:Japanese Lit-Premodern. 3 Credits.**

WLIT 109 introduces students to premodern Japanese literary works in translation, including poetry, prose, and drama, from the 8th to mid 19th century. Prerequisite: Sophomore standing.

**WLIT 110. D2:Classical Chinese Lit in Trans. 3 Credits.**

A survey course on classical Chinese literature. Knowledge of Chinese language is preferred but not required.

**WLIT 113. Italian Lit in Translation. 3 Credits.**

Readings and discussion of representational work in English translation. No knowledge of Italian is necessary. Prerequisite: Sophomore standing.

**WLIT 116. D1:Latino Writers US:Cont Pers. 3 Credits.**

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.

**WLIT 117. German Lit in Translation. 3 Credits.**

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.

**WLIT 118. Russian Lit in Translation. 3 Credits.**

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.

**WLIT 119. D2:Japanese Literature-Modern. 3 Credits.**

WLIT 119 introduces students to modern and contemporary Japanese literary works in translation, from the late 19th to early 21st century. Prerequisite: Sophomore standing.

**WLIT 129. D2: Japanese Contemp Fiction. 3 Credits.**

Japanese Contemporary Fiction covers contemporary (post 1980) and popular Japanese writing, mainly novels and short stories, in translation from a variety of genres and styles. Prerequisite: Minimum Sophomore standing.

**WLIT 145. D2: Comparative Epic. 3 Credits.**

Prerequisite: Sophomore standing. Cross-listed with: CLAS 145.

**WLIT 190. Internship. 1-18 Credits.**

An on-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**WLIT 192. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional ?classroom/laboratory setting? under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**WLIT 195. Intermediate Special Topics. 1-18 Credits.**

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.

**WLIT 196. Intermediate Special Topics. 1-18 Credits.**

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.

**WLIT 197. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded.

**WLIT 198. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**WLIT 290. Internship. 1-18 Credits.**

An on-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**WLIT 292. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional ?classroom/laboratory setting? under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**WLIT 295. Advanced Special Topics. 1-18 Credits.**

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.

**WLIT 296. Advanced Special Topics. 1-18 Credits.**

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.

**WLIT 297. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded.

**WLIT 298. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

## THE COLLEGE OF AGRICULTURE AND LIFE SCIENCES

<http://www.uvm.edu/cals> (<http://www.uvm.edu/~cals/>)

The programs of the College of Agriculture and Life Sciences (CALS) emphasize life sciences, agriculture and food systems, environment, sustainability, 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, outreach, 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.

Applying knowledge outside the classroom is a signature of all CALS programs. Opportunities abound for on and off campus experiences such as internships, community service learning, undergraduate research, independent study, and study abroad. Pre-professional tracks prepare students for employment upon graduation or for successful pursuit of advanced degrees. 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 research and encourage undergraduate participation.

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](mailto:calsstudentservices@uvm.edu) or call (802) 656-2980.

### 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.

#### SCIENCE

Students use the scientific method to understand the natural world and the human condition.

#### 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.

#### SOCIAL SCIENCES

Competency may be met by satisfactory completion of two courses in subjects such as anthropology, community entrepreneurship, community and international development, economics, food systems, geography, history, political science, public communication, public policy, psychology, and sociology.

#### 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 theatre.

#### B. Skills

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

#### COMMUNICATION SKILLS

Students express themselves in a way that is easily understood at a level that is appropriate for the audience.

- **Oral:** Students show confidence and efficacy in speaking before a group. Competency may be met by satisfactory completion of two courses: 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.
- **Written:** Students communicate effectively in writing. Competency may be met by satisfactory completion of ENGL 001 or HCOL 085, and an additional course or series of courses that uses the writing process (redrafting) for a minimum of three graded papers.

#### 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).

### TECHNOLOGY REQUIREMENT

The College of Agriculture and Life Sciences prepares students for careers and graduate studies by applying their knowledge, skills, and values in the classroom, as well as experiences in labs, farms, facilities, internships and study abroad. In these professional capacities, students will be expected to apply technology to communicate, compile, and analyze their work. Therefore, all CALS undergraduate programs require students to have a laptop computer.

### QUANTITATIVE SKILLS

Students demonstrate the ability to use numbers and apply and understand statistical methods.

- **Mathematics:** Students demonstrate the use of numbers for problem solving. Competency may be met by satisfactory completion of one course: MATH 009 or higher, depending on requirements of the major.
- **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, depending on requirements of the major.

### 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.

### 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.'

### 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.

### ENVIRONMENTAL STEWARDSHIP

Students develop sensitivity for the interconnected relationship between human beings and the natural world and the responsibility for stewardship of the environment.

### 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.

## 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.

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.

## 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.

## ACCELERATED MASTER'S PROGRAMS (AMPS)

The AMP allows early admission to graduate studies with up to 6 concurrent credits double-counted toward the bachelor's and master's degrees. Most programs also allow students to take an additional 3 credits of graduate coursework while still an undergraduate, but these

credits may not be double counted. AMP's affiliated with the College of Agriculture and Life Sciences include:

Animal Science

Food Systems

Microbiology and Molecular Genetics

Nutrition and Food Science

Public Administration

Visit the UVM Graduate College for more information.

## UVM & VERMONT LAW SCHOOL 3+2 PROGRAM

The University of Vermont (UVM) and Vermont Law School (VLS) offer a unique dual-degree program leading to a Bachelor's in three years and a Juris Doctor (JD) degree in two years. The UVM-VLS 3+2 program enables highly-focused students to earn both degrees in less time and at less cost from two distinguished institutions. Students may choose to enter the program from selected majors in the College of Agriculture and Life Sciences including Community and International Development and Public Communication.

## EXAMPLES OF PRE-MEDICAL AND PRE-VETERINARY OPPORTUNITIES MAY INCLUDE:

### 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.

### ACEND-ACCREDITED DIDACTIC PROGRAM

UVM students who aspire to become Registered Dietitian Nutritionists have the opportunity to successfully complete the Accreditation Council for Education in Nutrition and Dietetics (ACEND)-accredited didactic program while majoring in Dietetics, Nutrition & Food Sciences (DNFS) at UVM. Dietetics is a growing profession as healthcare moves from treatment to prevention. Healthcare reform and policies discussed in Washington DC and across the country all include prevention-related components. Although many health professionals are interested

in prevention, Registered Dietitians are at the cutting edge of prevention, because so many preventable diseases and conditions are tied to food and nutrition. Our UVM DNFS graduates are eligible to apply to an ACEND-accredited supervised practice program to be eligible to become Registered Dietitian Nutritionists.

## 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, visit the Pre-veterinary Information for Prospective Students on the Department of Animal and Veterinary Sciences website.

## 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 should refer to the admission requirements of the University of Guelph Ontario Veterinary College for minimum GPA and GRE scores. 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.

### **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.

### **UVM/UNIVERSITY OF GLASGOW MATRICULATION AGREEMENT**

The University of Glasgow (UoG), Glasgow, UK and the University of Vermont (UVM), Burlington, VT USA have formed an agreement whereby University of Vermont students can complete a joint B.S./BVMS degree attending UoG in their fourth year at UVM. UVM may send students who have successfully completed three years of study in the University of Vermont Animal and Veterinary Sciences Bachelor of Science (B.S.) program to the Bachelor of Veterinary Medicine and Surgery programme (BVMS) hosted by the School of Veterinary Medicine, College of Medical, Veterinary and Life Sciences at Glasgow. Participating students will continue as candidates for degrees from their home institution (UVM) and will not, at the end of the first year at UoG, be eligible candidates for degrees from the host institution (UoG). Credit for subjects taken at UoG will be transferred to UVM to fulfill the requirements for awarding successful students a B.S. degree in Animal and Veterinary Sciences from UVM at the end of their fourth year. University of Vermont students meeting matriculation requirements and successfully completing Year 1 of the BVMS program at the University of Glasgow will be offered a direct entry place in Year 2 of the BVMS program. UVM students

must work with the Department of Animal and Veterinary Sciences to apply, and should be by the end of the fall semester of their junior year.

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- Animal Science B.S. (p. 217)
- Biochemistry B.S. (p. 223)
- Biological Science B.S. (p. 224)
- Community Entrepreneurship B.S. (p. 227)
- Community and International Development B.S. (p. 227)
- Dietetics, Nutrition and Food Sciences B.S. (p. 245)
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## **MINORS**

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- Animal Science (p. 222)
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- Consumer Affairs (p. 231)
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- Environmental Studies (p. 239)
- Food Systems (p. 232)
- Green Building and Community Design (p. 233)
- Microbiology (p. 243)
- Molecular Genetics (p. 243)
- Nutrition and Food Sciences (p. 246)
- Plant Biology (p. 250)
- Public Communication (p. 233)
- Soil Science (p. 249)
- Sports Management (p. 234)
- Sustainable Landscape Horticulture (p. 249)

## **REQUIREMENTS**

### **MAJOR DEGREE REQUIREMENTS**

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



1. The successful completion of a minimum of 120 credits of course work.
2. A minimum cumulative grade-point average of 2.00.
3. Completion of the CALS Core Competencies.
4. CALS 001 (CALS 183) and CALS 002 (CALS 085) foundation courses or approved equivalent courses for transfer students.
5. Students may overlap up to eight credits between their major and minor. Departmental exceptions and restrictions allowed.
6. 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.
7. The University requires all undergraduates to meet the Sustainability General Education Requirement for the University of Vermont. To meet this requirement, students must complete a course, curriculum, or co-curriculum prior to graduation that has been approved by the Faculty Senate's Sustainability Curriculum Review Committee.
8. 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.

## 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

<b>Biology with laboratory</b>		
Choose one of the following sequences:		8
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
<b>Chemistry with laboratory</b>		
Inorganic Chemistry:		8
CHEM 031	General Chemistry 1	
CHEM 032	General Chemistry 2	
Organic Chemistry:		8
CHEM 141	Organic Chemistry 1	
CHEM 142	Organic Chemistry 2	
<b>Physics with laboratory</b>		
With math:		10
PHYS 011 & PHYS 021	Elementary Physics and Introductory Lab I	
PHYS 012 & PHYS 022	Elementary Physics and Introductory Lab II	
<b>Mathematics (requirement varies)</b>		
MATH 019	QR: Fundamentals of Calculus I	3
MATH 020	QR: Fundamentals of Calculus II	3
<b>Humanities, Social Sciences, Languages</b>		
Students must complete the minimum college requirements in this area that includes English composition and speech. Many Medical and Dental Schools require two English Courses. Psychology and Sociology courses are required and/or recommended. For more information, Please visit the UVM Pre-Health website.		

## Veterinary Medical Schools

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

<b>Biochemistry</b>		
PBIO 185 & PBIO 187	Introduction to Biochemistry and Intro to Biochemistry: Lab	4
<b>Written English</b>		
Choose two of the following:		6
ENGS 001	FW: Written Expression	
ENGS 050	The Art of the Essay	

ENGS 053	Intro to Creative Writing	
<b>Genetics</b>		
BCOR 101	Genetics	3
or ASCI 168	Animal Genetics	
<b>Microbiology</b>		
MMG 101	Microbiol & Infectious Disease	4
<b>Nutrition</b>		
ASCI 110	Animal Nutrit, Metab & Feeding	4

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. Requirements vary by school.

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.

## 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 cannot be appealed. 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 catalog for details on this policy.

### Appeal

A student may appeal a dismissal to the CALS Studies Committee by direction 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.

## DEPARTMENTS/PROGRAMS

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## DEPARTMENT OF ANIMAL AND VETERINARY SCIENCES

<http://asci.uvm.edu/>

Domestic animals play a major role in our lives through agriculture, recreation, biomedical sciences, and companionship. The mission of the Department of Animal and Veterinary Sciences 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 sciences, agribusiness, companion animal and equine care and management, zoos and aquaria, or education. Students work closely with faculty advisors to tailor their programs toward specific career goals.

The Department of Animal and Veterinary Sciences actively encourages participation in undergraduate research, internships, and study abroad. Students have the opportunity to develop a well-rounded curriculum by complementing their classroom learning with laboratory and hands-on practical experiences.

## MAJORS

### ANIMAL AND VETERINARY SCIENCES MAJOR

Animal Science B.S. (p. 217)

## MINORS

### ANIMAL AND VETERINARY SCIENCES MINOR

Animal Science (p. 222)

## GRADUATE

Animal Biosciences M.S.

Animal Biosciences Ph.D.

Cellular, Molecular, and Biomedical Sciences Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

## ANIMAL SCIENCE B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

Major Requirements - Common to all Concentrations

ANIMAL AND VETERINARY SCIENCES		
ASCI 001	Introductory Animal Sciences	3
ASCI 043	Intro to Animal Nutrition	3
ASCI 111	Animal Anatomy	4
ASCI 122	Animals in Soc/Animal Welfare	3
ASCI 168	Animal Genetics	3
ASCI 181	Animal Science Career Seminar	1
ASCI 120	General Physiology	3
ASCI 215	Physiology of Reproduction	3

ASCI 242	Advanced Animal Nutrition	4
RESTRICTED ELECTIVES		
Choose 9 credits from the following options:		9
ASCI 108	Equine Enterprise Management	
ASCI 117	Horse Health and Disease	
ASCI 118	Appl Animal Health	
ASCI 119	Equine Training Techniques	
ASCI 121	Equus	
ASCI 125	Equine Instructing Techniques	
ASCI 129	Horse Barn Coop Exec Committee	
ASCI 134	CREAM	
ASCI 135	CREAM	
ASCI 143	Forage and Pasture Mgmt	
ASCI 154	Canine Behavior	
ASCI 156	Dairy Management Seminar	
ASCI 171	Zoos, Exotics & Endang Species	
ASCI 192	Intermediate Special Topics	
or ASCI 191	Intermediate Special Topics	
ASCI 193	Independent Study	
ASCI 194	Teaching Assistantship	
ASCI 195	Internship	
ASCI 198	Undergraduate Research	
ASCI 208	Equine Industry Issues	
ASCI 216	Endocrinology	
ASCI 220	Lactation Physiology	
ASCI 234	Advanced Dairy Management	
ASCI 252	FARMS Senior Project	
ASCI 263	Clin Top: Companion Animal Med	
ASCI 264	Clin Topics: Livestock Medicine	
ASCI 265	Clin Topics Equine Med & Surg	
ASCI 272	Adv Top: Zoo, Exotic, Endang Spec	
ASCI 277	Animal and Human Parasitology	
ASCI 278	Molecular Epidemiol Infect Dis	
ASCI 279	One Health: Antimicrob Resist	
ASCI 294	Teaching Assistantship	
ASCI 296	Undergraduate Research	



ASCI 298	Advanced Special Topics	
or ASCI 297	Advanced Special Topics	
BIOL 217	Mammalogy	
CDAE 102	Sustainable Community Dev	
CDAE 157	Consumer Law and Policy	
CDAE 166	Intro to Comm Entrepreneurship	
CDAE 167	Fin Mgmt: Comm Entrepreneurs	
CDAE 168	SU:Marketing:Com Entrepreneurs	
CDAE 266	Dec Making:Comm Entrepreneurs	
CDAE 267	Strat Plan:Comm Entrepreneurs	
FS 101	U.S. Food Policy and Politics	
MMG 101	Microbiol & Infectious Disease	
MMG 223	Immunology	
NFS 050	D2:Cheese and Culture	
NFS 113	U.S. Food Policy and Politics	
NFS 213	Food Microbiology Lab	
NFS 253	Food Regulation	
NR 103	Ecology, Ecosystems & Environ	
PSS 161	SU:Fundmntls of Soil Science	
PSYS 111	Learning, Cognition & Behavior	
PSYS 115	Biopsychology	
WFB 074	SU: Wildlife Conservation	
WFB 130	Ornithology	
WFB 131	Field Ornithology	
WFB 141	Field Herpetology	
WFB 174	Prin of Wildlife Management	
WFB 224	Conservation Biology	
WFB 232	Ichthyology	
WFB 275	Wildlife Behavior	
WFB 283	Terrestrial Wildlife Ecology	
WFB 295	Advanced Special Topics	
ANIMAL HEALTH		
Choose 1 of the following health options:		3 or 4
ASCI 117	Horse Health and Disease	
ASCI 118	Appl Animal Health	
ASCI 263	Clin Top:Companion Animal Med	

ASCI 264	Clin Topics:Livestock Medicine	
ASCI 277	Animal and Human Parasitology	
MMG 101	Microbiol & Infectious Disease	
BIOLOGY		
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	8
CHEMISTRY		
CHEM 023	Outline of General Chemistry	4
or CHEM 031	General Chemistry 1	
CHEM 026	Outline of Organic & Biochem	4
or CHEM 042	Intro Organic Chemistry	
or CHEM 141	Organic Chemistry 1	
MATHEMATICS		
MATH 009	QR: College Algebra (or higher)	3
STATISTICS		
STAT 111	QR: Elements of Statistics	3
or STAT 141	QR:Basic Statistical Methods 1	
or STAT 211	QR: Statistical Methods I	

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

## PLAN OF STUDY

This page includes descriptions of the four Animal & Veterinary Sciences focus areas:

Dairy Production (p. )

Equine Science (p. 219)

Zoo, Exotic, and Companion Animal (p. )

Pre-Veterinary/Pre-Professional (p. 221)

## 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. Students with an interest in agribusiness could also consider a minor in Community Entrepreneurship from the Department of Community Development and Applied Economics (CDAE).

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 potential plan of study for the dairy production concentration is outlined below but programs are highly individualized by students working with the faculty advisors.

First Year	Credits
ASCI 001 Introductory Animal Sciences	3
ASCI 043 Intro to Animal Nutrition	3
CALS 001 Foundations:Communication Meth	3
CALS 002 Foundation:Information Tech	3
BCOR 011 Exploring Biology	4
BCOR 012 Exploring Biology	4
CHEM 023 Outline of General Chemistry	4
CHEM 026 Outline of Organic & Biochem	4
Choose either Mathematics (MATH 009 or higher) or Diversity or Sustainability or Electives	3-6
Year Total:	31-34
Sophomore	Credits
ASCI 111 Animal Anatomy	4
ASCI 122 Animals in Soc/Animal Welfare	3
ASCI 181 Animal Science Career Seminar	1
ASCI 134 CREAM	4
ASCI 118 Appl Animal Health	3
ASCI 120 General Physiology	3
STAT 111 QR: Elements of Statistics	3
ENGS 001 FW: Written Expression	3
Choose either Mathematics (MATH 009 or higher) or Diversity or Sustainability or Electives	6-12
Year Total:	30-36
Junior	Credits
ASCI 168 Animal Genetics	3
ASCI 215 Physiology of Reproduction	3
ASCI 135 CREAM	4
ASCI 156 Dairy Management Seminar	2
ASCI 143 Forage and Pasture Mgmt	4
ASCI 220 Lactation Physiology	3

ASCI 242 Advanced Animal Nutrition	4
Choose either Mathematics (MATH 009 or higher) or Diversity of Sustainability or Electives	7-13
Year Total:	30-36
Senior	Credits
ASCI 156 Dairy Management Seminar	2
ASCI 192 Intermediate Special Topics (Artificial Insemination )	1
ASCI 216 Endocrinology	3
ASCI 234 Advanced Dairy Management (@ Miner Institute)	15
ASCI 252 FARMS Senior Project	4
ASCI 264 Clin Topics:Livestock Medicine	3
Choose either Mathematics (MATH 009 or higher) or Diversity or Sustainability or Electives	1-5
Year Total:	29-33
Total Credits in Sequence:	120-139

## EQUINE SCIENCE

Specialized courses are offered on the care, management, breeding, training, and health of horses. Students can focus in either equine management and industry and/or equine health.

The Morgan Horse Farm at Weybridge, VT, 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. Students with an interest in equine business could also consider a minor in Community Entrepreneurship from the Department of Community Development and Applied Economics (CDAE).

A potential plan of study for the equine science concentration is outlined below but programs are highly individualized by students working with the faculty advisors.

First Year	Credits
ASCI 001 Introductory Animal Sciences	3
ASCI 043 Intro to Animal Nutrition	3
CALS 001 Foundations:Communication Meth	3
CALS 002 Foundation:Information Tech	3
BCOR 011 Exploring Biology	4
BCOR 012 Exploring Biology	4
ASCI 005 Intro to the Horse	3
CHEM 023 Outline of General Chemistry	4

CHEM 026 Outline of Organic & Biochem	4
Choose either Mathematics (MATH 009 or higher) or Diversity or Sustainability or Electives	0-5
Year Total:	31-36
<b>Sophomore</b>	<b>Credits</b>
ASCI 111 Animal Anatomy	4
ASCI 120 General Physiology	3
ASCI 122 Animals in Soc/Animal Welfare	3
ASCI 181 Animal Science Career Seminar	1
STAT 111 QR: Elements of Statistics	3
ENGS 001 FW: Written Expression	3
ASCI 117 Horse Health and Disease	3
ASCI 119 Equine Training Techniques	3
ASCI 108 Equine Enterprise Management	3
Choose either Mathematics (MATH 009 or higher) or Diversity or Sustainability or Electives	6-10
Year Total:	32-36
<b>Junior</b>	<b>Credits</b>
ASCI 168 Animal Genetics	3
ASCI 215 Physiology of Reproduction	3
ASCI 143 Forage and Pasture Mgmt	4
ASCI 121 Equus	2-4
ASCI 125 Equine Instructing Techniques	2
ASCI 242 Advanced Animal Nutrition	4
ASCI 192 Intermediate Special Topics (Equine Repro Workshop)	1
Choose either Mathematics (MATH 009 or higher) or Diversity or Sustainability or Electives	9-11
Year Total:	28-32
<b>Senior</b>	<b>Credits</b>
ASCI 195 Internship	15
ASCI 208 Equine Industry Issues	3
ASCI 221 Lameness in Horses	4
ASCI 265 Clin Topics Equine Med & Surg	3
Choose either Mathematics (MATH 009 or higher) or Diversity or Sustainability or Electives	5-11

Year Total:	30-36
Total Credits in Sequence:	121-140

## ZOO, EXOTIC, AND COMPANION ANIMAL

This concentration is designed for students who are primarily interested in zoo, exotic, and companion animal focused careers. Courses are offered on the management, care, breeding, health, and training of zoo, exotic, and companion animals. Hands-on experiences are available locally and through summer and winter course work and internships. A potential study plan is outlined below but individual plans can be designed by the student and advisor. Students could also consider a minor in either Psychological Science from the Department of Psychological Science, a minor in Community Entrepreneurship from the Department of Community Development and Applied Economics (CDAE) or a minor in Wildlife Biology from the The Rubenstein School of Environment and Natural Resources.

A potential plan of study for the zoo, exotic and companion animal concentration is outlined below but programs are highly individualized by students working with the faculty advisors.

<b>First Year</b>	<b>Credits</b>
ASCI 001 Introductory Animal Sciences	3
ASCI 043 Intro to Animal Nutrition	3
CALS 001 Foundations:Communication Meth	3
CALS 002 Foundation:Information Tech	3
CHEM 023 Outline of General Chemistry	4
CHEM 026 Outline of Organic & Biochem	4
BCOR 011 Exploring Biology	4
BCOR 012 Exploring Biology	4
ASCI 006 Companion Animal Care & Mgmt	3
Choose either Mathematics (MATH 009 or higher) or Diversity or Sustainability or Electives	0-3
Year Total:	31-34
<b>Sophomore</b>	<b>Credits</b>
ASCI 111 Animal Anatomy	4
ASCI 122 Animals in Soc/Animal Welfare	3
ASCI 181 Animal Science Career Seminar	1
ASCI 120 General Physiology	3
ENGS 001 FW: Written Expression	3
STAT 111 QR: Elements of Statistics	3



ASCI 118 Appl Animal Health	3
ASCI 038 Understanding & Speaking Dog	3
Choose either Mathematics (MATH 009 or higher) or Diversity or Sustainability or Electives	3-12
Year Total:	26-35
<b>Junior</b>	<b>Credits</b>
ASCI 168 Animal Genetics	3
ASCI 215 Physiology of Reproduction	3
ASCI 242 Advanced Animal Nutrition	4
MMG 101 Microbiol & Infectious Disease	4
ASCI 171 Zoos, Exotics & Endang Species	3
ASCI 154 Canine Behavior	3
ASCI 143 Forage and Pasture Mgmt	4
WFB 174 Prin of Wildlife Management	3
Choose either Mathematics (MATH 009 or higher) or Diversity or Sustainability or Electives	3-9
Year Total:	30-36
<b>Senior</b>	<b>Credits</b>
ASCI 272 Adv Top:Zoo,Exotic,Endang Spec	3
ASCI 263 Clin Top:Companion Animal Med	3
ASCI 216 Endocrinology	3
WFB 130 Ornithology	3
WFB 283 Terrestrial Wildlife Ecology	4
Choose either Mathematics (MATH 009 or higher) or Diversity or Sustainability or Electives	3-10
Year Total:	19-26
Total Credits in Sequence:	106-131

## PRE-VETERINARY/PRE-PROFESSIONAL

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 potential plan of study for the pre-veterinary/pre-professional science concentration is outlined below but programs are highly individualized by students working with the faculty advisors.

<b>First Year</b>	<b>Credits</b>
ASCI 001 Introductory Animal Sciences	3
ASCI 043 Intro to Animal Nutrition	3
CALS 001 Foundations:Communication Meth	3
CALS 002 Foundation:Information Tech	3
CHEM 031 General Chemistry 1	4
CHEM 032 General Chemistry 2	4
BCOR 011 Exploring Biology	4
BCOR 012 Exploring Biology	4
ASCI 005 Intro to the Horse or ASCI 006 Companion Animal Care & Mgmt	3
Choose either Mathematics (MATH 019 or higher) or Diversity or Sustainability or Electives	0-3
Year Total:	31-34
<b>Sophomore</b>	<b>Credits</b>
ASCI 111 Animal Anatomy	4
ASCI 122 Animals in Soc/Animal Welfare	3
ASCI 181 Animal Science Career Seminar	1
ASCI 120 General Physiology	3
CHEM 141 Organic Chemistry 1	4
CHEM 142 Organic Chemistry 2	4
ENGS 001 FW: Written Expression	3
STAT 141 QR:Basic Statistical Methods 1	3
ASCI 117 Horse Health and Disease	3
ASCI 118 Appl Animal Health	3
Choose either Mathematics (MATH 019 or higher) or Diversity or Sustainability or Electives	0-5
Year Total:	31-36
<b>Junior</b>	<b>Credits</b>
ASCI 168 Animal Genetics	3
ASCI 215 Physiology of Reproduction	3
ASCI 242 Advanced Animal Nutrition	4
MMG 101 Microbiol & Infectious Disease	4
BCOR 103 Molecular and Cell Biology	4
ASCI 177 Animal Plagues & Global Health	3
ASCI 038 Understanding & Speaking Dog	3

ASCI 154 Canine Behavior	3
ENGS 050 The Art of the Essay or ENGS 053 Intro to Creative Writing	3
Choose either Mathematics (MATH 019 or higher) or Diversity or Sustainability or Electives	3-5
Year Total:	33-35
<b>Senior</b>	<b>Credits</b>
BIOC 201 Fundamentals of Biochemistry & ASCI 187 Intro to Biochemistry: Lab	4
ASCI 263 Clin Top: Companion Animal Med	3
ASCI 264 Clin Topics: Livestock Medicine	3
ASCI 265 Clin Topics Equine Med & Surg	3
ASCI 216 Endocrinology	3
ASCI 220 Lactation Physiology	3
Physics	8-10
Choose either Mathematics (MATH 019 or higher) or Diversity or Sustainability or Electives	3-5
Year Total:	30-34
Total Credits in Sequence:	125-139

## ANIMAL SCIENCES MINOR REQUIREMENTS

At least 15 credits of course work in Animal and Veterinary Sciences including:

ASCI 001	Introductory Animal Sciences	3
9 credits from the following list:		9
ASCI 111	Animal Anatomy	
ASCI 117	Horse Health and Disease	
ASCI 118	Appl Animal Health	
ASCI 119	Equine Training Techniques	
ASCI 120	General Physiology	
ASCI 121	Equus	
ASCI 122	Animals in Soc/Animal Welfare	
ASCI 125	Equine Instructing Techniques	
ASCI 129	Horse Barn Coop Exec Committee	
ASCI 130	Intermediate Horseback Riding	
ASCI 134	CREAM	

ASCI 135	CREAM	
ASCI 143	Forage and Pasture Mgmt	
ASCI 154	Canine Behavior	
ASCI 156	Dairy Management Seminar	
ASCI 168	Animal Genetics	
ASCI 171	Zoos, Exotics & Endang Species	
ASCI 177	Animal Plagues & Global Health	
ASCI 215	Physiology of Reproduction	
ASCI 216	Endocrinology	
ASCI 220	Lactation Physiology	
ASCI 221	Lameness in Horses	
ASCI 234	Advanced Dairy Management	
ASCI 242	Advanced Animal Nutrition	
ASCI 252	FARMS Senior Project	
ASCI 263	Clin Top: Companion Animal Med	
ASCI 264	Clin Topics: Livestock Medicine	
ASCI 265	Clin Topics Equine Med & Surg	
ASCI 272	Adv Top: Zoo, Exotic, Endang Spec	
ASCI 277	Animal and Human Parasitology	
ASCI 278	Molecular Epidemiol Infect Dis	
ASCI 279	One Health: Antimicrob Resist	
Remaining 3 credits can be taken from ASCI 0xx, ASCI 1xx, or ASCI 2xx list		3

## BIOCHEMISTRY IN THE COLLEGE OF AGRICULTURE AND LIFE SCIENCES

<http://biochem.uvm.edu/undergraduate-program/>

The interdisciplinary Biochemistry program is administered by the College of Agriculture and Life Sciences and the College of Arts and Sciences (CAS) in conjunction with the College of Medicine (COM). The Bachelor of Science in Biochemistry can be pursued through the College of Agriculture and Life Sciences (CALS) or through the College of Arts and Sciences.

### CALS 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 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 curriculum 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.

## MAJORS

### BIOCHEMISTRY MAJOR

Biochemistry B.S. (p. 223)

## MINORS

### BIOCHEMISTRY MINOR

Biochemistry (p. 224)

## GRADUATE

Biochemistry M.S.

Biochemistry Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

## BIOCHEMISTRY B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

## MAJOR REQUIREMENTS

In addition to the CALS or CAS college distribution requirements, the biochemistry core requires satisfactory completion of:

The biochemistry core requires satisfactory completion of:		
BCOR 011	Exploring Biology	4
BCOR 012	Exploring Biology	4
BCOR 101	Genetics	3
BCOR 103	Molecular and Cell Biology	4
MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
PHYS 051	Fundamentals of Physics I	4
PHYS 152	Fundamentals of Physics II	4
CHEM 051	Exploring Chemistry 1	1
CHEM 052	Exploring Chemistry 2	1
CHEM 047	Organic Chemistry for Majors 1	4
CHEM 048	Organic Chemistry for Majors 2	4
CHEM 165	Intro Physical Chemistry	3
BIOC 205	Biochemistry I	3
BIOC 206	Biochemistry II	3
BIOC 207	Biochemistry Lab	3
STAT 141	QR: Basic Statistical Methods 1	3
Twelve credits of advanced biochemistry-related electives		12
Choose one of the following:		1
BIOC 284	Biochemistry Senior Seminar	
HON 275 & HON 276	Honors: Biochemistry and Honors: Biochemistry	
In addition, students must select one course from the following group of intermediate-level laboratory electives:		2-4
CHEM 121	Quantitative Analysis	
MMG 104	Intro Recombinant DNA Tech	
MMG 201	Molecular Cloning Lab	
BIOL 204	Adv Genetics Laboratory	
BIOL 205	Adv Genetics & Proteomics Lab	
Students may substitute: (However, the program of study recommended above will provide a better preparation for advanced course work in biochemistry.)		
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology (For BCOR 011 and BCOR 012)	0-8
PHYS 011 & PHYS 012 & PHYS 021 & PHYS 022 (For PHYS 051 & PHYS 152)		



CHEM 031 & CHEM 032 & CHEM 141 & CHEM 142 (For CHEM 047 & CHEM 048 & CHEM 051 & CHEM 052 & One upper-level elective course)	
Total Credits	71-81

## BIOCHEMISTRY MINOR REQUIREMENTS

17 credits of chemistry and biochemistry course work:

CHEM 141	Organic Chemistry 1 <sup>1</sup>	4
CHEM 142	Organic Chemistry 2 <sup>1</sup>	4
BIOC/CHEM/ MMG 205	Biochemistry I	3
BIOC/CHEM/ MMG 206	Biochemistry II	3
BIOC/CHEM/ MMG 207	Biochemistry Lab	3

<sup>1</sup> CHEM 047 & CHEM 048 & CHEM 051 & CHEM 052 may be substituted for CHEM 141 and CHEM 142.

## RESTRICTIONS

Not available to Chemistry majors and minors.

## BIOLOGICAL SCIENCE IN THE COLLEGE OF AGRICULTURE AND LIFE SCIENCES

<http://www.uvm.edu/~intbiosc/>

The Integrated Biological Science program offers a Bachelor of Science degree in Biological Science administered through the College of Agriculture and Life Sciences but drawing from the rich spectrum of courses and faculty found in CALS, the College of Arts and Sciences, and the College of Medicine.

## CALS 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.

## MAJORS

### BIOLOGICAL SCIENCE MAJOR

Biological Science B.S. (p. 224)

### BIOLOGICAL SCIENCE B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

## MAJOR REQUIREMENTS

The Biological Science B.S. core curriculum requires satisfactory completion:

CORE REQUIREMENTS:		
1 of the 2 following introductory biology options:		4-8
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
BCOR 021	Accelerated Biology	

BCOR 101	Genetics	3
BCOR 102	SU:Ecology and Evolution	4
BCOR 103	Molecular and Cell Biology	4
ANCILLARY REQUIREMENTS:		
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4
MATH 019	QR: Fundamentals of Calculus I	3-4
or MATH 021	QR: Calculus I	
MATH 020	QR: Fundamentals of Calculus II	3-4
or MATH 022	QR: Calculus II	
STAT 141	QR: Basic Statistical Methods 1	3
or STAT 211	QR: Statistical Methods I	
1 of the following 2 Physics options:		8-10
OPTION A		
PHYS 011 & PHYS 021	Elementary Physics and Introductory Lab I	
PHYS 012 & PHYS 022	Elementary Physics and Introductory Lab II	
OPTION B		
PHYS 051	Fundamentals of Physics I	
PHYS 152	Fundamentals of Physics II	
ADVANCED ELECTIVES:		26
In consultation with their academic advisor, students will design a course of study that includes an additional 26 credits of advanced life science electives chosen from the following list of courses. No more than 8 credits at the 100-level may apply toward these electives, and not exceeding 3 100-level courses. With an advisor's permission, a biologically relevant 300-level course may be applied. Up to 6 credits of undergraduate research and/or thesis credits in any biological discipline may be applied to the advanced electives; only 3 of these credits taken at the 100-level will count toward the major, and these will be counted in the 8 credits allowed at the 100-level.		

ASCI 110, ASCI 117, ASCI 118, ASCI 141, ASCI 168, ASCI 177, ASCI 215, ASCI 216, ASCI 220, ASCI 272, ASCI 277, BCOR 195, BCOR 197, BCOR 198, BCOR 298, BHSC 242, BHSC 244, BHSC 281, BHSC 282, BIOC 191, BIOC 192, BIOC 201, BIOC 205, BIOC 206, BIOC 207, BIOC 240, BIOC 275, BIOC 263, BIOC 292, BIOC 293, BIOC 294, BIOC 295, BIOC 296, BIOL 188, BIOL 189, BIOL 192, BIOL 195, BIOL 196, BIOL 198, BIOL 204, BIOL 205, BIOL 209, BIOL 212, BIOL 217, BIOL 219, BIOL 223, BIOL 242, BIOL 254, BIOL 255, BIOL 261, BIOL 264, BIOL 265, BIOL 266, BIOL 269, BIOL 271, BIOL 275, BIOL 276, BIOL 277, BIOL 288, BIOL 289, BIOL 292, BIOL 295, BIOL 296, BIOL 298, BIOL 381 (when the title is Computational Biology), BSCI 198, BSCI 298, CSD 281, ENSC 160, ENSC 201, FOR 223, FOR 228, HON 208, HON 209, HON 210, HON 211, MATH 268, MLS 222, MLS 231, MLS 255, MMG 101, MMG 104, MMG 192, MMG 193, MMG 195, MMG 196, MMG 197, MMG 198, MMG 201, MMG 205, MMG 206, MMG 207, MMG 211, MMG 220, MMG 222, MMG 223, MMG 225, MMG 230, MMG 232, MMG 233, MMG 240, MMG 292, MMG 293, MMG 295, MMG 296, MMG 297, MMG 298, NFS 143, NFS 163, NFS 203, NFS 213, NFS 243, NR 228, NR 250, NR 268, NR 280, NSCI 111, NSCI 112, NSCI 225, NSCI 255, NSCI 270, PBIO 104, PBIO 108, PBIO 109, PBIO 117, PBIO 133, PBIO 151, PBIO 177, PBIO 185, PBIO 187, PBIO 191, PBIO 192, PBIO 195, PBIO 198, PBIO 209, PBIO 223, PBIO 232, PBIO 241, PBIO 261, PBIO 291, PBIO 292, PBIO 294, PBIO 295, PBIO 298, PHRM 200, PHRM 201, PHRM 240, PHRM 272, PHRM 290, PSS 106, PSS 112, PSS 138, PSS 143, PSS 154, PSS 156, PSS 212, PSS 232, PSS 268, PSYS 115, PSYS 215, PSYS 216, PSYS 218, STAT 200, WFB 130, WFB 131, WFB 141, WFB 150, WFB 161, WFB 174, WFB 195, WFB 224, WFB 232, WFB 261, WFB 275, WFB 279, WFB 283	74-82
Total Credits	74-82

Students are advised to complete 12 credits of advanced electives from courses with a quantitative component, 3 credits that stress oral communication and 3 credits that stress written communication. See the advanced electives list on the Biological Science B.S. website for these designations as well as course titles.

## DEPARTMENT OF COMMUNITY DEVELOPMENT AND APPLIED ECONOMICS

<http://www.uvm.edu/cals/cdae> (<http://www.uvm.edu/cals/cdae/>)

The social, economic, and environmental 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 principles, theories, and practical skills from the social, economic, and environmental fields to identify community needs, analyze problems and advance sustainable and resilient 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. 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), renewable energy, public policy, community entrepreneurship, consumer affairs, food systems, rural sociology, journalism, and communication. CDAE's research and outreach is global (e.g., Peru, St. Lucia, Brazil) and local (e.g., social marketing).

## 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	D2:SU:World Food,Pop & Develop	3
CDAE 024	Fund of Public Communication	3
CDAE 061	SU:Principles of Comm Dev	3
CDAE 102	Sustainable Community Dev	3
CDAE 127	Consumer,Markets&Public Policy	3
CDAE 250	Applied Research Methods	4
Additionally required are:		
POLS 021	American Political System	3
CALS 001	Foundations:Communication Meth	3
or CALS 183	Communication Methods	
CALS 002	Foundation:Information Tech	3
or CALS 085	Computer Applications	
Two courses from the Humanities and Fine Arts		
One 3-credit university-approved Sustainability Course		
Two 3-credit university-approved Diversity courses		
PCOM Majors Only - the following are also required:		
MATH 009	QR: College Algebra (or higher)	3
STAT 111	QR: Elements of Statistics	3
CID and CENT Majors Only - the following are also required:		
MATH 019	QR: Fundamentals of Calculus I (or higher)	3

STAT 141	QR:Basic Statistical Methods 1	3
or STAT 111	QR: Elements of Statistics	

## UVM & VERMONT LAW SCHOOL 3+2 PROGRAM:

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 (UVM) and Vermont Law School (VLS) offer a unique dual-degree program leading to a Bachelor's in three years and a Juris Doctor (JD) degree in two years. The UVM-VLS 3+2 program enables highly-focused students to earn both degrees in less time and at less cost from two distinguished institutions. Students may choose to enter the program from selected majors in the College of Agriculture and Life Sciences including Community and International Development and Public Communication.

The University of Vermont provides guidance to its pre-law students through the Career Center and faculty and staff advisors in CALS. 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."

## MAJORS

### COMMUNITY DEVELOPMENT AND APPLIED ECONOMICS MAJORS

Community and International Development B.S. (p. 227)

Community Entrepreneurship B.S. (p. 227)

Public Communication B.S. (p. 228)

## MINORS

### COMMUNITY DEVELOPMENT AND APPLIED ECONOMICS MINORS

Applied Design (p. 230)

Biosecurity (p. 230)

Community and International Development (p. 230)

Community Entrepreneurship (p. 231)

Consumer Affairs (p. 231)

Consumer and Advertising (p. 231)



Food Systems (p. 232)

Green Building and Community Design (p. 233)

Public Communication (p. 233)

Sports Management (p. 234)

## GRADUATE

Community Development and Applied Economics M.S.

Public Administration A.M.P.

Public Administration M.P.A.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

## COMMUNITY AND INTERNATIONAL DEVELOPMENT B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

Building on an applied economics foundation, the Community and International Development curriculum offers students the academic and professional experience enabling them to address community development locally and globally. Students in Community and International Development have opportunities to analyze and learn from development issues in Vermont, New England, and around the world; 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, Peru, Honduras, and St. Lucia. CID students partner with organizations in these experiences to address the development issues facing local communities through carefully designed service-learning courses and faculty-led trips at home and abroad.

### CDAE CORE REQUIREMENTS

CDAE 002	D2:SU:World Food,Pop & Develop	3
CDAE 024	Fund of Public Communication	3
CDAE 061	SU:Principles of Comm Dev	3
CDAE 102	Sustainable Community Dev	3
CDAE 127	Consumer,Markets&Public Policy	3
CDAE 250	Applied Research Methods	4

### CID MAJOR REQUIREMENTS

Students must complete:

CDAE 166	Intro to Comm Entrepreneurship	3
CDAE 253	Macroeconomics for Appl Econ	3
CDAE 254	Microeconomics for Appl Econ	3
CDAE 255	Applied Consumption Economics	3

Choose 7 of the following:		27-28
CDAE 101	Drafting & Design: SketchUp II	
CDAE 108	Comparative Food Systems	
CDAE 114	Doc. Film for Social Change	
CDAE 123	Media-Policy-Action	
CDAE 141	Crisis Communication	
CDAE 145	Propaganda, Media, & Cit Respn	
CDAE 157	Consumer Law and Policy	
CDAE 159	Consumer Law in Action I	
CDAE 170	Green Building Energy Systems	
CDAE 171	Community&Int'l Econ Transform	
CDAE 173	Evolving Trends in Int'l Devel	
CDAE 174	Global Media & Intl Developmen	
CDAE 186	Community Developmt:St Lucia I	
CDAE 205	Rural Comm in Modern Society	
CDAE 207	The Real Cost of Food	
CDAE 208	Agricultural Policy and Ethics	
CDAE 218	Community Org & Development	
CDAE 237	Economics of Sustainability	
CDAE 251	Contemp Policy Iss:Comm Dev	
CDAE 259	Consumer Law in Action II	
CDAE 260	Smart Resilient Communities	
CDAE 271	Local Community Initiatives	
CDAE 272	Int'l Economic Development	
CDAE 273	Project Development & Planning	
CDAE 276	Community Design Studio	
CDAE 278	Applied Community Planning	
CDAE 286	Adv Sust Dev Sm Island States	
Transfer Credit or CDAE Special Topics courses, as appropriate		

## COMMUNITY ENTREPRENEURSHIP B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

Successful entrepreneurship is fundamental to a healthy community. Students majoring in Community Entrepreneurship test the entrepreneurial waters in courses designed to provide firsthand experience in launching and strengthening a business. Students build skills applying strategic planning, marketing, management, economics, 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.

## CDAE CORE REQUIREMENTS

CDAE 002	D2:SU:World Food,Pop & Develop	3
CDAE 024	Fund of Public Communication	3
CDAE 061	SU:Principles of Comm Dev	3
CDAE 102	Sustainable Community Dev	3
CDAE 127	Consumer,Markets&Public Policy	3
CDAE 250	Applied Research Methods	4

## CENT MAJOR REQUIREMENTS

Students must complete:

CDAE 157	Consumer Law and Policy	3
CDAE 166	Intro to Comm Entrepreneurship	3
CDAE 168	SU:Marketing:Com Entrepreneurs	3
CDAE 167	Fin Mgmt: Comm Entrepreneurs	4
CDAE 253	Macroeconomics for Appl Econ	3
CDAE 254	Microeconomics for Appl Econ	3
CDAE 255	Applied Consumption Economics	3
CDAE 266	Dec Making:Comm Entrepreneurs	3
CDAE 267	Strat Plan:Comm Entrepreneurs	4
Choose 2 of the following:		
CDAE 112	Social Media:Theory 2 Practice	
CDAE 114	Doc. Film for Social Change	
CDAE 119	Event Planning for Athletics	
CDAE 123	Media-Policy-Action	
CDAE 124	Public Communication Media	
CDAE 140	Leadership in Practice	
CDAE 141	Crisis Communication	
CDAE 145	Propaganda, Media, & Cit Respn	
CDAE 159	Consumer Law in Action I	
CDAE 174	Global Media & Intl Developmen	
CDAE 205	Rural Comm in Modern Society	
CDAE 207	The Real Cost of Food	
CDAE 208	Agricultural Policy and Ethics	
CDAE 218	Community Org & Development	
CDAE 237	Economics of Sustainability	

CDAE 251	Contemp Policy Iss:Comm Dev	
CDAE 259	Consumer Law in Action II	
CDAE 260	Smart Resilient Communities	
CDAE 271	Local Community Initiatives	
CDAE 273	Project Development & Planning	
CDAE 276	Community Design Studio	
CDAE 278	Applied Community Planning	

## PUBLIC COMMUNICATION B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

Public Communication (PCOM) is the practice of creating and delivering relevant, creative, and responsible messages to serve the needs of a community, business, or organization. PCOM graduates are well-prepared for careers in marketing, public relations, community organizing, event planning, and activist journalism, as well as in video, audio, graphic, and social media.

The PCOM program equips students to use communication to inform and persuade, to build relationships, and to encourage open dialog in organizations and communities toward resilient solutions. The academic programming is rooted in the application of research, theory, technical knowledge, and sound design principles. Students majoring in Public Communication use an integrated, hands-on approach to communication to critically analyze situations, manage information, and craft messages that work in an increasingly global society.

## CDAE CORE REQUIREMENTS

CDAE 002	D2:SU:World Food,Pop & Develop	3
CDAE 024	Fund of Public Communication	3
CDAE 061	SU:Principles of Comm Dev	3
CDAE 102	Sustainable Community Dev	3
CDAE 127	Consumer,Markets&Public Policy	3
CDAE 250	Applied Research Methods	4

## PCOM MAJOR REQUIREMENTS

CDAE 015	Visual Communication	3
CDAE 018	Communication Design I	3
CDAE 120	Strategic Writing for PCOM	3
or CDAE 121	News Writing Across Media	
CDAE 124	Public Communication Media	3
CDAE 224	Public Communication Capstone	3

**concentration requirements: communication design**

Required Courses: 9 credits		
CDAE 016	Digital Illustration	3
CDAE 116	Communication Design II	3
CDAE 231	Applied Computer Graphics	3
or CDAE 111	Design:Narrative Media & Video	
or CDAE 114	Doc. Film for Social Change	
Elective Courses: 12 credits from the list below:		
CDAE 001	Drafting & Design in SketchUp	
CDAE 101	Drafting & Design: SketchUp II	
CDAE 112	Social Media:Theory 2 Practice	
CDAE 119	Event Planning for Athletics	
CDAE 123	Media-Policy-Action	
CDAE 129	Communication Law	
CDAE 145	Propaganda, Media, & Cit Respn	
CDAE 164	Design+Cultural Entrepreneurshp	
CDAE 178	Socially Responsible Marketing	
CDAE 195	Special Topics (when the topic is Documentary Film for Social Change)	
CDAE 195	Special Topics (when the topic is Motion Graphics)	
CDAE 195	Special Topics (when the topic is Information Graphics and Data Visulaization)	
CDAE 195	Special Topics (when the topic is Publication Design)	
ARTS 144	Digital Art	
ARTS 145	Graphic Design	
CS 008	QR: Intro to Web Site Dev	
CS 142	QR: Advanced Web Design	

**Concentration requirements: Community Media + Journalism**

Required Courses: 9 credits		
CDAE 123	Media-Policy-Action	3
or CDAE 145	Propaganda, Media, & Cit Respn	
CDAE 129	Communication Law	3
CDAE 112	Social Media:Theory 2 Practice	3
or CDAE 113	Citizen Journalism:Digital Age	
Elective Courses: 12 credits from the list below:		
CDAE 001	Drafting & Design in SketchUp	

CDAE 101	Drafting & Design: SketchUp II	
CDAE 111	Design:Narrative Media & Video	
CDAE 113	Citizen Journalism:Digital Age	
CDAE 114	Doc. Film for Social Change	
CDAE 118	Visual Presentation Techniques	
CDAE 141	Crisis Communication	
CDAE 174	Global Media & Intl Developmen	
CDAE 195	Special Topics (when the topic is Motion Graphics)	
CDAE 195	Special Topics (when the topic is Podcasting and Community)	
CDAE 195	Special Topics (when the topic is Information Graphics and Data Visualization)	
CDAE 195	Special Topics (when the topic is Publication Design)	
CDAE 251	Contemp Policy Iss:Comm Dev	
CS 008	QR: Intro to Web Site Dev	
CS 142	QR: Advanced Web Design	

**concentration requirements: Strategic communication**

Required Courses: 9 credits		
CDAE 128	Strategic Communication	3
CDAE 129	Communication Law	3
CDAE 168	SU:Marketing:Com Entrepreneurs	3
or CDAE 178	Socially Responsible Marketing	
Elective Courses: 12 credits from the list below:		
CDAE 119	Event Planning for Athletics	
CDAE 123	Media-Policy-Action	
CDAE 141	Crisis Communication	
CDAE 145	Propaganda, Media, & Cit Respn	
CDAE 157	Consumer Law and Policy	
CDAE 159	Consumer Law in Action I	
CDAE 166	Intro to Comm Entrepreneurship	
CDAE 195	Special Topics (when the topic is Persuasion for Public Communication)	
CDAE 195	Special Topics (when the topic is Event Planning for Mission Driven Organizations)	
CDAE 195	Special Topics (when the topic is Crisis Communication)	
CDAE 195	Special Topics (when the topic is Social Media Theory to Prof Practice)	



CDAE 195	Special Topics (when the topic is Science Communication)	
CDAE 251	Contemp Policy Iss:Comm Dev	
CDAE 259	Consumer Law in Action II	
PA 206	Intro Cont Public Affairs	
POLS 137	Politics and Media	
SPCH 031	Argument & Advocacy	
or SPCH 072	Citizen Advocacy & Debate	

## APPLIED DESIGN MINOR REQUIREMENTS

CDAE 015	Visual Communication	3
Choose one of the following (3 credits):		
CDAE 001	Drafting & Design in SketchUp	
CDAE 018	Communication Design I	
CDAE 016	Digital Illustration	
Choose one of the following (3 credits):		
CDAE 101	Drafting & Design: SketchUp II	
CDAE 116	Communication Design II	
CDAE 231	Applied Computer Graphics	
Choose two of the following (6 credits):		
CDAE 111	Design:Narrative Media & Video	
CDAE 112	Social Media:Theory 2 Practice	
CDAE 114	Doc. Film for Social Change	
CDAE 164	Design+Cultural Entrepreneurshp	
CDAE 195	Special Topics (When the topic is Publication Design)	
CDAE 195	Special Topics (When the topic is Motion Graphics)	
CDAE 195	Special Topics (When the topic is Infographics and Data Visualization)	
CDAE 276	Community Design Studio	
CDAE 278	Applied Community Planning	
CDAE 296	Internship	
No more than two courses can count toward both a student's major and minor for CENT, PCOM, and CID majors or other CDAE minors.		

## RESTRICTIONS

Ineligible Majors: Public Communication majors with Communication Design concentration

## BIOSECURITY MINOR

Our increasingly global society creates opportunity for the spread of both intentional and unintentional threats to food and agriculture. To protect the food system from harm, agrosecurity, biosecurity, and cybersecurity need to work hand in hand. Put in positive terms, biosecurity is the opposite of bioterrorism and not only includes the study of threats, but the systems necessary to prevent those threats or reinforce resiliency to those threats.

This minor allows students to formalize a grouping of courses from social science and agriculture to STEM disciplines with a focus area on biosecurity.# Topics include bioterror threats, prevention, and resilience in our lived, built, and natural environments.

## REQUIREMENTS

MMG 002	SU:Unseen Wrlds:Microbes & You	3
ASCI 007	ABCs of Biosecurity	3
CDAE 032	Protect Your Privacy	2
CDAE 195	Special Topics (Agroterrorism and BioPiracy)	3
Restricted Electives (6 credits)		
ASCI 177	Animal Plagues & Global Health	
CS 006	Exploring Cybersecurity	
CDAE 141	Crisis Communication	
CDAE 260	Smart Resilient Communities	
FS 103	Human Health in the Food Syst	
or NFS 114	Human Health in the Food Syst	
MMG 101	Microbiol & Infectious Disease	
MMG 235	Bioterrorism	
NFS 254	Global Food Safety	
Other advisor-approved courses as appropriate		
Students interested in pursuing upper-level electives for this minor, please be aware that some have prerequisites not included in the minor course of study.		

## COMMUNITY AND INTERNATIONAL DEVELOPMENT MINOR

## REQUIREMENTS

CDAE 002	D2:SU:World Food,Pop & Develop	3
CDAE 061	SU:Principles of Comm Dev (CAS students may substitute EC012 for CDAE 061)	3
CDAE 102	Sustainable Community Dev	3
Choose 1 of the following:		3
CDAE 171	Community&Int'l Econ Transform	

CDAE 296	Internship	
CDAE 273	Project Development & Planning	
Choose 1 of the following:		3
CDAE 101	Drafting & Design: SketchUp II	
CDAE 108	Comparative Food Systems	
CDAE 114	Doc. Film for Social Change	
CDAE 123	Media-Policy-Action	
CDAE 141	Crisis Communication	
CDAE 145	Propaganda, Media, & Cit Respn	
CDAE 157	Consumer Law and Policy	
CDAE 159	Consumer Law in Action I	
CDAE 170	Green Building Energy Systems	
CDAE 173	Evolving Trends in Int'l Devel	
CDAE 174	Global Media & Intl Developmen	
CDAE 186	Community Developmt:St Lucia I	
CDAE 205	Rural Comm in Modern Society	
CDAE 207	The Real Cost of Food	
CDAE 208	Agricultural Policy and Ethics	
CDAE 218	Community Org & Development	
CDAE 237	Economics of Sustainability	
CDAE 251	Contemp Policy Iss:Comm Dev	
CDAE 253	Macroeconomics for Appl Econ	
CDAE 254	Microeconomics for Appl Econ	
CDAE 255	Applied Consumption Economics	
CDAE 259	Consumer Law in Action II	
CDAE 260	Smart Resilient Communities	
CDAE 271	Local Community Initiatives	
CDAE 272	Int'l Economic Development	
CDAE 276	Community Design Studio	
CDAE 278	Applied Community Planning	
CDAE 286	Adv Sust Dev Sm Island States	
Or other courses as approved by advisor		

## RESTRICTIONS

Ineligible Major: Community and International Development,  
Natural Resource Planning

## COMMUNITY ENTREPRENEURSHIP MINOR

### REQUIREMENTS

CDAE 061	SU:Principles of Comm Dev	3
CDAE 166	Intro to Comm Entrepreneurship	3
CDAE 167	Fin Mgmt: Comm Entrepreneurs	4
CDAE 168	SU:Marketing:Com Entrepreneurs	3
Choose one of the following:		
CDAE 102	Sustainable Community Dev	
CDAE 157	Consumer Law and Policy	
CDAE 266	Dec Making:Comm Entrepreneurs	
CDAE 267	Strat Plan:Comm Entrepreneurs	

## RESTRICTIONS

Ineligible Major: Community Entrepreneurship

## CONSUMER AFFAIRS MINOR

### REQUIREMENTS

CDAE 157	Consumer Law and Policy	3
CDAE 159	Consumer Law in Action I	3
PA 206	Intro Cont Public Affairs	3
Restricted Electives - Choose two of the following:		6
CDAE 102	Sustainable Community Dev	
CDAE 024 & CDAE 124	Fund of Public Communication and Public Communication Media	
CDAE 127	Consumer,Markets&Public Policy	
CDAE 128	Strategic Communication	
CDAE 250	Applied Research Methods	
CDAE 255	Applied Consumption Economics	
CDAE 296	Internship	
CDAE 195	Special Topics	

## CONSUMER AND ADVERTISING MINOR REQUIREMENTS

CDAE 024	Fund of Public Communication	3
CDAE 120	Strategic Writing for PCOM	3
CDAE 128	Strategic Communication	3
Choose two of the following (6 credits):		
CDAE 112	Social Media:Theory 2 Practice	

CDAE 119	Event Planning for Athletics	
CDAE 141	Crisis Communication	
CDAE 166	Intro to Comm Entrepreneurship	
CDAE 168	SU:Marketing:Com Entrepreneurs	
CDAE 176	Communicating Science	
CDAE 178	Socially Responsible Marketing	
CDAE 195	Special Topics (when the topic is Persuasion for Public Communication)	
CDAE 195	Special Topics (when the topic is Event Planning for Mission Driven Organizations)	
CDAE 195	Special Topics (when the topic is Crisis Communication)	
SPCH 031	Argument & Advocacy	
CDAE 296	Internship (with Strategic Communication focus)	
No more than two courses may count toward a student's major and minor for CENT, PCOM, and CID majors or other CDAE minors.		

## RESTRICTIONS

Ineligible Majors: Public Communication majors with Strategic Communication concentrations.

## FOOD SYSTEMS MINOR REQUIREMENTS

A minimum of 18 credits.

Choose 1 course from each of the 3 categories below to complete 9 credits:		9
Natural Science		
PSS 021	SU: Intro to Agroecology	
PBIO 006	SU: The Green World	
PBIO 004	SU: Intro to Botany	
Social Science		
NFS 073	D2:SU:Farm to Table: Food Sys	
CDAE 002	D2:SU:World Food,Pop & Develop	
CDAE 004	D1:US Food, Social Equity &Dev	
Humanities		
PHIL 010	Introduction to Philosophy (ONLY when the topic is Ethics of Eating)	
ANTH 085	D2:Food and Culture	
Choose 9 credits from the following courses, 6 of which must be at the 100-level or above (Electives chosen for minor cannot also be counted for major):		9

ANTH 085	D2:Food and Culture	
ASCI 043	Intro to Animal Nutrition	
ASCI 134	CREAM	
or ASCI 135	CREAM	
ASCI 122	Animals in Soc/Animal Welfare	
ASCI/PSS 143	Forage and Pasture Mgmt	
ASCI 156	Dairy Management Seminar	
ASCI 168	Animal Genetics	
ASCI 177	Animal Plagues & Global Health	
ASCI 242	Advanced Animal Nutrition	
CDAE 002	D2:SU:World Food,Pop & Develop	
CDAE 004	D1:US Food, Social Equity &Dev	
CDAE 127	Consumer,Markets&Public Policy	
CDAE 207	The Real Cost of Food	
CDAE 208	Agricultural Policy and Ethics	
CDAE 237	Economics of Sustainability	
ENGS 005	First Year Seminar (TAP: Food & Writing)	
ENVS 183	Env Impacts of Consumerism	
FS 101/ NFS 113	U.S. Food Policy and Politics	
FS 102/ CDAE 108	Comparative Food Systems	
FS 103/ NFS 114	Human Health in the Food Syst	
HCOL 186	Honors College Sophomore Sem (when the topic is Animal Products in Human Nutrition)	
NFS 033	What's Brewing in Food Science	
NFS 043	Fundamentals of Nutrition	
NFS 050	D2:Cheese and Culture	
NFS 053	Basic Concepts of Foods	
NFS 063	D2:Obesity:What,Why,What to Do	
NFS 073	D2:SU:Farm to Table: Food Sys	
NFS 143	Nutrition in the Life Cycle	
NFS 153	Principles of Food Technology	
PBIO 004	SU: Intro to Botany	
PBIO 006	SU: The Green World	
PBIO 109	Plant Systematics	
PBIO 117	Plant Pathology	



PBIO 133	SU:How Plants Can Save World	
PBIO 177	Biology of Fungi	
PHIL 010	Introduction to Philosophy (ONLY when the topic is Ethics of Eating)	
PSS 021	SU: Intro to Agroecology	
PSS 124	Agroecology of Vegetable Crops	
PSS 127	Greenhouse Operations & Mgmt	
PSS 154	Composting Ecology & Mgmt	
PSS/ENVS 156	Permaculture	
PSS 208	Diversified Farm Planning	
PSS 209	Diversified Farm Operations	
PSS/ENVS 212	SU: Advanced Agroecology	
*Other food related courses may be included with Instructor permission		

## GREEN BUILDING AND COMMUNITY DESIGN MINOR

### REQUIREMENTS

GREEN BUILDING AND COMMUNITY DESIGN BASICS		
CDAE 001	Drafting & Design in SketchUp	3
CDAE 101	Drafting & Design: SketchUp II	3
ENERGY AND SUSTAINABLE COMMUNITIES		
Choose three of the following:		
CDAE 006	Energy Alternatives	
CDAE 102	Sustainable Community Dev	
CDAE 118	Visual Presentation Techniques	
CDAE 131	Appl Des Studio: Lt Frame Bldg	
CDAE 141	Crisis Communication	
CDAE 170	Green Building Energy Systems	
CDAE 171	Community&Int'l Econ Transform	
CDAE 186	Community Developmt:St Lucia I	
CDAE 205	Rural Comm in Modern Society	
CDAE 218	Community Org & Development	
CDAE 273	Project Development & Planning	
CDAE 276	Community Design Studio	
CDAE 278	Applied Community Planning	

CDAE 195	Special Topics (As approved by minor advisor: Special Topics offerings may be applied toward the minor, but require pre-approval from the student's academic advisor.)	
NR 143	Intro to Geog Info Systems	
NR 288	Ecol Design & Living Technol	
NR 289	Advanced Ecological Design	
PSS 137	Landscape Design Fundamentals	
PSS 156	Permaculture	
PSS 208	Diversified Farm Planning	
PSS 238	Ecological Landscape Design	

### RESTRICTIONS

Students majoring in Environmental Science (ENSC) may obtain the Green Building and Community Design minor with only one overlapping course.

### OTHER INFORMATION

#### Yestermorrow Design/Build School

The Yestermorrow Design/Build School in Warren, Vermont offers courses that may be eligible for college credit, and may satisfy some requirements of the Green Building and Community Design minor. These courses are generally between one and three credits. It is the responsibility of the student to obtain pre-approval of Yestermorrow courses for which they seek college credit by working with the UVM Office of Transfer Affairs and Yestermorrow to acquire and submit relevant course materials (e.g. Yestermorrow instructor evaluations/CVs, Yestermorrow course syllabi, examples of work done in the course).

This process can be lengthy so it is advisable to begin it as early as possible. Once UVM has granted pre-approval for credit, the student should meet with one of the CDAE advisors to discuss the course's fit within the Green Building and Community Design minor.

## PUBLIC COMMUNICATION MINOR

### REQUIREMENTS

3 Required Courses (9 credits):		
CDAE 024	Fund of Public Communication	3
CDAE 120	Strategic Writing for PCOM	3
CDAE 124	Public Communication Media	3
Choose 2 of the following courses (6 credits):		
CDAE 015	Visual Communication	
CDAE 111	Design:Narrative Media & Video	
CDAE 112	Social Media:Theory 2 Practice	
CDAE 113	Citizen Journalism:Digital Age (CDAE 195: Backpack Journalism)	

CDAE 114	Doc. Film for Social Change	
CDAE 116	Communication Design II	
CDAE 118	Visual Presentation Techniques	
CDAE 119	Event Planning for Athletics	
CDAE 123	Media-Policy-Action	
CDAE 128	Strategic Communication	
CDAE 129	Communication Law	
CDAE 141	Crisis Communication	
CDAE 145	Propaganda, Media, & Cit Respn	
CDAE 159	Consumer Law in Action I	
CDAE 168	SU:Marketing:Com Entrepreneurs	
or CDAE 178	Socially Responsible Marketing	
CDAE 174	Global Media & Intl Developmen	
CDAE 195	Special Topics (College Media Practicum)	
CDAE 259	Consumer Law in Action II	
CDAE 296	Internship (with a focus on Community Media & Journalism)	
PA 206	Intro Cont Public Affairs	
POLS 137	Politics and Media	
No more than 2 courses may count in a student's major and minor for CENT and CID majors or other CDAE minors.		

## RESTRICTIONS

Ineligible Major: Public Communication majors with Community Media and Journalism concentrations.

## SPORTS MANAGEMENT MINOR REQUIREMENTS

A total of 18 credits is required for the minor.

EDPE 220	Sport in Society	3
EDPE 101	Intro to Sports Management	3
or EDPE 241 at 3 credits may be substituted for EDPE 101; EDPE 241 is a fee-based spring recess travel course		
PRT 235	Outdoor Recreation Planning	3
One of the following Management courses:		3
BSAD 120	Leadership & Org Behavior	
EDPE 119	Careers in College Athletics	
EDPE 230	Philosophy of Coaching	
PRT 157	Ski Area Management	
One of the following Marketing/Communications courses:		3

BSAD 150	Marketing Management	
CDAE 168	SU:Marketing:Com Entrepreneurs	
CDAE 119	Event Planning for Athletics	
CDAE 024	Fund of Public Communication	
PRT 158	Resort Mgmt & Marketing	
One of the following Entrepreneurship courses:		3
BSAD 137	Entrepreneurial Leadership	
CDAE 166	Intro to Comm Entrepreneurship	
CDAE 267	Strat Plan:Comm Entrepreneurs	
PRT 258	Entrepreneurship Rec&Tourism	

## OTHER INFORMATION

Consult your major advisor for any applicable course/major restrictions and information regarding the use of one course to meet multiple degree requirements. Majors in Parks, Recreation and Tourism, or Business Administration may double count at most two courses from the Sports Management minor towards the major.

At least half the courses must be taken at UVM. Students must earn at least a 2.0 cumulative GPA in their Sports Management minor courses to earn a minor in Sports Management.

## ENVIRONMENTAL SCIENCES IN THE COLLEGE OF AGRICULTURE AND LIFE SCIENCES

<http://www.uvm.edu/~ensc/>

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 Sciences and Environmental Studies.

## CALS ENVIRONMENTAL SCIENCES MAJOR

The environmental sciences major combines a science-based core curriculum with hands-on experience identifying, analyzing, and addressing environmental problems arising from human disturbance.

Students may pursue the major through the College of Agriculture and Life Sciences (CALS), the College of Arts and Sciences (CAS), or The Rubenstein School of Environment and Natural Resources (RSEN). The distinctions between the major offered through these three schools is subtle, and a student can usually shift between the three with little difficulty.

- The Rubenstein School provides a degree with an applied focus, so the major is balanced with a broad-based understanding of frameworks to integrate social and natural systems towards solving complex environmental problems.

- The College of Arts and Sciences provides a degree with a traditional liberal arts orientation, so the major in environmental sciences is pursued within the context of a liberal arts education.
- The College of Agriculture and Life Sciences provides a degree with an applied focus, in which the student is engaged in environmental sciences within the complex system of food production and sustainable management of our working landscape.

The decision about which school is best to pursue the major in is typically based on the student's desired focus within the major and other academic interests. All environmental sciences majors take a common set of courses in biology, chemistry, mathematics, and geology or soil science. A common set of environmental science core courses is followed by specialization in one of nine focus areas:

- Agriculture and the Environment
- Conservation Biology and Biodiversity
- Ecological Design
- Environmental Analysis and Assessment
- Environmental Biology
- Environmental Geology
- Environmental Health
- Global Environmental and Climate Change
- Water Resources

Goals of the major include providing students with a strong foundation in basic sciences as well as advanced knowledge in environmental sciences; emphasizing scientific analysis aimed at assessment and remediation of environmental problems; familiarizing students with sources and measurements of pollutants on ecosystems; and providing practical experience in environmental sciences through internships/service learning and research.

## MAJORS

### ENVIRONMENTAL SCIENCES MAJOR

Environmental Sciences B.S. (p. 235)

### ENVIRONMENTAL SCIENCES B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

## MAJOR REQUIREMENTS

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

General CALS distribution requirements		
Core distribution requirements for the major (which also fill CALS distribution requirements):		17
CDAE 002	D2:SU:World Food,Pop & Develop	
CDAE 208	Agricultural Policy and Ethics	

PSS 010	Home & Garden Horticulture	
or PSS 021	SU: Intro to Agroecology	
BCOR 102	SU:Ecology and Evolution	
MMG 101	Microbiol & Infectious Disease	
or PSS 106	Entomology & Pest Mgmt	
Environmental Science minimal basic science/quantitative courses (which also fill college core requirements):		34
BCOR 011	Exploring Biology	
or BIOL 001	Principles of Biology	
BCOR 012	Exploring Biology	
or BIOL 002	Principles of Biology	
PSS 161	SU:Fundmntls of Soil Science	
or GEOL 055	Environmental Geology	
(PSS 161 is required for many PSS courses in several curricular concentrations; most students should take this course.)		
MATH 019	QR: Fundamentals of Calculus I	
or MATH 021	QR: Calculus I	
MATH 020	QR:Fundamentals of Calculus II	
or MATH 022	QR: Calculus II	
NR 140	Applied Environ Statistics	
or STAT 141	QR:Basic Statistical Methods 1	
CHEM 031	General Chemistry 1	
CHEM 032	General Chemistry 2	
CHEM 042	Intro Organic Chemistry	
or CHEM 141	Organic Chemistry 1	
Students should consider taking the following course sequence:		
CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2	
Environmental Sciences foundation courses:		18
ENSC 001	SU: Intro Environmental Sci	
ENSC 130	Global Environmental Assessmnt	
ENSC 160	Pollutant Mvmt/Air, Land&Water	
ENSC 201	Recovery&Restor Altered Ecosys	
ENSC 202	Applied Envir Assess Analysis	
Concentration requirement: fourteen to seventeen credits in one of the following Focus Areas:		14-17
Agriculture and the Environment		
Conservation Biology and Biodiversity		

Ecological Design	
Environmental Analysis and Assessment	
Environmental Biology	
Environmental Geology	
Environmental Health	
Global Environmental and Climate Change	
Water Resources	
Students may elect to petition to develop a Self-Designed curriculum track.	

## CONCENTRATION REQUIREMENTS

### Agriculture and the Environment Concentration

PSS 162	Soil Fertility & Conservation	3
Choose a minimum of 11 additional credits from the following courses:		
PBIO 109	Plant Systematics	
MMG 220	Environmental Microbiology	
PSS 106	Entomology & Pest Mgmt	
PSS 112	Weed Ecology & Management	
PSS 117	Plant Pathology	
PSS 143	Forage and Pasture Mgmt	
PSS 156	Permaculture	
PSS 232	Biological Control	
ENSC 195	Internship	
ENSC 196	Undergraduate Research	
PSS 212	SU: Advanced Agroecology	
PSS 261	Soil Morph Class & Land Use	
PSS 264	Chemistry of Soil & Water	
PSS 268	Soil Ecology	
PSS 269	Soil/Water Pollution/Bioremed	
A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 11 elective credits with advisor approval.		

### Conservation Biology and Biodiversity Concentration

WFB 224	Conservation Biology	4
Choose ONLY one of the following:		
PBIO 109	Plant Systematics	
FOR 021	Dendrology	
WFB 130	Ornithology	
WFB 232	Ichthyology	

Choose a minimum of 6-7 additional credits from the following courses:		
ASCI 171	Zoos, Exotics & Endang Species	
BCOR 101	Genetics	
BCOR 102	SU:Ecology and Evolution	
PBIO 108	Morph & Evo of Vascular Plants	
ENVS 174	Nat Areas Conservation&Steward	
FOR 122	Forest Ecosystem Analysis	
ENSC 195	Internship	
ENSC 196	Undergraduate Research	
BIOL 254	Population Genetics	
BIOL 264	Community Ecology	
FOR 272	Sustain Mgmt Forest Ecosys	
FOR/NR 228	Ecosystems Ecology	
NR 220	Landscape Ecology	
PSS 268	Soil Ecology	
WFB 161	Fisheries Biology & Techniques	
WFB 174	Prin of Wildlife Management	
WFB 176	Florida Ecology Field Trip	
WFB 261	Fisheries Management	
WFB 279	Marine Ecology & Conservation	
WFB 283	Terrestrial Wildlife Ecology	
WFB 275	Wildlife Behavior	
A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 10 elective credits with advisor approval.		

### Ecological Design Concentration

NR 288	Ecol Design & Living Technol	3
Choose a minimum of 11 additional credits from the following courses:		
CDAE 102	Sustainable Community Dev	
CDAE 170	Green Building Energy Systems	
CDAE 191	Independent Study	
CDAE 237	Economics of Sustainability	
CDAE 267	Strat Plan:Comm Entrepreneurs	
CE 132	SU: Environmental Systems	
CE 151	SU: Water & Wastewater Engr	
ENVS 187	Campus Sustainability	
ENVS 188	SU:Sustainability Science	



ENSC 195	Internship	
ENSC 196	Undergraduate Research	
MMG 220	Environmental Microbiology	
NR 289	Advanced Ecological Design	
PSS 127	Greenhouse Operations & Mgmt	
PSS 137	Landscape Design Fundamentals	
PSS 162	Soil Fertility & Conservation	
PSS 238	Ecological Landscape Design	
PSS 154	Composting Ecology & Mgmt	
PSS 156	Permaculture	
PSS 212	SU: Advanced Agroecology	
PSS 268	Soil Ecology	
PSS 269	Soil/Water Pollution/Bioremed	
PRT 230	Ecotourism	
A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 11 elective credits with advisor approval.		

### Environmental Analysis and Assessment Concentration

Choose a minimum of 14 credits from the following courses:		
CHEM 121	Quantitative Analysis	
PBIO 223	Fundamentals of Field Science	
CE 132	SU: Environmental Systems	
CE 151	SU: Water & Wastewater Engr	
CE 254	Environmental Quantitative Anyl	
CHEM 131	Inorganic Chemistry	
CHEM 165	Intro Physical Chemistry	
CHEM 221	Instrumental Analysis	
CHEM 223	Mass Spectrometry	
FOR/NR 146/ GEOG 185	Remote Sensing of Natural Res	
ENSC 195	Internship	
ENSC 196	Undergraduate Research	
GEOL 235	Geochemistry of Natural Waters	
MMG 220	Environmental Microbiology	
NR 143	Intro to Geog Info Systems	
or NR 243	GIS Practicum	
PSS 261	Soil Morph Class & Land Use	
PSS 264	Chemistry of Soil & Water	

A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 14 elective credits with advisor approval.

### Environmental Biology Concentration

BCOR 102	SU:Ecology and Evolution	4
Choose a minimum of 12 additional credits from the following courses:		
BIOL 209	Field Zoology of Arthropods	
BIOL 217	Mammalogy	
BIOL 254	Population Genetics	
BIOL 264	Community Ecology	
BIOL 269	Plant-Animal Interactions	
BIOL 271	Evolution	
BIOL 276	Behavioral Ecology	
WFB 279	Marine Ecology & Conservation	
NR 250	Limnology	
or NR 280	Stream Ecology	
PSS 268	Soil Ecology	
ENSC 195	Internship	
ENSC 196	Undergraduate Research	
A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 12 elective credits with advisor approval.		

### Environmental Geology Concentration

Choose a minimum of 14 credits from the following courses:		
GEOL 101	Field Geology	
GEOL 116	Glacial Geology	
GEOL 135	Environmental Geochemistry	
GEOL 151	Geomorphology	
or GEOG 144	Geomorphology	
GEOL 161	SU:Field Methods in Geophysics	
GEOL 201	Advanced Field Geology	
GEOL 217	Vermont Field Geology	
GEOL 233	Environmental Isotope Geochem	
GEOL 234	Global Biogeochemical Cycles	
GEOL 235	Geochemistry of Natural Waters	
NR 143	Intro to Geog Info Systems	
or GEOG 184	Geog Info:Cncpts & Applic	
ENSC 195	Internship	
ENSC 196	Undergraduate Research	

A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 14 elective credits with advisor approval.

### Environmental Health Concentration

NR/ENVS/ HLTH 107	SU:Human Health & the Environmt	3
Choose a minimum of 11 additional credits from the following courses:		
ANTH 288	Anthro Research Global Health	
BCOR 101	Genetics	
BIOC 201	Fundamentals of Biochemistry	
BIOC 275	Adv Biochem of Human Disease	
BIOL 261	Neurobiology	
CHEM 142	Organic Chemistry 2	
ENSC 195	Internship	
ENSC 196	Undergraduate Research	
ENVS 195	Special Topics (When topic is Emerging Technologies and Human Health)	
HSCI 102	Epidemics-Dyn. of Inf. Disease	
MMG 101	Microbiol & Infectious Disease	
NFS 114	Human Health in the Food Syst	
NR 143	Intro to Geog Info Systems	
NURS 200	SU: Health and Sustainability	
PH 304	Environmental Public Health	
PH 308	Environmental Public Health 2	
PHRM 201	Introduction to Pharmacology	
PHRM 240	Molecules & Medicine	
PHRM 272	Toxicology	
STAT 200	QR: Med Biostat&Epidemiology	
A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 11 elective credits with advisor approval.		

### Global Environment and Climate Change Concentration

FOR/NR 146/ GEOG 185	Remote Sensing of Natural Res	3
or NR 143	Intro to Geog Info Systems	
Choose a minimum of 11 additional credits from the following courses:		
CE 132	SU: Environmental Systems	
ENSC 195	Internship	
ENSC 196	Undergraduate Research	
ENSC 274	SU:Climate Chg: Sci & Percept	

GEOG 140	Biogeography	
GEOG 143	Climatology: Concepts & Tools	
GEOG 148	Global Environmental Change	
GEOG 153	The Circumpolar Arctic	
GEOG 244	Adv Top: Global Change	
GEOG 245	Adv Top:Human Env Interactions (The Anthropocene)	
GEOG 246	Adv Top:Climate&Water Resource (Climatology and Natural Hazards)	
GEOG 246	Adv Top:Climate&Water Resource (Paleoclimatology)	
GEOL 151/ GEOG 144	Geomorphology	
GEOL 234	Global Biogeochemical Cycles	
NR 102	SU:Water as a Natural Resource	
or GEOG 145	SU: Geography of Water	
NR 220	Landscape Ecology	
PSS 261	Soil Morph Class & Land Use	
A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 11 elective credits with advisor approval.		

### Water Resources Concentration

Choose a minimum of 14 credits from the following courses:		
ENSC 195	Internship	
ENSC 196	Undergraduate Research	
GEOG 246	Adv Top:Climate&Water Resource (Snow Hydrology)	
GEOL 135	Environmental Geochemistry	
GEOL 235	Geochemistry of Natural Waters	
NR 102	SU:Water as a Natural Resource	
or GEOG 145	SU: Geography of Water	
NR 143	Intro to Geog Info Systems	
NR 250	Limnology	
NR 280	Stream Ecology	
PSS 269	Soil/Water Pollution/Bioremed	
WFB 161	Fisheries Biology & Techniques	
WFB 279	Marine Ecology & Conservation	
A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 14 elective credits with advisor approval.		

## ENVIRONMENTAL STUDIES IN THE COLLEGE OF AGRICULTURE AND LIFE SCIENCES

<http://www.uvm.edu/~envprog/>

The environment is a common theme in the courses offered at UVM. The College of Agriculture and Life Sciences (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 Sciences and Environmental Studies.

### CALS ENVIRONMENTAL STUDIES MAJOR

The Environmental Studies Program at University of Vermont was established in 1972 to meet the need for greater understanding of the ecological and cultural systems supporting all life on earth. This broadly interdisciplinary program is a campus-wide program serving students in four colleges across the university. The faculty are committed interdisciplinary thinkers drawing on the sciences, social sciences, and humanities to create a lively hub, addressing local and global issues with equal concern. We believe in collaborative problem-solving and the power of human imagination to create a more sustainable future.

The Environmental Program offers a major in Environmental Studies (ENVS) that can be pursued in three different colleges, including the College of Agriculture and Life Sciences, the College of Arts and Sciences, and the Rubenstein School of Environment and Natural Resources. Students can choose which college best suits their broad educational needs and then pursue the Environmental Studies major from within that college. While major requirements differ slightly from college to college, the core curriculum is the same. Following the introductory courses and working closely with faculty advisors, each student creates a plan for an individually-designed major. The major culminates in a final capstone internship, thesis, or advanced courses, usually carried out in the senior year.

### MAJORS

#### ENVIRONMENTAL STUDIES MAJOR

Environmental Studies B.S. (p. 239)

### MINORS

#### ENVIRONMENTAL STUDIES MINOR

Environmental Studies (p. 239)

### ENVIRONMENTAL STUDIES B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

### MAJOR 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:

The CALS Core Competencies		
Required courses:		
ENVS 001	SU: Intro to Environmtl Studies	4
ENVS 002	SU: Solutions in Env Studies	4
ENVS 101	Academic Planning Workshop	1
21 credits of approved environmentally-related courses at the 100- or 200-level, including three credits at the 200-level.		21
One breadth course in each of the following areas:		9
Natural sciences		
Humanities		
Social sciences		
Nine credits of a senior capstone: Thesis, Internship or Advanced Course Sequence		9

## ENVIRONMENTAL STUDIES MINOR REQUIREMENTS

A total of 17 credits is required for the minor.

ENVS 001	SU: Intro to Environmtl Studies	4
ENVS 002	SU: Solutions in Env Studies	4
9 credits at the 100-level or above. <sup>1</sup>		9

<sup>1</sup> One non-ENVS course at the appropriate level may be substituted with the approval of the student's advisor.

## FOOD SYSTEMS

UVM is a pioneer and global leader in food systems education, research, and collaboration and is the first and only university in the country to offer undergraduate, master's, and doctoral degrees in Food Systems.

UVM faculty, staff, and students have developed and maintained this position by embracing transdisciplinary approaches and fostering strong partnerships within the university, state, and beyond that contribute to a culture of collaboration and innovation. Given its strong systems orientation, UVM food systems scholarship encompasses a wide range of topics such as innovative production systems, environmental quality, entrepreneurship, human health and wellbeing, and nutrition. UVM's scale, as a land-grant university in a small state, provides students, staff, and faculty access to both diverse resources and an approachable campus community. This setting sustains relationships that integrate distinct disciplines in the natural and social sciences, as well as the humanities.

### MAJORS

#### FOOD SYSTEMS MAJOR

Food Systems (p. 240)

**MINORS****FOOD SYSTEMS MINOR**

Food Systems (p. 232)

**GRADUATE**

Food Systems M.S.

Food Systems Ph. D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

**FOOD SYSTEMS B.S.**

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

The food systems curriculum provides students with a broad foundational knowledge about the food system that includes environmental, social, and economic sustainability of food production. This knowledge is presented within the context of a changing climate, agricultural systems, food, health, and nutrition, food security, policy development at federal, state, and local levels, and an understanding of the complex dynamics of a global food system. In addition, students declare a concentration with a focus on natural or social science. Students also complete six credits of internship or research, providing an opportunity to apply what they learn, as well as prepare for a career in food systems.

**MAJOR REQUIREMENTS**

CDAE 002	D2:SU:World Food,Pop & Develop	3
CDAE 004	D1:US Food, Social Equity &Dev	3
NFS 043	Fundamentals of Nutrition	3
NFS 073	D2:SU:Farm to Table: Food Sys	3
PBIO 004	SU: Intro to Botany	3-4
or PBIO 006	SU: The Green World	
PSS 021	SU: Intro to Agroecology	3
FS 093	Food Systems Seminar I	2
FS 193	Food Systems Seminar II	2
FS 101/NFS 113	U.S. Food Policy and Politics	3
FS 102/ CDAE 108	Comparative Food Systems	3
FS 103/NFS 114	Human Health in the Food Syst	3
CDAE 296	Internship (Field Experience/Research)	6
Food Systems Concentration Requirement (Choose one)		15-18
A concentration in natural sciences may include Agroecology, Animal and Veterinary Sciences, Microbiology, Molecular Genetics, Nutrition and Food Sciences, Plant Biology, Soil Science, Sustainable Landscape Horticulture		

A concentration in social sciences may include Community Entrepreneurship, Community and International Development, Consumer + Advertising, Environmental Studies, Nutrition and Food Sciences, Public Communication, Sustainable Landscape Horticulture	
1 course/3 credits must be at the 200-level	
Additional pre-requisites as needed (depending on concentration)	

Any 100-level or higher course can only count ONCE toward the FS major OR the FS Concentration (minor) OR another minor declared within CALS.

**DEPARTMENT OF MICROBIOLOGY AND MOLECULAR GENETICS**<http://www.uvm.edu/microbiology/>

The College of Agriculture and Life Sciences shares this department with the Larner College of Medicine (LCOM). Undergraduate studies are in CALS while graduate studies are in the LCOM. The department offers a B.S. in Microbiology or a B.S. in Molecular Genetics.

**CALS MICROBIOLOGY AND MOLECULAR GENETICS MAJOR**

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, The University of Vermont Medical Center, 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.

## MAJORS

### MICROBIOLOGY AND MOLECULAR GENETICS MAJORS

Microbiology B.S. (p. 241)

Molecular Genetics B.S. (p. 242)

## MINORS

### MICROBIOLOGY AND MOLECULAR GENETICS MINORS

Bioinformatics (p. 243)

Microbiology (p. 243)

Molecular Genetics (p. 243)

## GRADUATE

Cellular, Molecular, and Biomedical Sciences M.S.

Cellular, Molecular, and Biomedical Sciences Ph.D.

Microbiology and Molecular Genetics M.S.

Microbiology and Molecular Genetics Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

## MICROBIOLOGY B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

### MAJOR REQUIREMENTS

MMG 001	First Year Colloquium	1
MMG 002	SU:Unseen Wrlds:Microbes & You	3
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	4-8
or BCOR 021	Accelerated Biology	
MATH 019 & MATH 020	QR: Fundamentals of Calculus I and QR: Fundamentals of Calculus II	6-8
or MATH 021 & MATH 022	QR: Calculus I and QR: Calculus II	
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4

CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4
MMG 101	Microbiol & Infectious Disease	4
MMG 104	Intro Recombinant DNA Tech	3
MMG 106	Intr Biomedical Research Meth	3
BCOR 101	Genetics	3
MMG 196	Intermediate Special Topics (Molecular Cell Biology w/o Lab)	3-4
or BCOR 103	Molecular and Cell Biology	
MMG 205	Biochemistry I	3
or MMG 206	Biochemistry II	
or BIOC 201	Fundamentals of Biochemistry	
or BIOC 275	Adv Biochem of Human Disease	
STAT 141	QR: Basic Statistical Methods 1	3
or STAT 200	QR: Med Biostat&Epidemiology	
MMG 299	Senior Seminar	1
Choose 6 credits from the following MMG courses:		6
MMG 211	Prokaryotic Molecular Genetics	
MMG 222	Advanced Medical Microbiology	
MMG 230	D2:SU:Adv St Emerg Infec Dis	
Choose 9 credits from the following MMG courses:		9
MMG 201	Molecular Cloning Lab	
MMG 207	Biochemistry Lab	
MMG 220	Environmental Microbiology	
MMG 223	Immunology	
MMG 225	Eukaryotic Virology	
MMG 232	QR: Advanced Bioinformatics	
MMG 233	Genetics and Genomics	
MMG 240	Macromol Struct Prot&Nucl Acid	
Choose 6 additional credits from above and/or below courses:		6
MMG 195 & MMG 196	Intermediate Special Topics and Intermediate Special Topics	
MMG 197 & MMG 198	Undergraduate Research and Undergraduate Research	
MMG 295 & MMG 296	Advanced Special Topics and Advanced Special Topics	
MMG 297 & MMG 298	Undergraduate Research and Undergraduate Research	
ASCI 216	Endocrinology	

BIOL 223	Developmental Biology	
BIOL 261	Neurobiology	
BIOL 265	Developmental Molecular Genetics	
BIOL 275	Human Genetics	
MLS 255	Clinical Microbiology II	
BHSC 242	Immunology	
BHSC 244	Immunology Lab	
NFS 295	Advanced Special Topics (Food Microbiology)	
PHRM 201	Introduction to Pharmacology	
PHRM 240	Molecules & Medicine	
PHRM 272	Toxicology	
PHRM 290	Topics Molecular&Cell Pharm	

## MOLECULAR GENETICS B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

## MAJOR REQUIREMENTS

MMG 001	First Year Colloquium	1
MMG 002	SU:Unseen Wrlds:Microbes & You	3
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	4-8
or BCOR 021	Accelerated Biology	
MATH 019 & MATH 020	QR: Fundamentals of Calculus I and QR: Fundamentals of Calculus II	6-8
or MATH 021 & MATH 022	QR: Calculus I and QR: Calculus II	
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4
MMG 101	Microbiol & Infectious Disease	4
MMG 104	Intro Recombinant DNA Tech	3
MMG 106	Intr Biomedical Research Meth	3
BCOR 101	Genetics	3
MMG 196	Intermediate Special Topics (Molecular Cell Biology w/o Lab)	3-4
or BCOR 103	Molecular and Cell Biology	
BIOC 275	Adv Biochem of Human Disease	3
or MMG 205	Biochemistry I	

or BIOC 201	Fundamentals of Biochemistry	
or MMG 206	Biochemistry II	
STAT 141	QR: Basic Statistical Methods 1	3
or STAT 200	QR: Med Biostat&Epidemiology	
MMG 299	Senior Seminar	1
Choose 6 credits from the following MMG courses:		6
MMG 201	Molecular Cloning Lab	
MMG 233	Genetics and Genomics	
MMG 295	Advanced Special Topics	
Choose 9 credits from the following MMG courses:		9
MMG 207	Biochemistry Lab	
MMG 211	Prokaryotic Molecular Genetics	
MMG 220	Environmental Microbiology	
MMG 222	Advanced Medical Microbiology	
MMG 223	Immunology	
MMG 225	Eukaryotic Virology	
MMG 230	D2:SU:Adv St Emerg Infec Dis	
MMG 232	QR: Advanced Bioinformatics	
MMG 240	Macromol Struct Prot&Nucl Acid	
Choose 6 additional credits from either above and/or below courses:		6
MMG 195 & MMG 196	Intermediate Special Topics and Intermediate Special Topics	
MMG 197 & MMG 198	Undergraduate Research and Undergraduate Research	
MMG 296 & MMG 295	Advanced Special Topics and Advanced Special Topics	
MMG 297 & MMG 298	Undergraduate Research and Undergraduate Research	
ASCI 216	Endocrinology	
BIOL 223	Developmental Biology	
BIOL 261	Neurobiology	
BIOL 265	Developmental Molecular Genetics	
BIOL 275	Human Genetics	
MLS 255	Clinical Microbiology II	
BHSC 242	Immunology	
BHSC 244	Immunology Lab	
NFS 295	Advanced Special Topics (Food Microbiology)	
PHRM 201	Introduction to Pharmacology	

PHRM 240	Molecules & Medicine	
PHRM 272	Toxicology	
PHRM 290	Topics Molecular&Cell Pharm	

## BIOINFORMATICS MINOR REQUIREMENTS

MMG 106	Intr Biomedical Research Meth	3
MMG 232	QR: Advanced Bioinformatics	3
MMG 233	Genetics and Genomics	3
MMG 295	Advanced Special Topics (Bioinformatics & Data Analysis)	3
Six credits from the following courses:		
MMG 197	Undergraduate Research	
or MMG 198	Undergraduate Research	
MMG 211	Prokaryotic Molecular Genetics	
CS 124	QR: Data Struc & Algorithms	
CS 254	QR: Machine Learning	
STAT 087	QR: Intro to Data Science	
STAT 200	QR: Med Biostat&Epidemiology	
STAT 201	QR:Stat Computing&Data Anlysis	
18 credits of bioinformatics course work		18

## PRE/CO-REQUISITES

BIOL 001	Principles of Biology	4
or BIOL 002	Principles of Biology	
or BCOR 011	Exploring Biology	
or BCOR 012	Exploring Biology	
CS 020	QR: Programming for Engineers	3
or CS 021	QR: Computer Programming I	
STAT 111	QR: Elements of Statistics	3
or STAT 141	QR:Basic Statistical Methods 1	
or STAT 143	QR: Statistics for Engineering	

## MICROBIOLOGY MINOR REQUIREMENTS

MMG 101	Microbiol & Infectious Disease	4
MMG 104	Intro Recombinant DNA Tech	3
MMG 196	Intermediate Special Topics (Molecular Cell Biology w/o Lab)	3-4

or BCOR 101	Genetics	
or BCOR 103	Molecular and Cell Biology	
Nine credits of MMG courses at or above 100-level		9

## PRE/CO-REQUISITES

BCOR 011	Exploring Biology	4
BCOR 012	Exploring Biology	4
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4

## MOLECULAR GENETICS MINOR REQUIREMENTS

MMG 101	Microbiol & Infectious Disease	4
MMG 104	Intro Recombinant DNA Tech	3
MMG 196	Intermediate Special Topics (Molecular Cell Biology w/o Lab)	3-4
or BCOR 101	Genetics	
or BCOR 103	Molecular and Cell Biology	
Nine credits of MMG courses at or above the 100-level		9

## PRE/CO-REQUISITES

BCOR 011	Exploring Biology	4
BCOR 012	Exploring Biology	4
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4

## DEPARTMENT OF NUTRITION AND FOOD SCIENCES

<http://www.uvm.edu/nfs/>

The Department of Nutrition and Food Sciences (NFS) prepares students to enter the rapidly expanding field of dietetics, food science, food safety, 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  
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.

## GENERAL EDUCATION STUDIES FOR ALL MAJORS

COMMUNICATION SKILLS		
ENGS 001	FW: Written Expression	3
or HCOL 085	FW: Honors Coll First Year Sem	
CALS 183	Communication Methods (or equivalent)	3
FINE ARTS AND HUMANITIES		
Any two humanities courses (Note: See diversity course substitute for Humanities)		6
SOCIAL SCIENCE CORE		
PSYS 001	Intro to Psychological Science	3
SOC 001	SU: Introduction to Sociology	3
or ANTH 021	D2: SU: Cultural Anthropology	
or HLTH 105	D2: Cultural Health Care	
BASIC SCIENCE CORE		
CHEM 023	Outline of General Chemistry	4
or CHEM 031	General Chemistry 1	
CHEM 042	Intro Organic Chemistry	4
or CHEM 141	Organic Chemistry 1	
ANPS 019	Ugr Hum Anatomy & Physiology	4
ANPS 020	Ugr Hum Anatomy & Physiology	4
PBIO 185	Introduction to Biochemistry	3
or NFS 183	Introduction to Biochemistry	
ANALYTIC SCIENCES CORE		
STAT 111	QR: Elements of Statistics	3
CALS 085	Computer Applications (or equivalent)	3
Diversity Requirement (may substitute for Humanities; see list)		6
Sustainability Requirement		3
CALS 001 & CALS 002	Foundations: Communication Meth and Foundation: Information Tech (first year students only)	6

## MAJORS

### NUTRITION AND FOOD SCIENCES MAJORS

Dietetics, Nutrition and Food Sciences B.S. (p. 245)

Nutrition and Food Sciences B.S. (p. 245)



**MINORS****NUTRITION AND FOOD SCIENCES MINORS**

Nutrition and Food Sciences (p. 246)

Food Systems (p. 232)

**GRADUATE**

Dietetics M.S.D.

Nutrition and Food Sciences M.S.

Nutrition and Food Sciences AMP

Food Systems M.S.

Food Systems AMP

Food Systems Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

**DIETETICS, NUTRITION AND FOOD SCIENCES B.S.**

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

**MAJOR REQUIREMENTS**

ANALYTIC SCIENCES CORE		
BSAD 060	Financial Accounting	3
or CDAE 158	Personal Financial Literacy	
or BSAD 009	Personal Finance & Investing	
REQUIRED COURSES		
NFS 034	Servsafe Certification Course	1
NFS 043	Fundamentals of Nutrition	3
NFS 044	Survey of the Field	1
NFS 053	Basic Concepts of Foods	3
NFS 073	D2:SU:Farm to Table: Food Sys	3
NFS 143	Nutrition in the Life Cycle	3
NFS 203	Food Microbiology	3
NFS 213	Food Microbiology Lab	1
NFS 223	Nutrition Educ & Counseling	3
NFS 243	Advanced Nutrition	3
NFS 244	Nutr in Hlth & Disease Prevntn	3
NFS 250	Foodservice Systems	4
NFS 260	Diet and Disease	3

NFS 262	Community Nutrition	3
NFS 274	Community Practicum	1-3
NFS 286	DNFS Senior Seminar	1
BIOC 263	Nutritional Biochemistry	3
BSAD 120	Leadership & Org Behavior	3
HLTH 003	Medical Terminology	2
Electives		15-26
Category Two Diversity Requirement		
ANTH 021 fulfills the Category Two Diversity requirement		

Note: Students wishing to apply to Medical, Naturopathic, Chiropractic, Osteopathic, Dental or Graduate School should take: CHEM 031 and CHEM 141 (in place of CHEM 023 and CHEM 042), plus use electives to take CHEM 032 and CHEM 142, BIOL 001 & BIOL 002, PHYS 011 & PHYS 012 or equivalent, plus lab PHYS 021 & PHYS 022. MATH 019 & MATH 020 or MATH 021 & MATH 022 are optional depending on the school.

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.

For more information about the University Approved Diversity requirement, see the Degree Requirements in the Academic Information section of the Catalogue.

**NUTRITION AND FOOD SCIENCES B.S.**

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

**MAJOR REQUIREMENTS**

ANALYTIC SCIENCES CORE		
Math Placement (if test score less than or equal to 6, take MATH 009; if equal to or greater than 7, take MATH 019)		3
REQUIRED COURSES		
NFS 043	Fundamentals of Nutrition	3
NFS 044	Survey of the Field	1
NFS 053	Basic Concepts of Foods	3
NFS 073	D2:SU:Farm to Table: Food Sys	3
NFS 143	Nutrition in the Life Cycle	3
NFS 153	Principles of Food Technology	3
NFS 154	Principles Food Technology Lab	1
NFS 187	Intro to Biochemistry: Lab	1
or PBIO 187	Intro to Biochemistry: Lab	

NFS 203	Food Microbiology	3
NFS 213	Food Microbiology Lab	1
NFS 243	Advanced Nutrition	3
NFS 295	Advanced Special Topics (NFS SENIOR CAPSTONE )	1-18
In consultation with the student's academic advisor, select 4 additional NFS courses, at least 2 of which must be at the 200-level		12
NFS 050	D2:Cheese and Culture	
NFS 254	Global Food Safety	
NFS 063	D2:Obesity:What,Why,What to Do	
NFS 113	U.S. Food Policy and Politics	
NFS 114	Human Health in the Food Syst	
NFS 163	Sports Nutrition	
NFS 195: Deadly Food: Outbreak Investigations		
NFS 205	Functional Foods:Prncpl & Tech	
NFS 223	Nutrition Educ & Counseling	
NFS 244	Nutr in Hlth & Disease Prevntn	
NFS 250	Foodservice Systems	
NFS 260	Diet and Disease	
NFS 262	Community Nutrition	
NFS 283	HACCP: Theory & Application	
NFS 295: Food Composition and Analysis		
NFS 295: Nutrition for Global Health		
NFS 295: Experimental Research and Nutrition		
BIOC 263	Nutritional Biochemistry	
CATEGORY TWO DIVERSITY REQUIREMENT		
ANTH 021 fulfills the Category Two Diversity requirement.		
ELECTIVES		30-39

Note: Students wishing to apply to Medical, Naturopathic, Chiropractic, Osteopathic, Dental or Graduate School should take: CHEM 031 and CHEM 141 (in place of CHEM 023 and CHEM 042), plus use electives to take CHEM 032 and CHEM 142, BIOL 001 & BIOL 002, PHYS 011 & PHYS 012, or equivalent, plus lab PHYS 021 & PHYS 022. MATH 019 & 020 or MATH 021 & 022 are optional depending on the school.

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.

For more information about the University Approved Diversity requirement, see the Degree Requirements in the Academic Information section of the Catalogue.

## NUTRITION AND FOOD SCIENCES MINOR

### REQUIREMENTS

A total of 15 credits in Nutrition and Food Sciences:

NFS 043	Fundamentals of Nutrition	3
NFS 053	Basic Concepts of Foods	3
Choose 1 of the following:		3
NFS 143	Nutrition in the Life Cycle	
NFS 153	Principles of Food Technology	
Choose 2 of the following:		6
NFS 113	U.S. Food Policy and Politics	
NFS 114	Human Health in the Food Syst	
NFS 163	Sports Nutrition	
NFS 195: when the topic is Deadly Food: Outbreak Investigations		
NFS 203	Food Microbiology	
NFS 205	Functional Foods:Prncpl & Tech	
NFS 223	Nutrition Educ & Counseling	
NFS 243	Advanced Nutrition	
NFS 244	Nutr in Hlth & Disease Prevntn	
NFS 253	Food Regulation	
NFS 254	Global Food Safety	
NFS 262	Community Nutrition	
NFS 283	HACCP: Theory & Application	
NFS 295: when the topic is Food Composition and Analysis		
NFS 295: when the topic is Nutrition for Global Health		
NFS 295: when the topic is Experimental Research and Nutrition		

### RESTRICTIONS

Independent study, field experience and undergraduate research cannot be counted in this total.

## DEPARTMENT OF PLANT AND SOIL SCIENCE

<http://www.uvm.edu/cals/pss> (<http://www.uvm.edu/cals/pss/>)

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 agroecology.

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](mailto:pss@uvm.edu) or call (802) 656-2630.

## MAJORS

### PLANT AND SOIL SCIENCE MAJORS

Agroecology B. S. (p. 247)

Sustainable Landscape Horticulture B.S. (p. 247)

## MINORS

### PLANT AND SOIL SCIENCE MINORS

Agroecology (p. 248)

Food Systems (p. 232)

Soil Science (p. 249)

Sustainable Landscape Horticulture (p. 249)

## GRADUATE

Plant and Soil Science M.S.

Plant and Soil Science Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

## AGROECOLOGY B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 214)

Agroecology (AGRO) is a degree that provides a foundation in the natural sciences with an emphasis on the application of ecological principles to the production of horticulture 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.

## MAJOR REQUIREMENTS

PSS 021	SU: Intro to Agroecology	3
PSS 106	Entomology & Pest Mgmt	4
PSS 112	Weed Ecology & Management	3
PSS 117	Plant Pathology	4
PSS 138	Commercial Plant Propagation	4
PSS 161	SU:Fundmntls of Soil Science	4
PSS 162	Soil Fertility & Conservation	3
PSS 190	Internship	1
PSS 208	Diversified Farm Planning	3
PSS 212	SU: Advanced Agroecology	4
PSS 281	Prof Dev:Eco Ag/Sust Lndsc Hrt	1
BIOL 001	Principles of Biology	4
or BCOR 011	Exploring Biology	
BIOL 002	Principles of Biology	4
or BCOR 012	Exploring Biology	
CDAE 061	SU:Principles of Comm Dev	3
or CDAE 166	Intro to Comm Entrepreneurship	
CDAE 208	Agricultural Policy and Ethics	3
PBIO 104	Plant Physiology	4
CHEM 023	Outline of General Chemistry	4
or CHEM 031	General Chemistry 1	
or CHEM 032	General Chemistry 2	
CHEM 026	Outline of Organic & Biochem	4
or CHEM 141	Organic Chemistry 1	
or CHEM 142	Organic Chemistry 2	
MATH 010	QR: Pre-Calculus Mathematics	3
or MATH 019	QR: Fundamentals of Calculus I	
NR 103	Ecology, Ecosystems & Environ	3
or BCOR 102	SU:Ecology and Evolution	
STAT 111	QR: Elements of Statistics	3
or STAT 141	QR:Basic Statistical Methods 1	
12 credits of PSS courses at the 100 level or higher		12

## SUSTAINABLE LANDSCAPE HORTICULTURE B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

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 a variety of careers in the expanding field of Sustainable Landscape Horticulture. Students are required to participate in an internship related to their studies.

## MAJOR REQUIREMENTS

PSS 010	Home & Garden Horticulture	3
PSS 015	Home & Garden Horticulture Lab	1
PSS 106	Entomology & Pest Mgmt	0 or 4
PSS 112	Weed Ecology & Management	0 or 3
PSS 117	Plant Pathology	4
PSS 123	Garden Flowers	2
PSS 125	Woody Landscape Plants	0 or 4
PSS 137	Landscape Design Fundamentals	4
PSS 138	Commercial Plant Propagation	0 or 4
PSS 161	SU:Fundmntls of Soil Science	0 or 4
PSS 162	Soil Fertility & Conservation	3
PSS 190	Internship	1-3
PSS 238	Ecological Landscape Design	4
PSS 281	Prof Dev:Eco Ag/Sust Lndsc Hrt	1
BIOL 001	Principles of Biology	4
or BCOR 011	Exploring Biology	
BIOL 002	Principles of Biology	4
or BCOR 012	Exploring Biology	
CDAE 061	SU:Principles of Comm Dev	3
NR 103	Ecology, Ecosystems & Environ	3
or BCOR 102	SU:Ecology and Evolution	
CDAE 166	Intro to Comm Entrepreneurship	3
PBIO 104	Plant Physiology	4
NR 143	Intro to Geog Info Systems	3
or CDAE 001	Drafting & Design in SketchUp	
CHEM 023	Outline of General Chemistry	4
or CHEM 031	General Chemistry 1	
or CHEM 032	General Chemistry 2	
CHEM 026	Outline of Organic & Biochem	4

or CHEM 141	Organic Chemistry 1	
or CHEM 142	Organic Chemistry 2	
MATH 010	QR: Pre-Calculus Mathematics	3
or MATH 019	QR: Fundamentals of Calculus I	
STAT 111	QR: Elements of Statistics	3
or STAT 141	QR:Basic Statistical Methods 1	

## AGROECOLOGY MINOR

This minor is designed to give students a knowledge-based concentration in diversified agricultural production that is based on ecological principles and is economically viable, socially acceptable, and minimizes impacts to the environment.

## REQUIREMENTS

A minimum of 15 credits from the following courses:

PSS 021	SU: Intro to Agroecology	3
PSS 212	SU: Advanced Agroecology	4
Choose three of the following:		9-12
ASCI 110	Animal Nutrit, Metab & Feeding	
ASCI 122	Animals in Soc/Animal Welfare	
PSS 106	Entomology & Pest Mgmt	
PSS 112	Weed Ecology & Management	
PSS 117	Plant Pathology	
PSS 120	Cold Climate Viticulture	
PSS 124	Agroecology of Vegetable Crops	
PSS 127	Greenhouse Operations & Mgmt	
PSS 138	Commercial Plant Propagation	
PSS 143	Forage and Pasture Mgmt	
PSS 154	Composting Ecology & Mgmt	
PSS 156	Permaculture	
PSS 161	SU:Fundmntls of Soil Science	
PSS 162	Soil Fertility & Conservation	
PSS 208	Diversified Farm Planning	
PSS 209	Diversified Farm Operations	
PSS 221	Sustainable Orchard Management	
PSS 232	Biological Control	
PSS 268	Soil Ecology	
Or appropriate 100- or 200-level PSS special topics (as approved by the PSS Undergraduate Affairs committee).		



**RESTRICTIONS**

Ineligible Major: Agroecology

## SOIL SCIENCE MINOR REQUIREMENTS

A minimum of 17 credits including:

PSS 161	SU:Fundmntls of Soil Science	4
4 courses from the following list:		13
PSS 154	Composting Ecology & Mgmt	
PSS 162	Soil Fertility & Conservation	
PSS 261	Soil Morph Class & Land Use	
PSS 264	Chemistry of Soil & Water	
PSS 268	Soil Ecology	
PSS 269	Soil/Water Pollution/Bioremed	
With 1 PSS course substitution allowed from the following:		
GEOL 151	Geomorphology	
GEOL 234	Global Biogeochemical Cycles	
NR 288	Ecol Design & Living Technol	

## SUSTAINABLE LANDSCAPE HORTICULTURE MINOR REQUIREMENTS

A minimum of 15 credits from the following:

PSS 010	Home & Garden Horticulture	3
PSS 123	Garden Flowers	2
PSS 125	Woody Landscape Plants	4
PSS 137	Landscape Design Fundamentals	4
Choose 1 of the following:		3-4
PSS 106	Entomology & Pest Mgmt	
PSS 117	Plant Pathology	
PSS 138	Commercial Plant Propagation	
PSS 156	Permaculture	
PSS 161	SU:Fundmntls of Soil Science	
PSS 238	Ecological Landscape Design	
Or an appropriate PSS special topics course (as approved by the Plant and Soil Science Undergraduate Affairs Committee)		

**RESTRICTIONS**

Ineligible Major: Sustainable Landscape Horticulture

**PRE/CO-REQUISITES**

One course in drawing required for PSS 137	
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**PLANT BIOLOGY DEPARTMENT**

<http://www.uvm.edu/cals/plantbiology> (<http://www.uvm.edu/cals/plantbiology/>)

**CALS Plant Biology Major**

The undergraduate Plant Biology program at the University of Vermont provides a broad introduction to the life sciences, from biochemistry and molecular biology to whole plant physiology and ecosystem ecology. Students receive individualized faculty attention via one-on-one advising to develop a personalized course of study. Popular study opportunities include a biennial trip to Costa Rica and an annual trip to the Galapagos. All students complete a senior capstone experience. Most students opt to conduct undergraduate research as part of a faculty-led research group, either in a plant science laboratory or at the internationally acclaimed Proctor Maple Research Center or at the Pringle Herbarium, the third largest plant collection in New England.

**MAJORS****PLANT BIOLOGY MAJOR**

Plant Biology B.S. (p. 249)

**MINORS****PLANT BIOLOGY MINOR**

Plant Biology (p. 250)

**GRADUATE**

Field Naturalist M.S.

Plant Biology M.S.

Plant Biology Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

**PLANT BIOLOGY B.S.**

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

**MAJOR REQUIREMENTS**

REQUIRED FOUNDATIONAL COURSES:		
BCOR 011	Exploring Biology	4
BCOR 012	Exploring Biology	4
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
CHEM 141	Organic Chemistry 1	4

CHEM 142	Organic Chemistry 2	4
Choose one of the following sequences:		6-8
MATH 019 & MATH 020	QR: Fundamentals of Calculus I and QR: Fundamentals of Calculus II	
MATH 021 & MATH 022	QR: Calculus I and QR: Calculus II	
Choose one of the following:		3
STAT 141	QR: Basic Statistical Methods 1	
STAT 211	QR: Statistical Methods I	
NR 140	Applied Environ Statistics	
Choose one of the following:		4-5
PHYS 011 & PHYS 021	Elementary Physics and Introductory Lab I	
PHYS 051	Fundamentals of Physics I	
REQUIRED MAJOR COURSES:		
BCOR 101	Genetics	3
BCOR 102	SU: Ecology and Evolution	4
or BCOR 103	Molecular and Cell Biology	
PBIO 104	Plant Physiology	4
PBIO 108	Morph & Evo of Vascular Plants	4
or PBIO 109	Plant Systematics	
At least 12 additional PBIO credit hours at the 100 or 200-level. At least 6 of these must be at the 200-level. PBIO 185 and PBIO 187 do not meet this requirement.		12
PBIO 295	Advanced Special Topics (SENIOR CAPSTONE)	1
REQUIRED ELECTIVE COURSES:		
An additional 12-14 credits of elective courses at the 100-level or above relevant to plant biology, selected in consultation with the advisor.		12-14

## PLANT BIOLOGY MINOR REQUIREMENTS

At least fifteen credits of course work in Plant Biology (PBIO courses) at the 100-level or 200-level. One 100-level BCOR course may be presented in fulfillment of the minor requirements.

12 credits in PBIO at the 100-level or above	12
3-4 credits in PBIO or BCOR at the 100-level or above	3-4

## RESTRICTIONS

Ineligible Majors: Plant Biology

## PRE/CO-REQUISITES

At least one semester of introductory Biology or Plant Biology: PBIO 004, BIOL 001, BIOL 002, BCOR 011, or BCOR 012.

## SELF-DESIGNED B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 214)

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 60+ 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 with at least 6 of those credits being at the 200-level.

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.

## THE COLLEGE OF ARTS AND SCIENCES

<https://www.uvm.edu/cas> (<https://www.uvm.edu/cas/>)

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 Office of the Dean of the College of Arts and Sciences is located at 438 College Street.

## FIRST-YEAR PROGRAMS

The first year of university-level study is challenging. The College of Arts and Sciences offers students several 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 university Writing and Information Literacy requirement and most meet the college's Distribution Requirements as well. Typical topics for TAP courses include "Environmental Risk", "Writer as Witness", "Geology and Ecology of Lake Champlain", "Ethics of Eating", and "Meanings of Madness". More than fifty different courses like these are available to first-year students each year.

Another option is for students to participate in one of the six offerings within the Liberal Arts Scholars Program. Students in these residually-based programs enroll in four to six connected seminars and live together. They are designated "Liberal Arts Scholars" programs because they are designed for highly motivated first-year students with strong academic records.

## 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 school include one year each of biology, general chemistry, organic chemistry, physics and calculus. In preparation for the 2015 MCAT, one semester of statistics (or a statistics-heavy course in another discipline), one

semester of biochemistry, one semester of psychology, and one semester of sociology should be completed. Increasing numbers of medical schools also are requiring a year of English, especially writing-intensive courses. 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 Center 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, Tufts, Columbia, Cornell, Dartmouth, UVM, Duke, and Brown, while pre-dental graduates are studying at Boston University, Temple, Tufts, Arizona, and University of New England.

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 in the graduate and professional school section of the Career Center's website.

### 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 (UVM) and Vermont Law School (VLS) offer a unique dual-degree program leading to a Bachelor's in three years and a Juris Doctor (JD) degree in two years. The UVM-VLS

3+2 program enables highly-focused students to earn both degrees in less time and at less cost from two distinguished institutions. Students may choose to enter the program from selected majors in the College of Arts and Sciences including Economics, History, and Political Science.

The University of Vermont provides guidance to its pre-law students through the Career Center 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.

### 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.

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## 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 7 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.

1. 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 8 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 major (dual degree) or 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 18 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 4, 5, and 6.

2. 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.
3. 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 7 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.
4. 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 3 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:** 1 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 Requirements.<sup>1</sup>

### Distribution Requirements

Students completing the B.A. degree will be required to complete all 7 of the Distribution Requirement categories (Foreign Language, Mathematical Sciences, Fine Arts, Literature, Humanities, Social Sciences, and Natural Sciences). No more than 3 courses from the same department may be used to satisfy the Distribution Requirements. No single course may satisfy more than 1 category, except that a foreign language course which fulfills the literature category simultaneously fulfills the category of foreign language. Except where noted, only courses of 3 credits or more will satisfy B.A. or B.S. distribution requirements. Courses which satisfy major and minor requirements may also be used to satisfy Distribution Requirements. Please note that Psychological Science (BA only) majors must complete at least 1 course in Natural Science outside the Department of Psychological Science.

a. **FOREIGN LANGUAGE:** 2 courses in the same foreign language<sup>2</sup> at the appropriate level, as determined by the offering department.<sup>3</sup> A student who has achieved a score of 4 or better on an appropriate Advanced Placement (AP) Test and receives AP credit for 2 semesters of language has satisfied this requirement.<sup>4</sup>

b. **MATHEMATICAL SCIENCES:** 1 mathematics course at MATH 017 or higher, or STAT 051 or higher, or CS 008 or higher, or PHIL 013, or LING 075, or ANTH 113/LING 163.

c. **FINE ARTS:** 1 course in Studio Art or Art History, Dance, Film and Television Studies, Music<sup>5</sup>, or Theatre<sup>6</sup>.

d. **LITERATURE:** 1 course selected from a list of approved offerings in Classics, English, French, German, Greek, Italian, Latin, Russian, Spanish, World Literature<sup>7</sup>.

e. **HUMANITIES:** 2 courses from a list of approved offerings in Art History, Classics, Greek, History, Latin, Music History, Philosophy, Political Science, and Religion<sup>8</sup>.

f. **SOCIAL SCIENCES:** 2 courses from a list of approved offerings in Anthropology, Economics, Gender, Sexuality, and Women's Studies, Geography, Global and Regional Studies, Linguistics, Political Science, Psychological Science, Sociology, and Vermont Studies<sup>9</sup>.

g. **NATURAL SCIENCES:** 2 courses, 1 of which must be a lab course that totals 4 credits, chosen from: all offerings in Astronomy, Biology (including BCOR), Chemistry, Geology, Physics, Plant Biology, plus: GEOG 040, GEOG 140, GEOG 143, GEOG 148, MMG 065, PSYS 111, PSYS 115, PSYS 211, PSYS 215, PSYS 216, AND PSYS 218.

5. 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 12 credits must be at or above the 100-level. Application of credits earned elsewhere to completion of the major is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of major requirements may be taken on a pass/no pass basis.

6. A student must complete a minor approved by the College of Arts and Sciences in a field other than the major by satisfying the requirements specified by the department or program supervising the minor<sup>10</sup>. Also, a student must maintain a cumulative grade-point average of 2.00 in the minor field<sup>11</sup>. 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 1 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.

- <sup>1</sup> 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, ANTH 024, ANTH 028, ANTH 059, ANTH 076, ANTH 085, ANTH 089, ANTH 104, ANTH 165, ANTH 172, ANTH 173, ANTH 174, ANTH 179, ANTH 184, ARTH 185, ARTH 186, ARTH 187, ARTH 188, ARTH 192, ARTH 285; CLAS 145, CLAS 148; DNCE 005, DNCE 006, DNCE 031, DNCE 033, DNCE 037, DNCE 041; ENGS 060, ENGS 061, ENGS 062, ENGS 179, ENGS 182; ENVS 167, ENVS 182; GEOG 050, GEOG 150, GEOG 151; GRS 001, GRS 200, GRS 157, GRS 167; GSWS 165; HSOC 089, HSOC 103; HST 009, HST 010, HST 041, HST 045, HST 046, HST 055, HST 063, HST 067, HST 141, HST 142, HST 144, HST 146, HST 148, HST 150, HST 151, HST 240, HST 250, HST 252; LING 161; MU 007, MU 014, MU 107; PHIL 121, PHIL 221; POLS 157, POLS 162, POLS 167, POLS 174, POLS 176, POLS 177, POLS 270; REL 020, REL 021, REL 023, REL 026, REL 029, REL 030, REL 031, REL 040, REL 132, REL 133, REL 141, REL 145, REL 234; SOC 112, SOC 155, SOC 171, SOC 212, SOC 272; SPAN 145, SPAN 146, SPAN 269, SPAN 294; THE 077; WLIT 020, WLIT 025, WLIT 109, WLIT 110, WLIT 119, WLIT 129, WLIT 145.
- <sup>2</sup> The following courses are NOT approved for this category: CHIN 020, CHIN 095, CHIN 096; FREN 095, FREN 096; ITAL 095, ITAL 096; JAPN 095, JAPN 096, JAPN 121, JAPN 122, JAPN 221, JAPN 222; SPAN 010, SPAN 095, SPAN 096. Approved for this category are ASL 001, ASL 002, ASL 051, ASL 052, ASL 101, ASL 102, and all other courses in Arabic, French, Spanish, Italian, German, Russian, Hebrew, Chinese, Japanese, Greek, and Latin.
- <sup>3</sup> 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.
- <sup>4</sup> See Admissions Section for information concerning academic credit for Advanced Placement Testing. The language sequences are designed specifically to train students in the four skills of speaking, listening, reading, and writing. The total sequence in each language represents a continuum into which students with previous experience in the language will be placed according to their level of achievement, regardless of how many or how few years they may have studied it. For placement in advanced language courses (100 or above), first-year students should consult with this department. Students may not take a language course lower than the level most recently attained except with the permission of the department. This stricture does not apply to literature or civilization courses.
- <sup>5</sup> Dance and Music Performance/Ensemble courses, and/or Music lessons may be used to satisfy the fine arts requirement if the cumulative credit total is equal to or greater than 3.
- <sup>6</sup> Speech courses will not satisfy the fine arts requirement.
- <sup>7</sup> The following courses have been approved for this category: CLAS 015, CLAS 042; all English courses except: ENGS 001, ENGS 002 (writing courses only), ENGS 005 (writing courses only), ENGS 050, ENGS 051, ENGS 053, ENGS 081, ENGS 102, ENGS 103, ENGS 104, ENGS 105, ENGS 107, ENGS 114, ENGS 117, ENGS 118, ENGS 119, ENGS 120; ENGS 191, ENGS 192, ENGS 211, ENGS 212; all French courses numbered FREN 141 or higher except FREN 201, FREN 209, FREN 292, FREN 293; GSWS 042; all German courses numbered above 100 except: GERM 122; all Greek courses numbered above 200; HS 017; all Italian courses above 100; all Latin courses numbered above 100 except: LAT 211, LAT 212; all Russian courses numbered above 100 except: RUSS 101, RUSS 121, RUSS 122, RUSS 221, RUSS 222; all Spanish courses numbered SPAN 140 or higher except courses numbered SPAN 201, SPAN 202, SPAN 212, SPAN 217, SPAN 290, SPAN 291, SPAN 294; all World Literature courses.



- <sup>8</sup> The following courses have been approved for this category: all art history, history, and religion courses; CLAS 015, CLAS 021, CLAS 022, CLAS 023, CLAS 024, CLAS 121, CLAS 122, CLAS 147, CLAS 148, CLAS 163; DNCE 050; GRK 203, GRK 205; HS 139, HS 180, HS 190, HS 191, HS 227; MU 001, MU 005, MU 010, MU 012, MU 014, MU 015, MU 105, MU 111, MU 112; all philosophy courses except PHIL 013; POLS 041, POLS 140, POLS 141, POLS 142, POLS 147, POLS 148, POLS 149, POLS 182, POLS 241, POLS 245, POLS 249.
- <sup>9</sup> The following courses have been approved for this category: all anthropology, economics, linguistics, and sociology courses; CRES 061, CSD 094; all geography courses except: GEOG 040, GEOG 140, GEOG 143, GEOG 148; all political science courses except: POLS 041, POLS 140, POLS 141, POLS 142, POLS 147, POLS 148, POLS 149, POLS 182, POLS 241, POLS 245, POLS 249; all psychological science courses except: PSYS 111, PSYS 115, PSYS 211, PSYS 215, PSYS 216, PSYS 218; VS 052; GSWS 001; HSOC 054, HSOC 089, HSOC 103.
- <sup>10</sup> Only 1 course may be applied toward completion of both a major and a minor requirement.
- <sup>11</sup> Students may choose any set of applicable courses from the 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.

## 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 7 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.

1. 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 8 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 or environmental science which require 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 18 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 4, 5, 6 and 7.
2. 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.
3. 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 7 years must comply with the requirements in the catalogue current at the time of readmission.
4. 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 3 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: 1 course, other than a foreign language, which deals with non-European cultural traditions. (See footnote under Bachelor of Arts Distribution Requirements.)
5. Distribution Requirements  
B.S. degree students in the College will be required to complete coursework in ALL the following categories: Natural Sciences (2 courses with lab as defined by the major requirements), Mathematical Sciences (2 courses as defined by the major requirements), Social Sciences (2 courses). In addition, B.S. degree students in the College will be required to complete coursework in 2 of the following 3 categories: Fine Arts and Literature (2 courses - one course in each area), Foreign Language (2 courses in the same language at the appropriate level), or Humanities (2 courses). 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.
6. 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 12 credits must be at or above the 100-



level. Application of credits earned elsewhere toward completion of the major is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of major requirements may be taken on a pass/no pass basis.

7. Bachelor of Science (with optional minor) Degree

A student electing this degree program must satisfy all of the requirements specified in sections 1, 2, 3, 4, 5 and 6 (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 major (dual degree) or 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 2 of the courses from Distribution Requirements may be applied toward the completion of the minor requirements.

Only 1 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, 1 course graded below C and to replace this course with an approved alternate.

## 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 Independent Study 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 9 or more such credits in a single semester.

### GOVERNING COLLEGE HONORS

1. 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 (6 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.
2. Some departments in the college, including economics, english, geography, global and regional studies, 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:

1. Students must complete 30 of the last 45 credits in residence at UVM. One-half of the credits applied toward the satisfaction of major requirements, including 12 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.

### GOVERNING TRANSFER INTO THE COLLEGE

Students who wish to internally transfer into the College of Arts and Sciences (CAS) must be in good academic standing which is defined by the following:

1. the student cannot have any incompletes (INC's) or missing (M) grades and
2. the student must have a cumulative GPA of 2.0 or higher (in at least 12 credits completed at UVM and within their most recently completed semester)

If the student's cumulative GPA is above 2.0 but the most recent semester GPA is below 2.0 then the student will be placed on academic probation.

If a student has junior or senior standing, that student will be required to meet with a College of Arts and Sciences Student Services advisor prior to the transfer.

## GOVERNING ACADEMIC STANDARDS

The following criteria for academic probation 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. The College of Arts and Sciences (CAS) Dean's Office completes the initial grade review and the Academic Studies Committee reviews cases considered for dismissal.

### Probation

1. A student who earns a semester grade-point average (GPA) higher than that which merits dismissal but below 2.00 is placed on probation. In order to avoid dismissal from the university, a student who has been placed on probation must in the following semester earn a 2.00 semester average, enroll in all courses for a letter grade, and complete twelve or more credits. No student will be removed from probation until both the semester and cumulative averages are at least 2.00. Students will be continued on probation for an additional semester if a semester GPA of 2.00 is earned but if they did not complete at least 12 credits or if the cumulative GPA is below 2.00. Students who wish to pursue part-time coursework while on probation may do so. However, students will not be removed from probation until they have completed at least 18 credits total of coursework (this may be completed over multiple semesters) with at least a 2.00 GPA for each semester of part-time coursework. It is the responsibility of the student to inform the Dean's Office when this has been accomplished so that good academic standing may be restored. A student who is on probation may not enroll in a university-sanctioned study abroad program.
2. 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 probation 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 below 2.00 after completion of the second semester will be placed on probation.

### Dismissal

Any student who does not satisfy the conditions of probation, 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 reviewed for dismissal for low scholarship. The period of dismissal is one year. Students may appeal the decision by deadline communicated by the College if new information is available following the dismissal decision.

## Re-entry Following Dismissal

A dismissed student who presents evidence of his/her ability to perform satisfactorily may be considered for re-entry on probation following a one-year separation from the University. Dismissed students may apply for re-entry directly to the College of Arts and Sciences and must demonstrate the completion of at least 12-15 credit hours of course work outside of UVM and earn a grade point average of 3.0. A student who has been dismissed for a second time will not be considered for re-entry on probation until at least three years have elapsed and the above re-entry conditions have been met. Further information regarding re-entry may be obtained from the CAS Dean's office by contacting [cas@uvm.edu](mailto:cas@uvm.edu) or 802-656-3344.

## DEPARTMENTS AND PROGRAMS

- Anthropology (p. 259)
- Art and Art History (p. 261)
- Asian Languages and Literatures (p. 264)
- Biochemistry (p. 264)
- Biology (p. 266)
- Center for Research on Vermont (p. 270)
- Chemistry (p. 271)
- Classics (p. 273)
- Computer Science (p. 275)
- Critical Race and Ethnic Studies (p. 276)
- Economics (p. 276)
- English (p. 278)
- Environmental Sciences (p. 280)
- Environmental Studies (p. 281)
- Film and Television Studies (p. 278)
- Gender, Sexuality and Women's Studies (p. 282)
- Geography (p. 283)
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- Health and Society (p. 295)
- History (p. 296)
- Holocaust Studies (p. 298)
- Individually Designed (p. 298)
- Linguistics (p. 300)
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- Music (p. 302)
- Neuroscience (p. 307)
- Philosophy (p. 309)
- Physics (p. 310)
- Plant Biology (p. 312)
- Political Science (p. 313)
- Psychological Science (p. 315)
- Religion (p. 317)
- Romance Languages and Cultures (p. 320)

- Sociology (p. 323)
- Theatre and Dance (p. 325)

## DEPARTMENT OF ANTHROPOLOGY

<https://www.uvm.edu/cas/anthropology> (<https://www.uvm.edu/cas/anthropology/>)

The mission of the Department of Anthropology at the University of Vermont is to produce influential research in anthropology integrated with an outstanding undergraduate liberal arts education. Drawing on the interdisciplinary four-field tradition, which includes archaeological, biological, cultural and linguistic anthropology, we emphasize strong training in contemporary anthropological theory, research methods, and ethical practices, with the goal of preparing students to think critically and act as engaged citizens for the common good. Together as students and faculty, our scholarly community mobilizes anthropological knowledge to address questions of culture and its role in a diverse and changing world. In addition to the general anthropology major, we offer concentrations in the anthropology of global health, archaeology, and heritage management.

### MAJORS

#### ANTHROPOLOGY MAJOR

Anthropology B.A. (p. 259)  
Anthropology B.S. (p. 260)

### MINORS

#### ANTHROPOLOGY MINOR

Anthropology (p. 261)

#### ANTHROPOLOGY B.A.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 253)

Specific requirements for an optional concentration are included on this page:

Concentration in Anthropology of Global Health (p. 259)

Concentration in Archaeology and Heritage Management (p. 260)

### MAJOR REQUIREMENTS

31 credits, including:

Introductory courses:		
ANTH 021	D2:SU: Cultural Anthropology	3
ANTH 024	D2:SU: Prehistoric Archaeology	3
ANTH 026	D2:Biological Anthropology	3
ANTH 028	D2: Linguistic Anthropology	3
3 courses in Anthropology at the 100-level or above		9

1 of the following courses:		1
ANTH 105	Introduction to the Major	
ANTH 205	Advanced Proseminar in Anthro	
2 courses in Anthropology at the 200-level. Only 3 credits of ANTH 200 will count toward this requirement. ANTH 293 will not count toward this requirement.		6
1 additional course in Anthropology at any level		3
NOTE: Only 3 credits from the following independent research courses may count toward the major: ANTH 192, ANTH 198, ANTH 292, ANTH 298, HON 202, HON 203. Only 3 credits of the following practicum courses may count toward the major: ANTH 093, ANTH 191, ANTH 193, ANTH 291, ANTH 293.		

Although only 1 is required, all students are strongly recommended to take both of the proseminars, ANTH 105 and ANTH 205, to assist them in planning for their educational and professional goals.

Courses will only apply toward the major requirements if they are taken as a block of 3 credits in a single semester.

Students planning to pursue a graduate degree in Anthropology are encouraged to take an appropriate mixture of methods and theory courses at the 200-level, as well as undertake research. Please consult your advisor for recommendations tailored to your particular graduate school objectives.

#### CONCENTRATION IN ANTHROPOLOGY OF GLOBAL HEALTH

12 credits in Anthropology of Global Health from the following:

At least 6 credits from the following list:		6-12
ANTH/HSOC 089	D2:SU:Global Health Devl & Div	
ANTH 172/GSWS 165	D2:Gender Sex Race & the Body	
ANTH 173/HSOC 103/HSCI 103	D2: Fndns of Global Health	
ANTH 174/SOC 155	D2:Culture, Health and Healing	
ANTH/BIOL 242	Research in Hum Biol Diversity	
ANTH 288	Anthro Research Global Health	
Up to 6 credits from the following list:		0-6
ANTH 040	Parenting and Childhood	
ANTH 076/REL 040	D2:Religion, Health, & Healing	
ANTH 124	People, Poison, Place	
ANTH 141	Death, Burial, and Culture	
ANTH 143	Forensic Anthropology	

ANTH 146	Topics in Biological Anthro	
ANTH 240	Human Osteology	
ANTH 241	Human Diversity and Evolution	
ANTH 285	Anthropology of Food and Labor (with approved student project))	
ANTH 290	Ethnographic Field Methods (with approved student project)	
ANTH 293	Internship (with relevant approved placement)	
Special or variable topics courses or internships as approved by the concentration advisor.		
At least 6 credits must be at the 100-level or above		
At least 3 credits must be at the 200-level		
In addition, all requirements for the Anthropology major must be fulfilled.		
Students should take ANTH 021 and ANTH 026 early on, as they provide an important foundation for the concentration.		

### CONCENTRATION IN ARCHAEOLOGY AND HERITAGE MANAGEMENT

12 credits in Archaeology and Heritage Management from the following:

ANTH 024	D2:SU: Prehistoric Archaeology	
ANTH 104	D2:Archaeology of the Americas	
ANTH 106	Preserving the Past	
ANTH 135	Prehistory of the US Southwest	
ANTH 141	Death, Burial, and Culture	
ANTH 160	D1: North American Indians	
ANTH/VS 164	D1:Indians of the NE: Vermont	
ANTH 200	Field Work in Archaeology	
ANTH 210	Archaeological Theory	
ANTH 240	Human Osteology	
ANTH 245	Laboratory Archaeology Topics	
ANTH 250	Museum Anthropology	
ANTH 293	Internship (with relevant placement)	
Special or variable topics courses or internships as approved by the concentration advisor		
At least 6 credits must be at the 100-level or above		
At least 3 credits must be at the 200-level		
In addition, all requirements for the Anthropology major must be fulfilled.		

## ANTHROPOLOGY B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

Introductory courses:		
ANTH 021	D2:SU: Cultural Anthropology	3
ANTH 024	D2:SU: Prehistoric Archaeology	3
ANTH 026	D2:Biological Anthropology	3
ANTH 028	D2: Linguistic Anthropology	3
3 courses in anthropology at the 200-level, with 2 of 3 selected from the following (only 3 credits of ANTH 200 will count toward this requirement):		9-11
ANTH 200	Field Work in Archaeology	
ANTH 210	Archaeological Theory	
ANTH 240	Human Osteology	
ANTH/BIOL 242	Research in Hum Biol Diversity	
ANTH 245	Laboratory Archaeology Topics	
ANTH 250	Museum Anthropology	
ANTH 288	Anthro Research Global Health	
ANTH 290	Ethnographic Field Methods	
4 courses in anthropology at the 100-level and 2 additional anthropology courses at any level. At least 12 credits must be selected from the following:		18
ANTH 040	Parenting and Childhood	
ANTH/HSOC 089	D2:SU:Global Health Devl & Div	
ANTH 104	D2:Archaeology of the Americas	
ANTH 106	Preserving the Past	
ANTH 124	People, Poison, Place	
ANTH 135	Prehistory of the US Southwest	
ANTH 136	Topics in Archaeology	
ANTH 140	Primates and Anthropology	
ANTH 141	Death, Burial, and Culture	
ANTH 143	Forensic Anthropology	
ANTH 146	Topics in Biological Anthro	
ANTH 160	D1: North American Indians	
ANTH/VS 164	D1:Indians of the NE: Vermont	



ANTH 172/ GSWS 165	D2:Gender Sex Race & the Body	
ANTH 173/ HSOC 103/ HSCI 103	D2: Fndns of Global Health	
ANTH 174/ SOC 155	D2:Culture, Health and Healing	
ANTH/BIOL 241	Human Diversity and Evolution	
Both of the following 1 credit courses:		
ANTH 105	Introduction to the Major	1
ANTH 205	Advanced Proseminar in Anthro	1
2 courses in the same foreign language at the appropriate level, as stipulated in the UVM BS distribution requirements.		6-8
2 STAT courses drawn from the following course combinations or as approved by Director of Undergraduate Studies (some may have prerequisites, check catalogue):		6
STAT 141 & STAT 183	QR:Basic Statistical Methods 1 and QR:Basic Statistical Methods 2	
STAT 141 & STAT 200	QR:Basic Statistical Methods 1 and QR: Med Biostat&Epidemiology	
Two 4-credit BIOL, BCOR, CHEM, GEOL laboratory courses chosen in consultation with advisor and Director of Undergraduate Studies (some may have prerequisites, check catalogue):		8
Only 9 credits of the following practicum and independent research courses may count toward the major: ANTH 093, ANTH 191, ANTH 192, ANTH 193, ANTH 198, ANTH 291, ANTH 292, ANTH 293, ANTH 298, HON 202, HON 203.		

## ANTHROPOLOGY MINOR REQUIREMENTS

18 credits in anthropology, including:

6 credits from the following core courses:		6
ANTH 021	D2:SU: Cultural Anthropology	
ANTH 024	D2:SU: Prehistoric Archaeology	
ANTH 026	D2:Biological Anthropology	
ANTH 028	D2: Linguistic Anthropology	
Of the 12 additional credits, at least 9 credits must be at the 100-level or above.		12

## RESTRICTIONS

Ineligible Major: Anthropology

The following courses do not count towards the minor:

ANTH 093	Internship	1-3
ANTH 190	LASP-SSS Thesis	3

ANTH 192	Independent Study	1-18
ANTH 193	Internship	1-18
ANTH 198	Undergraduate Research	1-12
ANTH 292	Independent Study	1-18
ANTH 293	Internship	1-18
ANTH 298	Undergraduate Research	1-3

## DEPARTMENT OF ART AND ART HISTORY

<https://www.uvm.edu/cas/art> (<https://www.uvm.edu/cas/art/>)

The Department of Art and Art History offers three programs: Studio Art, Art History, and Art Education. A major in one of the first two leads to a Bachelor of Arts degree and the Art Education program leads to a Bachelor of Science degree. Studio Art and Art History are chosen as majors by students who see either of these programs as an excellent foundation for a liberal arts education, by those who have aspirations to continue on to graduate study, and by students who are interested in a career in the arts. Art Education integrates an interest in art with the option of a teaching career in elementary, secondary, or alternative environments. At UVM, these three programs are closely intertwined. Art History and Studio Art major requirements include courses from both program areas and Art Education combines courses from Studio Art and Art History with offerings from the College of Education. Thus, students in degree programs in the Department can pursue their specific interests while developing a multi-faceted understanding of art.

## STUDIO ART

The Studio Art program emphasizes art making as a process of creative inquiry grounded within broad historical and cultural contexts. Courses lead to the B.A. in Studio Art or a minor in Art.

## ART HISTORY

The Art History program initially surveys a broad range of expressive forms before continuing with courses specific to a variety of ancient, western, non-western, and contemporary topics. Courses lead to the B.A. in Art History, a minor in Art History, or a minor in Art.

## ART EDUCATION

The Art Education program is for students with a strong interest in art as well as the desire to become art teachers. Completion of the Art Education major leads to the B.S. in Art Education and to Vermont Department of Education licensure for teaching art in grades K-12.

## MAJORS

### ART AND ART HISTORY MAJORS

Art History B.A. (p. 262)

Art: Studio Art B.A. (p. 262)

**MINORS****ART AND ART HISTORY MINORS**

Art (p. 263)

Art History (p. 263)

**ART HISTORY B.A.**

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

**MAJOR REQUIREMENTS**

36 credits, including:

Choose 2 of the following:		6
ARTH 005	Western Art: Ancient - Medieval	
ARTH 006	Western Art: Renaissance-Modern	
ARTH 008	D2: Asian Art	
12 credits to include 3 credits from 4 of the following 5 categories (courses numbered 196 in these categories also qualify):		12
Ancient and Medieval:		
ARTH 146	D2: Egypt & the Ancient Near E	
ARTH 148	Greek Art	
ARTH 155	Topics in Medieval Art	
Early Modern European:		
ARTH 158	Northern European 1400-1600	
ARTH 163	Italian High and Late Ren Art	
ARTH 165	Topics European Art 1600-1800	
Modern, American, and Canadian:		
ARTH 170	Topics in Modern Art	
ARTH 174	20th-Century Art	
Asian:		
ARTH 185	D2: Japanese Art	
ARTH 187	D2: Chinese Painting	
ARTH 188	D2: Indian Painting	
ARTH 192	D2: Inter Spec Topics Asian Art	
Other Non-Western Traditions, New Approaches to Art History, and Contemporary Art:		
ARTH 140	Hist of Optical Media as Art	
ARTH 178	Methods and Theories	
ARTH 179	Issues in Contemporary Art	
ARTH 199	Topics: Gender, Race, Ethn in Art	

12 additional art history credits, to include at least 1 course (3 credits) ARTH 282 or higher to be taken during the junior or senior year, preferably during the senior year	12
6 credits of studio art	6
The study of French or German through 051 or 052 is strongly recommended for students considering eventual graduate work in art history.	

No more than 3 credits from ARTH 191 (Internship) may count toward requirements for the major.

No more than 3 credits of ARTH 198 (Undergraduate Research) may be used toward major requirements.

ARTH 194 (Teaching Assistantship) does not count toward requirements for the major.

**ART: STUDIO ART B.A.**

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

**MAJOR REQUIREMENTS**

30 credit hours in art studio and 9 credit hours in art history (39 credit hours total) including the following:

CATEGORY A: Studio Art Foundation		
ARTS 001	Drawing	3
ARTS 012	Perspectives on Art Making	3
CATEGORY B: Studio Art 100-level (18 credits)		
Choose 3 of the following (9 credits):		9
ARTS 113	Clay: Hand Building	
ARTS 114	Clay: Wheel Throwing	
ARTS 115	Intermediate Drawing	
ARTS 121	Painting: Observation & Image	
ARTS 122	Painting: Color and Invention	
ARTS 132	Printmaking: Silkscreen	
ARTS 134	Color Structures in Silkscreen	
ARTS 137	Photography	
ARTS 138	Color Photography	
ARTS 139	Animation	
ARTS 141	Sculpture	
ARTS 144	Digital Art	
ARTS 145	Graphic Design	
ARTS 148	Introduction to Video Art	
ARTS 195	Intermediate Special Topics	

ARTS 197	Independent Study	
Choose 1 of the following from Area 1: Photography, Motion Picture and Digital Art (3 credits):		3
ARTS 137	Photography	
ARTS 138	Color Photography	
ARTS 139	Animation	
ARTS 144	Digital Art	
ARTS 148	Introduction to Video Art	
Choose 1 of the following from Area 2: Drawing, Painting, Printmaking, Graphic Design (3 credits)		3
ARTS 115	Intermediate Drawing	
ARTS 121	Painting: Observation & Image	
ARTS 122	Painting: Color and Invention	
ARTS 132	Printmaking: Silkscreen	
ARTS 134	Color Structures in Silkscreen	
ARTS 145	Graphic Design	
Choose 1 of the following from Area 3: Ceramics, Sculpture (3 credits)		3
ARTS 113	Clay: Hand Building	
ARTS 114	Clay: Wheel Throwing	
ARTS 141	Sculpture	
CATEGORY C: Studio Art 200-level		
Choose 2 of the following (6 credits):		6
ARTS 213	Advanced Ceramics	
ARTS 215	Advanced Drawing	
ARTS 221	Projects in Painting	
ARTS 230	Projects in Printmaking	
ARTS 237	Advanced Photography	
ARTS 241	Advanced Sculpture	
ARTS 244	Advanced Digital Art	
ARTS 248	Advanced Film/Video Projects	
ARTS 295	Special Topics in Studio Art	
ARTS 297	Independent Study	
CATEGORY D: Art History Foundation		
Choose 2 of the following (6 credits):		6
ARTH 005	Western Art: Ancient - Medieval	
ARTH 006	Western Art: Renaissance-Modern	
ARTH 008	D2: Asian Art	

CATEGORY E: Art History 100-level (3 credits):	
1 of any 100-level ARTH course (except ARTH 191)	3

ARTS 191 (Internship) and ARTS 194 (Teaching Assistantship) do not count toward major requirements.

No more than 3 credits of ARTS 197 (Independent Study) may be used towards major requirements.

No more than 3 credits of ARTS 297 (Independent Study) may be used towards major requirements.

## ART MINOR REQUIREMENTS

18 credits, including:

3 credits from the following Studio Art courses:		3
ARTS 001	Drawing	
ARTS 012	Perspectives on Art Making	
3 credits from the following Art History core courses:		3
ARTH 005	Western Art: Ancient - Medieval	
ARTH 006	Western Art: Renaissance-Modern	
ARTH 008	D2: Asian Art	
9 credits in Studio Art at the 100 level or above		9
An additional 3 credits in Studio Art at any level		3

## RESTRICTIONS

Ineligible majors: Studio Art, Art Education

The following will not count toward the minor: ARTS 191, ARTS 194, ARTS 197, ARTS 297.

## ART HISTORY MINOR REQUIREMENTS

18 credits, including:

Choose 2 of the following:		6
ARTH 005	Western Art: Ancient - Medieval	
ARTH 006	Western Art: Renaissance-Modern	
ARTH 008	D2: Asian Art	
12 credits of 100-level courses or above		12

## RESTRICTIONS

Ineligible Major: Art History

The following will not count toward the minor: ARTH 191, ARTH 194, ARTH 198.

## DEPARTMENT OF ASIAN LANGUAGES AND LITERATURES

<https://www.uvm.edu/cas/asian> (<https://www.uvm.edu/cas/asian/>)

The Department of Asian Languages and Literatures' goal is to provide the best possible instruction for Asian languages and literatures and to increase the understanding and the ability to function in that world. The department's Chinese and Japanese language and literature classes will provide students with the means to read, write, speak, and understand these major languages of Asia, and give students knowledge and appreciation of the rich literary heritage of Asian civilizations. The Chinese Language Program and the Japanese Language Program currently offer Chinese and Japanese majors and minors.

### MAJORS

#### ASIAN LANGUAGES AND LITERATURE MAJORS

Chinese B.A. (p. 264)

Japanese B.A. (p. 264)

### MINORS

#### ASIAN LANGUAGES AND LITERATURES MINORS

Chinese (p. 264)

Japanese (p. 264)

### CHINESE B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

#### MAJOR REQUIREMENTS

15 credits of Chinese language at or above the 100-level, including:		15
CHIN 101	3rd Year College Chinese I	
CHIN 102	3rd Year College Chinese II	
CHIN 201	4th Year College Chinese I	
CHIN 202	4th Year College Chinese II	
Or equivalent courses at the 100- and 200-levels		
At least 15 credits of courses on Chinese history and/or culture, taken in at least 2 different disciplines, in addition to WLIT 110. 6 of those credits must be at the 100-level or higher.		15

All course work should be chosen in consultation with the student's major advisor.

### JAPANESE B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

#### MAJOR REQUIREMENTS

15 credits of Japanese language at or above the 100-level, including:		15
JAPN 101	Advanced Japanese I	
JAPN 102	Advanced Japanese II	
JAPN 201	Studies of Japanese Texts I	
JAPN 202	Studies of Japanese Texts II	
Or equivalent courses at the 100- and 200-levels		
At least 15 credits of courses on Japanese history and/or culture taken in at least 2 disciplines other than Japanese language. 6 of those credits must be at the 100-level or higher.		15

All course work should be chosen in consultation with the student's major advisor.

### CHINESE MINOR

#### REQUIREMENTS

15 credits of Chinese, at least 9 of those credits at the 100-level, including CHIN 102 or its equivalent	
3 credits at or above the 100-level in Chinese linguistics or literature may be substituted for 3 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 1 course overlap.

### JAPANESE MINOR

#### REQUIREMENTS

15 credits of Japanese with at least 9 of those credits at the 100-level, including JAPN 102 or its equivalent	
3 credits at or above the 100-level in Japanese linguistics or literature may be substituted for 3 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 1 course.

## BIOCHEMISTRY IN THE COLLEGE OF ARTS AND SCIENCES

<https://www.uvm.edu/biochemistry> (<https://www.uvm.edu/biochemistry/>)

The interdisciplinary Biochemistry program is administered by the College of Agriculture and Life Sciences and the College of Arts and Sciences (CAS) in conjunction with the College of Medicine



(COM). The Bachelor of Science in Biochemistry can be pursued through the College of Agriculture and Life Sciences or through the College of Arts and Sciences.

## CAS 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 a variety of scientific disciplines, including biology, chemistry, microbiology, genetics, anatomy, physiology, and pharmacology. The Bachelor of Science degree in Biochemistry is an interdisciplinary undergraduate degree program offered through the College of Arts and Sciences (CAS), the College of Agriculture and Life Sciences (CALS) and the College of Medicine (COM). It draws upon a broad set of University resources from all three colleges to provide students with a modern science-based education, emphasizing fundamental knowledge of chemistry and biology along with advanced courses specializing in biochemistry and biomedical sciences.

The Biochemistry curriculum is challenging, offering students with strong academic abilities in science an opportunity to explore upper-level courses in areas of modern biochemistry. It is designed to meet the needs of students wishing to compete in the job market at the B.S. degree level as well as students planning to continue with advanced studies in a graduate or professional degree program.

## MAJORS

### BIOCHEMISTRY MAJOR

Biochemistry B.S. (p. 265)

## MINORS

### BIOCHEMISTRY MINOR

Biochemistry (p. 266)

## GRADUATE

Cellular, Molecular and Biomedical Sciences M.S.

Cellular, Molecular and Biomedical Sciences Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

## BIOCHEMISTRY B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

The biochemistry core requires satisfactory completion of:		
BCOR 011	Exploring Biology	4
BCOR 012	Exploring Biology	4
BCOR 101	Genetics	3
BCOR 103	Molecular and Cell Biology	4

MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
STAT 141	QR: Basic Statistical Methods 1	3
PHYS 051	Fundamentals of Physics I	4
PHYS 152	Fundamentals of Physics II	4
CHEM 051	Exploring Chemistry 1	1
CHEM 052	Exploring Chemistry 2	1
CHEM 047	Organic Chemistry for Majors 1	4
CHEM 048	Organic Chemistry for Majors 2	4
CHEM 165	Intro Physical Chemistry	3
BIOC 205	Biochemistry I	3
BIOC 206	Biochemistry II	3
BIOC 207	Biochemistry Lab	3
12 credits of advanced biochemistry-related electives		12
Choose 1 of the following:		1
BIOC 284	Biochemistry Senior Seminar	
HON 275 & HON 276	Honors: Biochemistry and Honors: Biochemistry	
In addition, students must select 1 course from the following group of intermediate-level laboratory electives:		2-4
CHEM 121	Quantitative Analysis	
MMG 104	Intro Recombinant DNA Tech	
MMG 201	Molecular Cloning Lab	
BIOL 204	Adv Genetics Laboratory	
BIOL 205	Adv Genetics & Proteomics Lab	
Students may substitute: (However, the program of study recommended above will provide a better preparation for advanced course work in biochemistry.)		
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology (For BCOR 011 and BCOR 012)	
PHYS 011 & PHYS 012 & PHYS 021 & PHYS 022 (For PHYS 051 & PHYS 152)		
CHEM 031 & CHEM 032 & CHEM 141 & CHEM 142 (For CHEM 047 & CHEM 048 & CHEM 051 & CHEM 052 & 1 upper-level elective course)		

Students completing the B.S. in Biochemistry may not also receive the B.A. with any chemistry major.

## BIOCHEMISTRY MINOR

### REQUIREMENTS

17 credits of chemistry and biochemistry course work:

CHEM 141	Organic Chemistry 1 <sup>1</sup>	4
CHEM 142	Organic Chemistry 2 <sup>1</sup>	4
BIOC/CHEM/ MMG 205	Biochemistry I	3
BIOC/CHEM/ MMG 206	Biochemistry II	3
BIOC/CHEM/ MMG 207	Biochemistry Lab	3

<sup>1</sup> CHEM 047 & CHEM 048 & CHEM 051 & CHEM 052 may be substituted for CHEM 141 and CHEM 142.

### RESTRICTIONS

Not available to Chemistry majors and minors.

## DEPARTMENT OF BIOLOGY

<http://www.uvm.edu/cas/biology> (<http://www.uvm.edu/cas/biology/>)

The Department of Biology is the general biology research and teaching department at the University of Vermont. The department is committed to the active pursuit of scientific knowledge through integrative, cutting-edge research in neuroscience, cell biology, ecology, and evolution. Biology majors at UVM may concentrate on cell and molecular biology, neurobiology, environmental biology, forensic biology and pre-professional medical or veterinary biology, or they may remain generalists. In all programs the focus is on learning through small, experience-based classes, hands-on research and close faculty interaction. UVM Biology professors are respected, internationally known scientists and recipients of generous grants each year from organizations including the National Institutes of Health, the Environmental Protection Agency, and the National Science Foundation. Student research is encouraged and supported by stipends, departmental and university grant programs, and awards.

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.

## MAJORS

### BIOLOGY MAJORS

Biology B.A. (p. 266)

Biological Science B.S. (p. 267)

Zoology B.A. (p. 268)

Zoology B.S. (p. 269)

## MINORS

### BIOLOGY MINORS

Biology (p. 270)

Zoology (p. 270)

## GRADUATE

Biology AMP

Biology M.S.

Biology M.S.T.

Biology Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

## BIOLOGY B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

CORE REQUIREMENTS		
Choose 1 of the following options:		4-8
Option A (recommended)		
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
Option B		
BCOR 021	Accelerated Biology	
Option C		
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
BCOR 101	Genetics	3
BCOR 102	SU:Ecology and Evolution	4
BCOR 103	Molecular and Cell Biology	4
BIOL 255	Comparative Physiology	4
ANCILLARY REQUIREMENTS		
Choose 1 of the following Chemistry options:		
Option A (recommended for pre-health students)		
CHEM 031	General Chemistry 1	
CHEM 032	General Chemistry 2	
CHEM 141	Organic Chemistry 1	

CHEM 142	Organic Chemistry 2	
Option B		
CHEM 031	General Chemistry 1	
CHEM 032	General Chemistry 2	
CHEM 042	Intro Organic Chemistry	
Mathematics:		
MATH 019	QR: Fundamentals of Calculus I	3-4
or MATH 021	QR: Calculus I	
STAT 141	QR: Basic Statistical Methods 1	3
or STAT 211	QR: Statistical Methods I	
Note: Pre-health students should consult the pre-health checklist for requirements of professional schools (e.g., medicine, dentistry, veterinary, physical therapy)		
ADVANCED ELECTIVES		
3 additional biology courses from Categories A and B, with at least 1 course from Category B and at least 2 courses from the BIOL prefix. 1 elective course may be taken at the 100-level.		9-12
Category A (lecture only)		
BIOL 188, BIOL 199, PBIO 151, ANTH 140, ANTH 143, ANTH 146, ANTH 173, ANTH 174, ANTH 179, PSYS 111, PSYS 115, PHIL 112, SOC 102, EC 138, ASCI 171, WFB 130, PATH 101, BIOL 223, BIOL 241, BIOL 261, BIOL 264, BIOL 265, BIOL 266, BIOL 269, BIOL 271, BIOL 275, BIOL 276, BIOL 277, CHEM 205, CHEM 206, MATH 268, PSYS 216, PSYS 218, PBIO 209, PBIO 223, PBIO 241, PBIO 261, PBIO 294, MMG 205, MMG 206, MMG 211, MMG 220, MMG 223, MMG 225, MMG 230, MMG 232, MMG 233, MMG 240, BIOC 240, BIOC 263, BIOC 301, BIOC 302, WFB 224, WFB 232, WFB 275, WFB 279, PHRM 200, PHRM 240, PHRM 272, PHRM 290, NR 220, NR 228, ASCI 216, ASCI 277, BHSC 242		
Category B (lecture & lab)		
PBIO 104, PBIO 108, PBIO 109, PBIO 117, PBIO 177, ASCI 141, WFB 141, MMG 101, CSD 101, BIOL 204, BIOL 205, BIOL 209, BIOL 212, BIOL 217, BIOL 219, BIOL 242, BIOL 254, BIOL 274, CHEM 206 & CHEM 207, PSYS 215, MMG 201, MMG 206 & MMG 207, MMG 222, WFB 283, NR 250, NR 280, MLS 231		
The following courses do not count toward the major requirements: HON 208, HON 209, and BIOL 298.		

## BIOLOGICAL SCIENCE B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

The Biological Science B.S. requires satisfactory completion of:

CORE REQUIREMENTS:	
1 of the 2 following introductory biology options:	4-8

BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
BCOR 021	Accelerated Biology	
BCOR 101	Genetics	3
BCOR 102	SU: Ecology and Evolution	4
BCOR 103	Molecular and Cell Biology	4
ANCILLARY REQUIREMENTS:		
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4
MATH 019	QR: Fundamentals of Calculus I	3-4
or MATH 021	QR: Calculus I	
MATH 020	QR: Fundamentals of Calculus II	3-4
or MATH 022	QR: Calculus II	
STAT 141	QR: Basic Statistical Methods 1	3
or STAT 211	QR: Statistical Methods I	
1 of the following 2 Physics options:		8-10
Option A		
PHYS 011 & PHYS 021	Elementary Physics and Introductory Lab I	
PHYS 012 & PHYS 022	Elementary Physics and Introductory Lab II	
Option B		
PHYS 051	Fundamentals of Physics I	
PHYS 152	Fundamentals of Physics II	
ADVANCED ELECTIVES:		26
In consultation with their academic advisor, students will design a course of study that includes an additional 26 credits of advanced life science electives chosen from the following list of courses. No more than 8 credits at the 100-level may apply toward these electives, and not exceeding 3 100-level courses. With an advisor's permission, a biologically relevant 300-level course may be applied. Up to 6 credits of undergraduate research and/or thesis credits in any biological discipline may be applied to the advanced electives; only 3 of these credits taken at the 100-level will count toward the major, and these will be counted in the 8 credits allowed at the 100-level.		

ASCI 110, ASCI 117, ASCI 118, ASCI 141, ASCI 168, ASCI 177, ASCI 215, ASCI 216, ASCI 220, ASCI 272, ASCI 277, BCOR 195, BCOR 197, BCOR 198, BCOR 298, BHSC 242, BHSC 244, BHSC 281, BHSC 282, BIOC 191, BIOC 192, BIOC 201, BIOC 205, BIOC 206, BIOC 207, BIOC 240, BIOC 275, BIOC 263, BIOC 292, BIOC 293, BIOC 294, BIOC 295, BIOC 296, BIOL 188, BIOL 189, BIOL 192, BIOL 195, BIOL 196, BIOL 198, BIOL 204, BIOL 205, BIOL 209, BIOL 212, BIOL 217, BIOL 219, BIOL 223, BIOL 242, BIOL 254, BIOL 255, BIOL 261, BIOL 264, BIOL 265, BIOL 266, BIOL 269, BIOL 271, BIOL 275, BIOL 276, BIOL 277, BIOL 288, BIOL 289, BIOL 292, BIOL 295, BIOL 296, BIOL 298, BIOL 381 (when the title is Computational Biology), BSCI 198, BSCI 298, CSD 281, ENSC 160, ENSC 201, FOR 223, FOR 228, HON 208, HON 209, HON 210, HON 211, MATH 268, MLS 222, MLS 231, MLS 255, MMG 101, MMG 104, MMG 192, MMG 193, MMG 195, MMG 196, MMG 197, MMG 198, MMG 201, MMG 205, MMG 206, MMG 207, MMG 211, MMG 220, MMG 222, MMG 223, MMG 225, MMG 230, MMG 232, MMG 233, MMG 240, MMG 292, MMG 293, MMG 295, MMG 296, MMG 297, MMG 298, NFS 143, NFS 163, NFS 203, NFS 213, NFS 243, NR 228, NR 250, NR 268, NR 280, NSCI 111, NSCI 112, NSCI 225, NSCI 255, NSCI 270, PBIO 104, PBIO 108, PBIO 109, PBIO 117, PBIO 133, PBIO 151, PBIO 177, PBIO 185, PBIO 187, PBIO 191, PBIO 192, PBIO 195, PBIO 198, PBIO 209, PBIO 223, PBIO 232, PBIO 241, PBIO 261, PBIO 291, PBIO 292, PBIO 294, PBIO 295, PBIO 298, PHRM 200, PHRM 201, PHRM 240, PHRM 272, PHRM 290, PSS 106, PSS 112, PSS 138, PSS 143, PSS 154, PSS 156, PSS 212, PSS 232, PSS 268, PSYS 115, PSYS 215, PSYS 216, PSYS 218, STAT 200, WFB 130, WFB 131, WFB 141, WFB 150, WFB 161, WFB 174, WFB 195, WFB 224, WFB 232, WFB 261, WFB 275, WFB 279, WFB 283	
Total Credits	74-82

Students are advised to complete 12 credits of advanced electives from courses with a quantitative component, 3 credits that stress oral communication and 3 credits that stress written communication. See the advanced electives list on the Biological Science B.S. website for these designations as well as course titles.

In their second year, all College of Arts and Sciences (CAS) Biological Science majors are expected to meet with an academic advisor to map a plan of study for completing their higher-level courses. CAS students majoring in the B.S. program in Biological Science are required to take at least 84 credits of course work in the College of Arts and Sciences. This does not apply to College of Agriculture and Life Sciences (CALS) students.

## ZOOLOGY B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

CORE REQUIREMENTS	
Choose 1 of the following options:	4-8
Option A (recommended)	
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology

Option B		
BCOR 021	Accelerated Biology	
Option C		
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
BCOR 101	Genetics	3
Choose 1 of the following:		4
BCOR 102	SU:Ecology and Evolution	
BCOR 103	Molecular and Cell Biology	
ANCILLARY REQUIREMENTS		
Choose 1 of the following Chemistry options:		
Option A (recommended for pre-health students)		
CHEM 031	General Chemistry 1	
CHEM 032	General Chemistry 2	
CHEM 141	Organic Chemistry 1	
CHEM 142	Organic Chemistry 2	
Option B		
CHEM 031	General Chemistry 1	
CHEM 032	General Chemistry 2	
CHEM 042	Intro Organic Chemistry	
Choose 1 of the following Math courses:		3-4
MATH 019	QR: Fundamentals of Calculus I	
MATH 021	QR: Calculus I	
At least 3 additional credits in quantitative disciplines from the following list:		3
CS 020, CS 021, CS 064, CS 087, CS 110, CS 120, CS 124, CS 125, CS 204, CS 224, CS 225, CS 237, CS 287, CS 288, CSYS 268, GEOG 184, GEOG 185, GEOG 287, GEOL 185, MATH 020, MATH 022, MATH 023, MATH 052, MATH 121, MATH 122, MATH 124, MATH 141, MATH 151, MATH 173, MATH 230, MATH 235, MATH 237, MATH 268, PHYS 011, PHYS 012, PHYS 021, PHYS 022, PHYS 031, PHYS 044, PHYS 051, PHYS 125, PHYS 128, PHYS 152, PHYS 202, PHYS 211, PHYS 213, PHYS 214, PHYS 222, PHYS 256, PHYS 264, PHYS 265, STAT 141, STAT 143, STAT 151, STAT 183, STAT 200, STAT 201, STAT 211, STAT 221, STAT 223, STAT 224, STAT 229, STAT 231, STAT 235		
Note: Pre-health students should consult the pre-health checklist for requirements of professional schools (e.g., medicine, dentistry, veterinary, physical therapy)		
ADVANCED ELECTIVES		



At least 15 additional credits in zoology or related fields. BCOR 102 or BCOR 103 (whichever was not taken to count for the core requirement) may be applied to the 15 credits. Special topics courses of the 295 designation may be applied by approval on a case-by-case basis. Choose from Categories A and B in consultation with your academic advisor. A maximum of 4 credits from Category B may be applied to the major.	15
Category A (recommended courses in topics relevant to animal biology)	
BCOR 102, BCOR 103, BIOL 188, BIOL 199, BIOL 204, BIOL 205, BIOL 209, BIOL 212, BIOL 217, BIOL 219, BIOL 223, BIOL 242, BIOL 254, BIOL 255, BIOL 261, BIOL 264, BIOL 265, BIOL 266, BIOL 269, BIOL 271, BIOL 274, BIOL 275, BIOL 276, BIOL 277, ANTH 240, PSYS 215, ASCI 215, ASCI 216, ASCI 217, ASCI 220, ASCI 272, MMG 223, WFB 224, WFB 232, WFB 275, WFB 279, WFB 283	
Category B (other eligible courses)	
PBIO 223, PBIO 294, MMG 201, MMG 205, MMG 206, MMG 207, MMG 220, MMG 222, MMG 225, MMG 230, MMG 232, MMG 233, MMG 240, NR 228, NR 250, BIOC 205, BIOC 206, BIOC 207, BIOC 240	
The following courses do not count toward the major requirements: HON 208, HON 209, and BIOL 298.	

## ZOOLOGY B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

CORE REQUIREMENTS	
Choose 1 of the following options:	4-8
Option A (recommended)	
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology
Option B	
BCOR 021	Accelerated Biology
Option C	
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology
BCOR 101	Genetics
Choose 1 of the following:	4
BCOR 102	SU:Ecology and Evolution
BCOR 103	Molecular and Cell Biology
ANCILLARY REQUIREMENTS	
Chemistry: to be taken in the first year if possible:	
CHEM 031	General Chemistry 1
	4

CHEM 032	General Chemistry 2	4
CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4
Choose 1 of the following Math courses:		3-4
MATH 019	QR: Fundamentals of Calculus I	
MATH 021	QR: Calculus I	
At least 15 additional credits in quantitative disciplines from the following list. No more than 3 credits in GEOG can be counted toward this requirement.		15
CS 020, CS 021, CS 064, CS 087, CS 110, CS 120, CS 124, CS 125, CS 204, CS 224, CS 225, CS 237, CS 287, CS 288, CSYS 268, GEOG 184, GEOG 185, GEOG 287, GEOL 185, MATH 020, MATH 022, MATH 023, MATH 052, MATH 121, MATH 122, MATH 124, MATH 141, MATH 151, MATH 173, MATH 230, MATH 235, MATH 237, MATH 268, PHYS 011, PHYS 012, PHYS 021, PHYS 022, PHYS 031, PHYS 044, PHYS 051, PHYS 125, PHYS 128, PHYS 152, PHYS 202, PHYS 211, PHYS 213, PHYS 214, PHYS 222, PHYS 256, PHYS 264, PHYS 265, STAT 141, STAT 143, STAT 151, STAT 183, STAT 200, STAT 201, STAT 211, STAT 221, STAT 223, STAT 224, STAT 229, STAT 231, STAT 235, STAT 241, STAT 251, STAT 261, STAT 287, STAT 288		
Note: Most professional schools (e.g., medicine, dentistry, veterinary, physical therapy) require the equivalent of PHYS 012 & PHYS 022 or PHYS 152.		
ADVANCED ELECTIVES		
At least 27 additional credits in zoology or related fields. BCOR 102 or BCOR 103 (whichever was not taken to count for the core requirement) may be applied to the 27 credits. Up to 6 credits of undergraduate research and/or thesis credits in any zoological discipline may be applied to the 27 credits. Up to 8 credits of 100-level courses in the list below may be applied to the 27 credits. Special topics courses of the 295 designation may be applied by approval on a case-by-case basis. Choose from Categories A and B in consultation with your academic advisor. A maximum of 8 credits from Category B may be applied to the major.		27
Category A (recommended courses in topics relevant to animal biology)		
BCOR 102, BCOR 103, BIOL 188, BIOL 199, BIOL 204, BIOL 205, BIOL 209, BIOL 212, BIOL 217, BIOL 219, BIOL 223, BIOL 242, BIOL 254, BIOL 255, BIOL 261, BIOL 264, BIOL 265, BIOL 266, BIOL 269, BIOL 271, BIOL 274, BIOL 275, BIOL 276, BIOL 277, ANTH 140, ANTH 240, PSYS 215, ASCI 141, ASCI 171, ASCI 215, ASCI 216, ASCI 217, ASCI 220, ASCI 272, MMG 223, WFB 130, WFB 131, WFB 141, WFB 224, WFB 232, WFB 275, WFB 279, WFB 283		
Category B (other eligible courses)		
PBIO 223, PBIO 294, MMG 201, MMG 205, MMG 206, MMG 207, MMG 220, MMG 222, MMG 225, MMG 230, MMG 232, MMG 233, MMG 240, NR 228, NR 250, BIOC 205, BIOC 206, BIOC 207, BIOC 240		

## BIOLOGY MINOR REQUIREMENTS

At least 15 credits, including:

CORE REQUIREMENTS		
Choose 1 of the following options:		4-8
Option A (recommended)		
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
Option B		
BCOR 021	Accelerated Biology	
Option C		
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
ELECTIVES		
3 courses at the 100-level or higher from Categories A and B, with at least 1 course from Category B:		9-12
Category A (lecture only)		
BCOR 101, BIOL 108, BIOL 188, BIOL 199, BIOL 223, BIOL 241, BIOL 261, BIOL 264, BIOL 265, BIOL 266, BIOL 269, BIOL 271, BIOL 275, BIOL 276, BIOL 277, CHEM 205, CHEM 206, MATH 268, PSYS 115, PSYS 216, PSYS 218, PBIO 133, PBIO 151, PBIO 185, PBIO 209, PBIO 223, PBIO 241, PBIO 261, PBIO 294, MMG 205, MMG 206, MMG 211, MMG 220, MMG 223, MMG 225, MMG 230, MMG 232, MMG 233, MMG 240, BIOC 240, BIOC 263, BIOC 301, BIOC 302, WFB 130, WFB 232, WFB 275, WFB 279, PHRM 200, PHRM 240, PHRM 272, PHRM 290, NR 220, NR 228, ASCI 117, ASCI 118, ASCI 168, ASCI 216, ASCI 277, BHSC 242		
Category B (lecture & lab)		
BCOR 102, BCOR 103, BIOL 204, BIOL 205, BIOL 209, BIOL 212, BIOL 217, BIOL 219, BIOL 242, BIOL 254, BIOL 274, CHEM 206 & CHEM 207, PSYS 215, PBIO 104, PBIO 108, PBIO 109, PBIO 117, PBIO 177, PBIO 185 & PBIO 187, MMG 101, MMG 201, MMG 206 & MMG 207, MMG 222, WFB 130 & WFB 131, WFB 161, WFB 224, WFB 283, NR 250, NR 280, ASCI 110, ASCI 141, MLS 231		
The following courses do not count toward the minor requirements: HON 208, HON 209, and BIOL 298.		

## RESTRICTIONS

Ineligible Majors: Biology (B.A.), Biological Sciences (B.S.), Plant Biology (B.S.), Zoology (B.A., B.S.)

## OTHER INFORMATION

The following courses may be necessary as prerequisites for more advanced offerings: CHEM 031, CHEM 032, CHEM 141, CHEM 142, MATH 019, MATH 020.

## ZOOLOGY MINOR REQUIREMENTS

At least 15 credits, including:

CORE REQUIREMENTS		
Choose 1 of the following options:		4-8
Option A (recommended)		
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
Option B		
BCOR 021	Accelerated Biology	
Option C		
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
ELECTIVES		
3 courses at the 100-level or higher from Categories A and B, at least 1 of which must include a laboratory. A maximum of 4 credits from Category B may be applied to the minor.		9-12
Category A (recommended courses in topics relevant to animal biology)		
BCOR 102, BCOR 103, BIOL 188, BIOL 199, BIOL 204, BIOL 205, BIOL 209, BIOL 212, BIOL 217, BIOL 219, BIOL 223, BIOL 242, BIOL 254, BIOL 255, BIOL 261, BIOL 264, BIOL 265, BIOL 266, BIOL 269, BIOL 271, BIOL 274, BIOL 275, BIOL 276, BIOL 277, ANTH 140, ANTH 240, PSYS 215, ASCI 141, ASCI 171, ASCI 215, ASCI 216, ASCI 217, ASCI 220, ASCI 272, MMG 223, WFB 130, WFB 131, WFB 141, WFB 224, WFB 232, WFB 275, WFB 279, WFB 283		
Category B (other eligible courses)		
PBIO 223, PBIO 294, MMG 201, MMG 205, MMG 206, MMG 207, MMG 220, MMG 222, MMG 225, MMG 230, MMG 232, MMG 233, MMG 240, NR 228, NR 250, BIOC 205, BIOC 206, BIOC 207, BIOC 240		
The following courses do not count toward the minor requirements: HON 208, HON 209, and BIOL 298.		

## RESTRICTIONS

Ineligible majors: Biology (B.A.), Biological Sciences (B.S.), Plant Biology (B.S.), Zoology (B.A., B.S.)

## OTHER INFORMATION

The following courses may be necessary as prerequisites for more advanced offerings: CHEM 031, CHEM 032, CHEM 141, CHEM 142, MATH 019, MATH 020.

## CENTER FOR RESEARCH ON VERMONT

<https://www.uvm.edu/cas/vermontresearch> (<https://www.uvm.edu/cas/vermontresearch/>)

The Center for Research on Vermont highlights research from the Vermont “laboratory” – research that provides original knowledge to the world through examining the state’s social, economic, cultural and physical environment.

## MINORS

### CENTER FOR RESEARCH ON VERMONT MINORS

Reporting and Documentary Storytelling (p. 271)

## REPORTING AND DOCUMENTARY STORYTELLING MINOR

### REQUIREMENTS

18 credits, including:

3 credits in core writing; take 1 of the following:		3
ENG 050	The Art of the Essay	
ENG 051	Topics in Composition	
3 credits in media/history/theory; take 1 of the following:		3
ENVS 204	Seminar Environmental Studies (Media, Ecology, Politics)	
FTS 009	History of Television	
FTS 010	Contemporary Cinema	
FTS 133	Stds Docmntry/Avant-garde Cinm	
POLS 123	The Vermont Political System	
POLS 137	Politics and Media	
9 credits at the advanced level in the practice. Choose from the following:		9
Journalism, the essay, digital composing, screenwriting		
ENG 107	Topics in Comp & Rhetoric	
ENG 114	Topics in Writing	
ENG 117	Advanced Creative Nonfiction	
FTS 144	Screenwriting I	
Documentary Video		
ARTS 148	Introduction to Video Art	
FTS 141	Film & Video Production I	
FTS 143	Film Theory and Practice	
Photography, digital image and design		
ARTS 137	Photography	
ARTS 138	Color Photography	
ARTS 148	Introduction to Video Art	
Three credits in an internship in journalism/media/documentary.		3

AS 190	Internship	
FTS 191/192	Internship	
VS 191	Internship	
Additional courses may be counted toward the minor with the approval of the directors.		

## OTHER INFORMATION

No more than 1 course may overlap between a student’s major and minor. Students pursuing an English major with a writing concentration, a Writing minor, or the Public Communication major should be especially mindful of this rule. If pursuing an English major, ENGS courses used for the RDS minor are included in the 45-credit major rule.

## DEPARTMENT OF CHEMISTRY

<http://www.uvm.edu/cas/chemistry> (<http://www.uvm.edu/cas/chemistry/>)

Chemistry is the center of science. Chemists seek understanding of all aspects of the physical and biological worlds at the molecular level, developing methodologies to probe the structure of molecules and chemical reactions. These techniques are critical to solving biological and biomedical problems and also provide tools to address important problems in materials science, geology, and in the environmental sciences.

Chemistry students gain the intellectual skills needed to confront and solve difficult problems and develop a rigorous lifelong commitment to learning. In conjunction with the Chemistry Department’s active Ph.D. program, undergraduate Chemistry majors work with faculty members and graduate students engaged in cutting-edge research. This participation brings state-of-the-art perspectives to undergraduate learning that can only be obtained at a modern research university.

Chemistry students learn to be creative thinkers, scientists, and clear communicators, under the guidance of internationally-recognized faculty who are deeply committed to teaching, advising, and research. Faculty regularly garner funding from the National Science Foundation, National Institutes of Health, and the U.S. Department of Energy, among others, for research in areas that include biomedical applications and drug development, environmental science, and materials science.

## MAJORS

### CHEMISTRY MAJORS

Chemistry B.A. (p. 272)

Chemistry B.S. (p. 272)

## MINORS

### CHEMISTRY MINOR

Chemistry (p. 273)

**GRADUATE**

Chemistry AMP

Chemistry M.S.

Chemistry Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

**CHEMISTRY B.A.**

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

Students pursuing a Bachelor of Arts degree with a major in chemistry complete a set of courses representing the traditional chemical subdisciplines and have great flexibility in the focus of their upper level coursework. Students may elect a major that is certified by the American Chemical Society by completing CHEM 166, CHEM 219, CHEM 221, CHEM 205, and 3 credits of CHEM 290 or CHEM 291. The B.A. chemistry major degree provides students a solid foundation in chemistry to pursue careers in a range of fields.

**MAJOR REQUIREMENTS**

CHEM 047 & CHEM 048	Organic Chemistry for Majors 1 and Organic Chemistry for Majors 2	8
CHEM 051 & CHEM 052	Exploring Chemistry 1 and Exploring Chemistry 2	2
CHEM 114	Advanced Synthesis Techniques	3
CHEM 121	Quantitative Analysis	4
CHEM 165	Intro Physical Chemistry	3
CHEM 181	2nd Year Seminar: Writing	1
CHEM 182	2nd Year Seminar: Presentation	1
CHEM 199	Professional Development	1
CHEM 231	Advanced Inorganic Chemistry	3
12 credits of approved upper-level electives in Chemistry or related sciences		12
Choose 1 of the following sequences:		6-8
MATH 019 & MATH 020	QR: Fundamentals of Calculus I and QR: Fundamentals of Calculus II	
MATH 021 & MATH 022	QR: Calculus I and QR: Calculus II	
Choose 1 of the following options:		8-10
Option A		
PHYS 011 & PHYS 021	Elementary Physics and Introductory Lab I	
PHYS 012 & PHYS 022	Elementary Physics and Introductory Lab II	

Option B		
PHYS 051 & PHYS 152	Fundamentals of Physics I and Fundamentals of Physics II	
Students may substitute: (However, the program of study recommended above will provide a better preparation for advanced course work in chemistry.)		
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2 (For CHEM 051 and CHEM 052)	
CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2 (for CHEM 047 and CHEM 048)	

Students completing the B.A. with a chemistry major may not also receive the B.S. with the biochemistry major.

**CHEMISTRY B.S.**

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

Students pursuing a Bachelor of Science degree with a major in chemistry complete an extensive set of courses representing the traditional chemical subdisciplines and engage in research. The B.S. degree chemistry major is certified by the American Chemical Society, and it is particularly good preparation for graduate study in chemistry.

**MAJOR REQUIREMENTS**

CHEM 047 & CHEM 048	Organic Chemistry for Majors 1 and Organic Chemistry for Majors 2	8
CHEM 051 & CHEM 052	Exploring Chemistry 1 and Exploring Chemistry 2	2
CHEM 114	Advanced Synthesis Techniques	3
CHEM 121	Quantitative Analysis	4
CHEM 165	Intro Physical Chemistry	3
CHEM 166	Physical Chemistry Lab	1
CHEM 167	Physical Chemistry Preparation	1 or 4
or MATH 121	QR: Calculus III	
CHEM 181	2nd Year Seminar: Writing	1
CHEM 182	2nd Year Seminar: Presentation	1
CHEM 199	Professional Development	1
CHEM 205	Biochemistry I	3
CHEM 219	Instrumental Analysis Lab	1
CHEM 221	Instrumental Analysis	3
CHEM 231	Advanced Inorganic Chemistry	3
CHEM 260	Advanced Physical Chemistry	3



CHEM 291	Undergraduate Research	3
6 credits of approved upper-level electives in Chemistry or related sciences.		6
Complete option A or B:		8
Option A		
MATH 021 & MATH 022	QR: Calculus I and QR: Calculus II	
Option B		
MATH 019 & MATH 023	QR: Fundamentals of Calculus I and QR: Transitional Calculus	
PHYS 051	Fundamentals of Physics I	4
PHYS 152	Fundamentals of Physics II	4
Students may substitute: (However, the program of study recommended above will provide a better preparation for advanced course work in chemistry.)		16
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2 (for CHEM 051 and CHEM 052)	
CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2 (for CHEM 047 and CHEM 048)	

## CHEMISTRY MINOR REQUIREMENTS

CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
Choose 1 of the following options:		10-12
Option A:		
CHEM 141	Organic Chemistry 1	
or CHEM 143 Organic Chemistry for Majors 1		
CHEM 142	Organic Chemistry 2	
or CHEM 144 Organic Chemistry for Majors 2		
and 1 of the following:		
CHEM 121	Quantitative Analysis	
CHEM 131	Inorganic Chemistry	
CHEM 165	Intro Physical Chemistry	
Option B:		
CHEM 165	Intro Physical Chemistry	
CHEM 260	Advanced Physical Chemistry	
and 1 of the following:		

CHEM 042	Intro Organic Chemistry	
or CHEM 141 Organic Chemistry 1		

## RESTRICTIONS

Ineligible majors: Chemistry (B.A., B.S.), Biochemistry (B.S.).

## PRE/CO-REQUISITES

(MATH 020, MATH 022, or MATH 023) and (PHYS 011 or PHYS 051) required for CHEM 165.	
CHEM 165, and (CHEM 167 or MATH 121) required for CHEM 260	

## DEPARTMENT OF CLASSICS

<https://www.uvm.edu/cas/classics> (<https://www.uvm.edu/cas/classics/>)

Classics, the study of Greek and Roman civilization in the broadest sense, is the original and quintessential liberal arts degree. The field is inherently multidisciplinary and provides access to a cultural continuum spanning over three millennia up to and including the present day.

Classics majors at UVM can study Greek and Roman culture in the original languages and take an array of English-language courses that cover a wide area: mythology, epic and lyric poetry, drama, satire, art and architecture, historiography, political theory, and philosophy. The special research interests of UVM's Classics faculty shape and enrich the department's curriculum, integrating in-depth work in topics such as oral tradition studies; the history of writing, books and printing; ancient farming and technology; ancient music; ancient Near Eastern history and literature; historical linguistics and etymology; Greek and Roman philosophy; Roman history; topography, and myth; and women in antiquity.

## MAJORS

### CLASSICS MAJORS

Classical Civilization B.A. (p. 274)

Greek B.A. (p. 274)

Latin B.A. (p. 274)

## MINORS

### CLASSICS MINORS

Classical Civilization (p. 274)

Greek Language and Literature (p. 275)

Latin Language and Literature (p. 275)

## GRADUATE

Greek and Latin Languages (GKLT) CGS

Greek and Latin M.A.

Greek and Latin M.A.T.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## CLASSICAL CIVILIZATION B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

36 credits, including:

#### Major Discipline

21 credits in Classics, Greek, Latin, ancient art, and/or ancient history.	21
1 course in ancient art from among the following:	3
ARTH 146 D2: Egypt & the Ancient Near E	
ARTH 148 Greek Art	
2 courses in ancient history, in 2 different cultural areas, from among the following:	6
Greece:	
CLAS 021 Greek History and Civilization	
CLAS 121 Greek History and Civilization	
Rome:	
CLAS 023 Classical Roman Civilization	
CLAS 122 Roman History and Civilization	
The following courses may also be counted toward the ancient history requirement when the topic is appropriate:	
CLAS 020 Topics in Ancient History	
CLAS 105 Topics in Ancient History	
At least 12 credits in the major discipline must be at the 100-level or higher.	

#### Related Courses

6 credits in approved related courses in fine arts, humanities, social sciences, and natural sciences. Consult the Department of Classics for a list of approved courses.	6
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#### Foreign Language

Fulfillment of the language Distribution Requirements of the College of Arts and Sciences is required, preferably in Latin or Greek.

## GREEK B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

30 credits, including:

GRK 211	Greek Prose Style	3
GRK 212	Greek Prose Style	3
12 credits in Greek at any level		12
6 credits in Greek at the 100-level or above		6
3 credits in Greek at any level or CLAS 121: Greek History and Civilization		3
3 credits in Greek at any level or one course in Latin at or above the 050-level.		3
A second foreign language, at least through the intermediate level, is recommended.		

## LATIN B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

30 credits, including:

LAT 211	Latin Prose Style	3
LAT 212	Latin Prose Style	3
12 credits in Latin at any level		12
6 credits in Latin at the 100-level or above		6
3 credits in Latin at any level or CLAS 122: Roman History and Civilization		3
3 credits in Latin at any level or one course in Greek at or above the 050-level.		
A second foreign language, at least through the intermediate level, is recommended.		

## CLASSICAL CIVILIZATION MINOR REQUIREMENTS

18 credits from the following (of which at least 9 credits must be above 100):	18
All courses in Greek and Latin above 050-level	
All courses in classics	
ARTH 146 D2: Egypt & the Ancient Near E	
ARTH 148 Greek Art	
All Special Topics courses (095, 096, 195, 295, 296) in Classics, Latin or Greek	

All Classical Civilization minors must fulfill the college foreign language requirement, preferably in Greek or Latin.

### RESTRICTIONS

Ineligible Major: Classical Civilization

**PRE/CO-REQUISITES**

Choose one of the following sequences:		
GRK 001 & GRK 002	Elementary Ancient Greek and Elementary Ancient Greek	
LAT 001 & LAT 002	Elementary and Elementary Latin	

**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 1 course.

**GREEK LANGUAGE AND LITERATURE MINOR****REQUIREMENTS**

18 credits, including:

12 credits in Greek at any level	12
3 credits in Greek at the 100-level or above	3
3 credits in Greek at the 100-level or above or CLAS 121: Greek History and Civilization	3

**RESTRICTIONS**

Ineligible Major: Greek

**LATIN LANGUAGE AND LITERATURE MINOR****REQUIREMENTS**

18 credits, including:

12 credits in Latin at any level	12
3 credits in Latin at the 100-level or above	3
3 credits in Latin at the 100-level or above or CLAS 122: Roman History and Civilization	3

**RESTRICTIONS**

Ineligible Major: Latin

**COMPUTER SCIENCE IN ARTS AND SCIENCES**

<https://www.uvm.edu/cems/cs> (<https://www.uvm.edu/cems/cs/>)

The Department of Computer Science resides in the College of Engineering and Mathematics Sciences (CEMS). The College of Arts and Sciences (CAS) offers a B.A. with a major in Computer Science. CEMS offers two B.S. programs in the discipline of computer science.

Edsger Dijkstra (a renowned computer scientist, 1930-2002) is reputed to have said "Computer Science is no more about computers,

than astronomy is about telescopes." Rather, Computer Science (CS) is aptly defined as the Science of Problem Solving. CS thus requires a combination of logical thinking, creativity, problem decomposition, implementation, verification and validation, and teamwork.

CS is a vibrant subject with academic depth, enormous growth, and universal economic impact. Computers are now ubiquitous in society and influence the way we learn, the way we do business, and the way we understand our world. Whether your passion is to help fight global warming, uncover the secrets of the human genome, evolve intelligent robots, bring history to life through mobile apps, prevent terrorism, study human social phenomena, understand financial markets, create digital art, improve healthcare, find useful patterns in Big Data, or invent the technologies of the future, computing is central to these and virtually all modern endeavors. Because of this, computing-related careers are among the most versatile, creative, satisfying, lucrative, and in-demand. The demand for computer scientists continues to grow at an incredible pace and shows no sign of slowing down.

At the undergraduate level, UVM Computer Science offers 3 bachelor's degrees, an accelerated M.S. degree, and a minor:

- **B.S.CS.:** The Bachelor of Science in Computer Science provides the most depth in computer science, complemented by breadth in math, science, humanities, and social sciences. The B.S.CS. is offered through the College of Engineering and Mathematical Sciences.
- **B.S.:** The Bachelor of Science in Computer Science and Information Systems is an interdisciplinary degree that combines computer science with business, offering a competitive combination of skills and knowledge. The B.S. is offered through the College of Engineering and Mathematical Sciences, in cooperation with the School of Business Administration.
- **B.A.:** The Bachelor of Arts in Computer Science provides a computer science major in the context of a liberal education, and has sufficient flexibility to facilitate a double major in another field such as mathematics, biology, music, etc. The B.A. is offered through the College of Arts and Sciences.
- **Accelerated M.S.:** CS juniors who are academically strong may enter our accelerated M.S. program. This allows them to apply two of their upper division courses towards both a bachelor's and master's degree, enabling completion of the M.S. in as little as one additional year beyond their bachelor's degree.
- **CS minor:** We offer a flexible 6-course minor in Computer Science, which is a great complement to virtually any other major and adds marketable skills.

UVM CS courses provide a mixture of lecture-based and hands-on experiential learning exercises. Our curricula provide a solid foundation in both applied and theoretical aspects of computing, preparing students for future careers and/or graduate study in computing. Many of our students complete paid internships during their summers, and UVM CS alumni survey respondents typically report 100% employment or graduate student status one year after graduation.

**MAJORS****COMPUTER SCIENCE MAJOR**

Computer Science B.A. (p. 276)

**GRADUATE**

Computer Science AMP

Computer Science M.S.

Computer Science Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

**COMPUTER SCIENCE B.A.**

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

**MAJOR REQUIREMENTS**

Core Courses:		
CS 021	QR: Computer Programming I (C- or better) <sup>1</sup>	3
CS 064	QR: Discrete Structures	3
CS 110	QR: Intermediate Programming (C- or better) <sup>1</sup>	4
CS 120	QR: Advanced Programming	3
CS 121	QR: Computer Organization	3
CS 124	QR: Data Struc & Algorithms	3
CS 125	QR: Computability & Complexity	3
CS 224	QR: Algorithm Design & Analysis	3
CS 292	Senior Seminar	1
15 additional credits of computer science courses, including 3 credits at the 0XX level or above, 3 credits at the 100-level or above and 9 credits at the 200-level or above		15
No more than 45 credits of Computer Science can be applied to this degree		
MATH 021	QR: Calculus I <sup>2</sup>	4
MATH 022	QR: Calculus II <sup>2</sup>	4
STAT 143	QR: Statistics for Engineering	3
STAT 151	QR: Applied Probability	3
It is recommended that the natural sciences Distribution Requirement be fulfilled with a 2-semester laboratory science sequence		

<sup>1</sup> Concurrent enrollment in CS 050 is recommended for students enrolled in CS 021 or CS 110.

<sup>2</sup> MATH 019 and MATH 023 is an acceptable substitute for MATH 021 and MATH 022

**CRITICAL RACE AND ETHNIC STUDIES****OVERVIEW**

<https://www.uvm.edu/cas/ethnicstudies> (<https://www.uvm.edu/cas/ethnicstudies/>)

The aim of the Critical Race and Ethnic Studies Program is to enable students to understand that race and ethnicity are not stable categories: they are ever-changing processes that are radically contingent on history, politics, geography, culture, and multiple other factors.

The “critical” in critical race and ethnic studies indicates the deliberate complexity at the heart of the program’s approach: while the program is dedicated to the investigation of race and ethnicity as realities in the daily lives of people all over the globe, the program views these categories as inherently flawed and insufficient. Ultimately, race and ethnicity are not categories that translate seamlessly from culture to culture, even within the U. S.: these terms take on radically different meanings that depend on one’s vantage point. Neither do they develop independently; race and ethnicity are inherently relational and intersectional. One factor that has been consistent in every incarnation of racial and ethnic identity, however, is power. In the program, students come to appreciate the centrality of power relations in the development of identity of marginalized peoples.

**MINOR****CRITICAL RACE AND ETHNIC STUDIES MINOR**

Critical Race and Ethnic Studies (p. 276)

**CRITICAL RACE AND ETHNIC STUDIES MINOR****REQUIREMENTS**

18 credits (6 courses) including:

CRES 011	D1: Race/Racism/AcrsDisciplines	3
15 credits to be chosen from the list of CRES approved courses (consult program website or office for list) of which at least 9 must be at the 100-level or above.		15

Students should consult with a Critical Race and Ethnic Studies program advisor in devising their course of study.

**PRE/CO-REQUISITES**

Intro and intermediate level courses for varying subject areas to get to the appropriate level of 100.

**DEPARTMENT OF ECONOMICS**

<https://www.uvm.edu/cas/economics> (<https://www.uvm.edu/cas/economics/>)

Economics is the study of how individuals and societies provide for material needs and wants. Economic thinking comes into play



in a wide range of settings, from business decision-making to the argument of legal cases in the courts.

Students majoring in economics explore a broad array of issues that bear directly on human welfare, including economic growth and development, unemployment, the relationship between the environment and the economy, international trade, technological change, the role of race and gender in the economy, and poverty and the distribution of income.

Program offerings develop expertise with tools used in analyzing economic issues, including quantitative empirical analysis and modeling; historical and institutional analysis; and conceptual analysis.

## MAJORS

### ECONOMICS MAJOR

Economics B.A. (p. 277)

Economics B.S. (p. 277)

## MINORS

### ECONOMICS MINOR

Economics (p. 278)

## ECONOMICS B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

33 credits in Economics and 3 credits in Mathematics as follows:

EC 011	Principles of Macroeconomics	3
EC 012	Principles of Microeconomics	3
MATH 019	QR: Fundamentals of Calculus I (students are urged to take MATH 019 or MATH 021 early in the program)	3
or MATH 021	QR: Calculus I	
3 courses from EC 020 - EC 160 or EC 195 - EC 196, 2 of which must be numbered EC 110 or higher		9
Methods and Theory courses in Economics:		
EC 170	QR:Economic Methods	3
or STAT 141	QR:Basic Statistical Methods 1	
EC 171	Macroeconomic Theory (Must be taken at UVM)	3
EC 172	Microeconomic Theory (Must be taken at UVM)	3
1 course from the following:		3
EC 210	Ec Hst, Systems & Ideas w Writing	

EC 220	Macroecon & Finance w Writing	
EC 230	Microecon & Appl w Writing	
EC 240	Intern'l & Dev Econ w Writing	
EC 250	Labor, Race, Gender w Writing	
EC 260	Firms, Inst & Growth w Writing	
2 additional Economics courses at the 200-level or higher		6
No more than 3 credits from the following courses may be applied toward the major:		
HON 218	Honors: Economics	
HON 219	Honors: Economics	
EC 290	Internship	
EC 297	Undergraduate Research	
EC 298	Undergraduate Research	

## ECONOMICS B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

42 credits in Economics, 15 credits in Mathematics, and 7 credits in Computer Science specifically:

EC 011	Principles of Macroeconomics	3
EC 012	Principles of Microeconomics	3
MATH 021	QR: Calculus I <sup>1</sup>	4
MATH 022	QR: Calculus II <sup>1</sup>	4
MATH 121	QR: Calculus III	4
MATH 122	QR: Applied Linear Algebra	3
or MATH 124	QR: Linear Algebra	
EC 170	QR:Economic Methods	3
or STAT 141	QR:Basic Statistical Methods 1	
EC 171	Macroeconomic Theory (must be taken at UVM)	3
EC 172	Microeconomic Theory (must be taken at UVM)	3
4 courses from EC 020 - EC 160 or EC 195 - EC 196, 3 of which must be numbered EC 110 or higher		12
EC 200	QR:Econometrics & Applications	3
EC 280	Advanced Economic Analysis	3
3 Economics courses numbered 200 or higher		9
6 or 7 credits in ancillary courses:		

CS 021	QR: Computer Programming I	3
CS 110	QR: Intermediate Programming	4
No more than 3 credits from the following courses may be applied toward the major: HON 218, HON 219, EC 290, EC 297, EC 298		
Students pursuing the major must complete the natural sciences BS distribution requirement.		

<sup>1</sup> MATH 019 and MATH 023 may be substituted for MATH 021 and MATH 022.

## ECONOMICS MINOR

### REQUIREMENTS

18 credits including:

EC 011	Principles of Macroeconomics	3
EC 012	Principles of Microeconomics	3
Choose 1 from:		3
EC 171	Macroeconomic Theory (Must be taken at UVM)	
EC 172	Microeconomic Theory (Must be taken at UVM)	
3 courses from EC 020-EC 196, 2 of which must be from EC 110-EC 196		9

Note that MATH 019 or MATH 021 is a prerequisite to EC 171 and EC 172.

### RESTRICTIONS

Ineligible Major: Economics

## DEPARTMENT OF ENGLISH

<https://www.uvm.edu/cas/english> (<https://www.uvm.edu/cas/english/>)

### ENGLISH

The English Department offers instruction in a wide range of literary and cultural studies, as well as creative writing and rhetoric and composition. Courses focus on major figures (Geoffrey Chaucer, William Shakespeare, Jane Austen, Toni Morrison), specific periods (Renaissance, Victorian, Modern), or genres (the novel, drama, poetry). Other classes cover critical theory, literatures outside the established canon, journalism, creative nonfiction, fiction, and poetry writing.

<https://www.uvm.edu/cas/filmtv> (<https://www.uvm.edu/cas/filmtv/>)

### FILM AND TELEVISION STUDIES

Located in the English Department, Film and Television Studies (FTS) offers a major and minor. FTS courses have all been designed to explore aesthetic, technological, historical, theoretical, and cultural

developments. FTS students also study film and television as an international art form. Basic introductory courses expose students to the concepts needed to begin studying film and television as well as its early historical and theoretical concerns. The intermediate level courses concentrate on contemporary issues, genre history, and theory as well as film and video production. And the advanced level seminars attempt to bring together all the student's knowledge through a course that explores the depths of one topic (such as studying the works of one director, global and European cinema, women in film, race and television, or violence in film).

## MAJORS

### ENGLISH MAJORS

English B.A. (p. 278)

Film and Television Studies B.A. (p. 279)

## MINORS

### ENGLISH MINORS

English (p. 279)

Film and Television Studies (p. 280)

Writing (p. 280)

## GRADUATE

English AMP

English M.A.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## ENGLISH B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

30 credits to include: <sup>1</sup>

1 of the following 2 course sequences:		6
ENGS 021 & ENGS 022	Seminar in British Lit I and Seminar in British Lit II	
ENGS 023 & ENGS 024	Seminar in American Lit I and Seminar in American Lit II	
ENGS 027 & ENGS 028	Lit Western Trad I: Intg Humn and Lit Western Trad II: Intg Humn	
ENGS 100	Literary Theory	3
At least 18 credits numbered 101 or higher, at least 3 of which must be from courses numbered ENGS 201- ENGS 282 (senior seminars)		18
3 additional credits in ENGS courses numbered 005 or above		3
Students must complete 1 of the following concentrations: <sup>2</sup>		

British and Anglophone Literary Traditions: at least 9 hours in the following courses, including 3 hours in literature before 1700 (ENGs 111, ENGs 112, ENGs 113, ENGs 133, ENGs 134, ENGs 135, ENGs 136, ENGs 137, ENGs 138, ENGs 140, ENGs 141, ENGs 143, ENGs 144, ENGs 145, ENGs 158, ENGs 164, ENGs 167, ENGs 168, ENGs 179, ENGs 182, ENGs 189, ENGs 193 (Literary London or London Stage), Senior Seminar [200-level]) <sup>2</sup>	
American Literary Traditions: at least 9 hours in the following courses, including at least 3 hours in literature before 1900 (ENGs 111, ENGs 112, ENGs 113, ENGs 150, ENGs 152, ENGs 156, ENGs 158, ENGs 163, ENGs 164, ENGs 167, ENGs 168, ENGs 171, ENGs 176, ENGs 177, ENGs 189, Senior Seminar [200-level]) <sup>2</sup>	
Cultural Studies: at least 9 hours in the following courses (FTS 121, FTS 122, FTS 123, FTS 131, FTS 133, FTS 134, FTS 141, FTS 142, FTS 143, ENGs 111, ENGs 112, ENGs 113, ENGs 143, ENGs 156, ENGs 163, ENGs 168, ENGs 177, ENGs 179, ENGs 182, ENGs 189, Senior Seminar [200-level]) <sup>2</sup>	
Writing: 3 hours from the following 3 courses (ENGs 050, ENGs 051, and ENGs 053) and at least 9 hours in the following courses (FTS 144, ENGs 104, ENGs 105, ENGs 107, ENGs 114, ENGs 117, ENGs 118, ENGs 119, ENGs 120, Senior Seminar [200-level]) <sup>3</sup>	
Individually Designed Concentration: At least 3 courses numbered 101 or higher (may include the Senior Seminar) in an intellectually coherent area of concentration defined in a proposal approved by the faculty adviser and the director of undergraduate advising in English	
1 world literature (WLIT) course may count toward the major	
No more than 9 credits of Film and Television Studies (FTS) at any level shall count toward the major	

<sup>1</sup> Only courses beginning with ENG 005 or higher meet the English major requirements.

<sup>2</sup> Under British and Anglophone Literary Traditions, a number of courses may count for different Concentrations and for more than one Concentration—ENGs 111, ENGs 112, ENGs 113, ENGs 158, ENGs 164, ENGs 167, ENGs 168, ENGs 189, and the Senior Seminar [200-level]—and ENGs 133, ENGs 134, ENGs 135, ENGs 136, ENGs 137, ENGs 138, ENGs 140, ENGs 141 satisfy the requirement for a course in literature before 1700. Under American Literary Traditions, a number of courses may count for different Concentrations and for more than one Concentration—ENGs 111, ENGs 112, ENGs 113, ENGs 158, ENGs 164, ENGs 167, ENGs 168, ENGs 189, and the Senior Seminar [200-level]—and the following courses satisfy the requirement for a course in literature before 1900: ENGs 150, ENGs 152, ENGs 156, ENGs 158. Under Cultural Studies, all ENGs courses may count for different Concentrations and for more than one Concentration.

<sup>3</sup> ENG 053 must be taken by students wishing to pursue advanced poetry and fiction writing.

## FILM AND TELEVISION STUDIES B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

31 credits, including:

2 introductory courses from:		6
FTS 008	Classical Cinema	
FTS 009	History of Television	
FTS 010	Contemporary Cinema	
4 core intermediate courses:		
FTS 121	Film/Television Theory	3
FTS 123	Global Studies in Film/TV	3
1 course from FTS 131, FTS 133, or FTS 134		3
1 course from FTS 141, FTS 142, FTS 143, or FTS 144		3
2 additional 100-level or higher courses from the FTS offerings		6
1 senior seminar from:		3
FTS 271	Seminar in Film/Television	
FTS 272	Seminar in Film/Television	
1 course at any level from the FTS offerings		3
FTS 299	Comprehensive Exam	1
Only 3 credits of FTS 191/FTS 192 may count toward the major.		

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	Hist of Optical Media as Art	3
ARTS 139	Animation	3
ARTS 148	Introduction to Video Art	3
ARTS 248	Advanced Film/Video Projects	3
SOC 243	Mass Media in Modern Society	3

## ENGLISH MINOR

### REQUIREMENTS

18 credits, including:

6 credits taken from 1 of the following sequences:		6
ENGs 021 & ENGs 022	Seminar in British Lit I and Seminar in British Lit II	
ENGs 023 & ENGs 024	Seminar in American Lit I and Seminar in American Lit II	

ENGS 027 & ENGS 028	Lit Western Trad I: Intg Humn and Lit Western Trad II: Intg Humn	
A minimum of 9 credits at the 100-level or above		9

## RESTRICTIONS

Ineligible Major: English

## FILM AND TELEVISION STUDIES MINOR

### REQUIREMENTS

18 credits, including:

At least 1 course from:		3
FTS 008	Classical Cinema	
FTS 009	History of Television	
FTS 010	Contemporary Cinema	
All of the following:		
FTS 121	Film/Television Theory	3
FTS 123	Global Studies in Film/TV	3
1 course from the FTS offerings at the 100-level or above		3
2 additional courses from the FTS offerings at any level		6
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	Hist of Optical Media as Art	
ARTS 139	Animation	
ARTS 148	Introduction to Video Art	
ARTS 248	Advanced Film/Video Projects	
SOC 243	Mass Media in Modern Society	

## RESTRICTIONS

Ineligible Majors: Film and Television Studies

## WRITING MINOR

### REQUIREMENTS

18 credits, including:

6 credits in 2 of the following courses:		6
ENGS 050	The Art of the Essay	
ENGS 051	Topics in Composition	
ENGS 053	Intro to Creative Writing <sup>1</sup>	
At least 9 hours in English above 100, including at least 6 hours in the following courses:		9

ENGS 104	Tutoring Writing	
ENGS 105	Exploring Writing Centers	
ENGS 107	Topics in Comp & Rhetoric	
ENGS 114	Topics in Writing	
ENGS 117	Advanced Creative Nonfiction	
ENGS 118	Advanced Writing: Fiction	
ENGS 119	Advanced Writing: Poetry	
ENGS 120	Writer's Workshop	
ENGS 211	Seminar in Writing	
ENGS 212	Seminar in Writing	
At least 3 additional hours in ENGS courses number at or above ENGS 005 or in FTS 144.		3

- <sup>1</sup> Must be taken by students wishing to pursue advanced poetry and fiction writing.

Approved special topics courses may be used to fulfill requirements for the Writing minor (consult the Schedule of Courses)

## RESTRICTIONS

Ineligible Major: English

## ENVIRONMENTAL SCIENCES IN THE COLLEGE OF ARTS AND SCIENCES

<https://www.uvm.edu/environmentalsciences> (<https://www.uvm.edu/environmentalsciences/>)

The environment is a common theme in the courses offered at UVM. The College of Agriculture and Life Sciences partners with the Rubenstein School of the Environment and Natural Resources and the College of Arts and Sciences to offer two interdisciplinary majors: Environmental Sciences and Environmental Studies.

## CAS ENVIRONMENTAL SCIENCES MAJOR

The environmental sciences major combines a science-based core curriculum with hands-on experience identifying, analyzing, and addressing environmental problems arising from human disturbance.

Students may pursue the major through the College of Agriculture and Life Sciences (CALS), the College of Arts and Sciences (CAS), or The Rubenstein School of Environment and Natural Resources (RSEN). The distinctions between the major offered through these three schools is subtle, and a student can usually shift between the three with little difficulty.

- The Rubenstein School provides a degree with an applied focus, so an environmental sciences major is balanced with a broad-based understanding of frameworks to integrate social and natural systems towards solving complex problems.



- The College of Arts and Sciences provides a degree with a traditional liberal arts orientation, so the major in environmental sciences is pursued within the context of a liberal arts education.
- The College of Agriculture and Life Sciences provides a degree in which the student pursuing the environmental sciences major is engaged in the application and understanding of the environment within the context of agricultural literacy.

The decision about which school is best to pursue the major is typically based on the student's desired focus within the major and other academic interests. All environmental science majors take a common set of courses in biology, chemistry, mathematics, and geology or plant and soil science. A common set of environmental science core courses is followed by specialization in one of nine concentrations: agriculture and the environment, conservation biology and biodiversity, ecological design, environmental analysis and assessment, environmental biology, environmental chemistry, environmental geology, global environmental and climate change, or water resources.

Goals of the major include providing students with a strong foundation in basic sciences as well as advanced knowledge in environmental sciences; emphasizing scientific analysis aimed at assessment and remediation of environmental problems; familiarizing students with sources and measurements of pollutants on ecosystems; and providing practical experience in environmental sciences through internships/service learning and research.

## MAJORS

### ENVIRONMENTAL SCIENCES MAJOR

Environmental Sciences B.S. (p. 281)

### ENVIRONMENTAL SCIENCES B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

CHEM 042	Intro Organic Chemistry <sup>1</sup>	4
or CHEM 141	Organic Chemistry 1	
or CHEM 143	Organic Chemistry for Majors 1	
GEOL 055	Environmental Geology <sup>2</sup>	4
or PSS 161	SU: Fundmntls of Soil Science	
STAT 141	QR: Basic Statistical Methods 1	3-4
or STAT 211	QR: Statistical Methods I	
or NR 140	Applied Environ Statistics	
ENSC 001	SU: Intro Environmental Sci	3
ENSC 009	Orientation to Env Sciences	1
ENSC 130	Global Environmental Assessmnt	3
ENSC 160	Pollutant Mvmt/Air, Land&Water	4

Choose 1 of the following:		4
BCOR 102	SU: Ecology and Evolution <sup>3</sup>	
CHEM 142	Organic Chemistry 2	
CHEM 144	Organic Chemistry for Majors 2	
GEOL 110	SU: Earth Materials <sup>2</sup>	
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	8
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	8
Choose 1 of the following sequences:		6-8
MATH 019 & MATH 020	QR: Fundamentals of Calculus I and QR: Fundamentals of Calculus II	
MATH 021 & MATH 022	QR: Calculus I and QR: Calculus II	
14 to 17 credits of advanced course work, chosen in consultation with the student's advisor, in 1 of the following Focus Tracks: <sup>4</sup>		14-17
Agriculture and the Environment		
Conservation Biology and Biodiversity		
Ecological Design		
Environmental Analysis and Assessment		
Environmental Biology		
Environmental Geology		
Environmental Health		
Global Environmental and Climate Change		
Water Resources		

<sup>1</sup> CHEM 141 or CHEM 143 required for Environmental Biology Focus Track.

<sup>2</sup> GEOL 055 and GEOL 110 required for Environmental Geology Focus Track.

<sup>3</sup> BCOR 102 required for Environmental Biology Focus Track.

<sup>4</sup> 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.

College of Arts and Sciences students majoring in the B.S. program in environmental sciences are required to take at least 84 credits of course work in the College of Arts and Sciences.

## ENVIRONMENTAL STUDIES IN THE COLLEGE OF ARTS AND SCIENCES

<https://www.uvm.edu/environmentalprogram> (<https://www.uvm.edu/environmentalprogram/>)

The environment is a common theme in the courses offered at UVM. The College of Agriculture and Life Sciences partners with the

Rubenstein School of the Environment and Natural Resources and the College of Arts and Sciences to offer two interdisciplinary majors: Environmental Sciences and Environmental Studies.

## CAS ENVIRONMENTAL STUDIES MAJOR

The Environmental Studies Program at University of Vermont was established in 1972 to meet the need for greater understanding of the ecological and cultural systems supporting all life on earth. This broadly interdisciplinary program is a campus-wide program serving students in four colleges across the university. The faculty are committed interdisciplinary thinkers drawing on the sciences, social sciences, and humanities to create a lively hub, addressing local and global issues with equal concern. We believe in collaborative problem-solving and the power of human imagination to create a more sustainable future.

The Environmental Program offers a major in Environmental Studies (ENVS) that can be pursued in three different colleges, including the College of Agriculture and Life Sciences, the College of Arts and Sciences, and the Rubenstein School of Environment and Natural Resources. Students can choose which college best suits their broad educational needs and then pursue the Environmental Studies major from within that college. While major requirements differ slightly from college to college, the core curriculum is the same. Following the introductory courses and working closely with faculty advisors, each student creates a plan for an individually-designed major concentration in their focus area(s) of choice. This learning plan culminates in a final capstone project, thesis, internship, or advanced courses usually carried out in the senior year.

## MAJORS

### ENVIRONMENTAL STUDIES MAJOR

Environmental Studies B.A. (p. 282)

## MINORS

### ENVIRONMENTAL STUDIES MINOR

Environmental Studies (p. 282)

## ENVIRONMENTAL STUDIES B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

31 credits including:

ENVS 001	SU: Intro to Environmtl Studies	4
ENVS 002	SU: Solutions in Env Studies	4
ENVS 101	Academic Planning Workshop	1
Breadth Requirements. These courses are not intended to fulfill the distribution requirements in the College of Arts and Sciences.		
ECOLOGY		3-4
BCOR 102	SU: Ecology and Evolution	

NR 103	Ecology, Ecosystems & Environ	
HUMANITIES		3
ENVS 165	Enviro Literature, Arts, Media	
ENVS 167/ HST 067	D2: Global Env History	
ENVS 178/ PHIL 010	Environmental Ethics	
ECONOMICS		3
ENVS/NR 141	Intro to Ecological Economics	
EC 133	SU: Economics Environmntl Policy	
SOCIAL SCIENCE		3
ENVS 143/ GEOG 173	Political Ecology	
ENVS 142	Intro to Environmental Policy	
POLS 180	SU: Comparative Envir Pol	
Independently Designed Coursework, Research, and/or Internship from approved environment-related offerings. Students are encouraged to bundle these credits into: a concentrated study of courses in a particular interest; a capstone/culminating experience in research thesis, internship, or creative project; approved study abroad courses; or a generalist combination of courses, internship, independent study and research.		
3 credits at any level		3
4 credits at or above the 100-level		4
3 credits at the 200-level		3

## ENVIRONMENTAL STUDIES MINOR

### REQUIREMENTS

A total of 17 credits is required for the minor.

ENVS 001	SU: Intro to Environmtl Studies	4
ENVS 002	SU: Solutions in Env Studies	4
9 credits at the 100-level or above. <sup>1</sup>		9

<sup>1</sup> One non-ENVS course at the appropriate level may be substituted with the approval of the student's advisor.

## GENDER, SEXUALITY, AND WOMEN'S STUDIES PROGRAM

<https://www.uvm.edu/cas/genderstudies> (<https://www.uvm.edu/cas/genderstudies/>)

The Gender, Sexuality, and Women's Studies program (GSWS) offers a unique and wide-ranging way of studying and engaging with the world. Concepts of study include sex, gender, and sexuality; identities such as female, male, gay, lesbian, bisexual, trans, and queer; the intersections of these identities with race, class, (dis)ability and

other kinds of differences among people; areas of academic study including women's history, the history of sexuality, trans identities and politics, the sociology of the family, economic inequality, feminist and queer theory, feminist and queer literary studies, sex and politics, and biological approaches to sex and gender. GSWS is both an academic discipline and a meeting place for students and faculty in every discipline who want to explore these critically important issues. The Program is scholarly, and it is fully engaged with the world in which we live.

## MAJORS

### GENDER, SEXUALITY, AND WOMEN'S STUDIES MAJOR

Gender, Sexuality, and Women's Studies B.A. (p. 283)

## MINORS

### GENDER, SEXUALITY, AND WOMEN'S STUDIES MINORS

Gender, Sexuality, and Women's Studies (p. 283)

Sexuality and Gender Identity Studies (p. 283)

### GENDER, SEXUALITY, AND WOMEN'S STUDIES B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

30 credits, including:

Core:		
GSWS 001	D2: Gender Sexuality Wmn's Stdy	3
GSWS 100	D2: Gender and Feminism(s)	3
GSWS 105	D2: LGBT Politics and History	3
GSWS 200	GSWS Senior Seminar	3
GSWS 191	Practicum	3
or GSWS 192	Practicum	
Concentration:		15
5 approved Gender, Sexuality, and Women's Studies electives, at least 4 of which are at or above the 100-level. Courses in the concentration will typically proceed along either a social science track or a humanities track. Other tracks are possible with the approval of the major advisor.		

### GENDER, SEXUALITY, AND WOMEN'S STUDIES MINOR

## REQUIREMENTS

18 credits of course work to include:

CORE (9 credits):		
GSWS 001	D2: Gender Sexuality Wmn's Stdy	3
GSWS 100	D2: Gender and Feminism(s)	3
GSWS 200	GSWS Senior Seminar	3
ELECTIVES:		
9 hours; at least 6 hours must be taken at the 100-level or above.		9

## RESTRICTIONS

Ineligible Major: Gender, Sexuality, and Women's Studies

No more than 3 credit hours may come from classes also used to fulfill a major.

### SEXUALITY AND GENDER IDENTITY STUDIES MINOR

## REQUIREMENTS

18 credits including:

CORE:		
GSWS 001	D2: Gender Sexuality Wmn's Stdy	3
GSWS 105	D2: LGBT Politics and History	3
1 200-level course eligible for SGIS credit		3
ELECTIVES:		
9 hours of courses eligible for SGIS credit; at least 6 hours of which must be taken at the 100-level or above		9

Students should consult the current Sexuality and Gender Identity Studies course listings each semester for a full list of available courses.

## RESTRICTIONS

No more than 3 total credits may come from:

GSWS 191	Practicum	3-6
GSWS 192	Practicum	3-6
GSWS 297	Independent Study	1-18
GSWS 298	Undergraduate Research	1-18

No more than 9 credits may come from any one department.

No more than 3 credits may come from classes also used to fulfill a major.

## DEPARTMENT OF GEOGRAPHY

<https://www.uvm.edu/cas/geography> (<https://www.uvm.edu/cas/geography/>)

Students who are curious about why things happen where they do -- from climate change, water resource scarcity and forest migration

to urban development, globalization, green buildings, wilderness therapy and the working agricultural landscape -- will find that Geography is the study that brings them all together. UVM's Geography major equips students with analytical and conceptual skills, as well as an understanding of the spatial dimensions of physical, environmental, and human phenomena. Students develop a broad, international, interdisciplinary and comparative perspective, along with valuable technical skills.

Introductory offerings include courses on the geography of race and ethnicity, skills-based geospatial technologies, weather and climate, space and society, and world regional geography. Intermediate classes include global environmental change, political geography, water resources, cultural ecology, biogeography, geography and gender, climatology, international development and political ecology, urban geography, GIS and remote sensing, regional and field courses.

At the advanced level, classes include spatial analysis, research methods, social geography, climate and hazards, global economic restructuring and snow hydrology. These offerings take students conceptually around the world, physically around Vermont and in some cases, include international field experiences.

## MAJORS

### GEOGRAPHY MAJOR

Geography B.A. (p. 284)

## MINORS

### GEOGRAPHY MINORS

Geography (p. 284)

Geospatial Technologies (p. 284)

## GEOGRAPHY B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

30 credits, including:

GEOG 040	Weather, Climate & Landscapes	3
GEOG 050	D2:SU:Global Envmnts& Cultures	3
GEOG 070	SU: Society, Place, and Power	3
1 course in geographic methods from the series GEOG 081, GEOG 085, GEOG 184, GEOG 185, GEOG 186, GEOG 281, GEOG 287.		3
9 credits in Geography at or above the 100-level		9
6 credits in Geography at the 200-level		6
3 credits in Geography at any level		3
Although repeatable, only 3 credits of GEOG 191 (Internship) can count toward the 100-level requirement		

3 credits of HON 224/HON 225 may be used toward the 200-level requirement.	
GEOG 060: D1: Geography of Race & Ethnicity in the US is strongly recommended as part of the planned curriculum for Geography majors.	
Teaching Assistantships (GEOG 199, GEOG 299) cannot be counted toward the major.	

## GEOGRAPHY MINOR

### REQUIREMENTS

18 credits, including:

6 credits from the following core courses:		6
GEOG 040	Weather, Climate & Landscapes	
GEOG 050	D2:SU:Global Envmnts& Cultures	
GEOG 070	SU: Society, Place, and Power	
1 course in geographic methods from the series GEOG 081, GEOG 085, GEOG 184, GEOG 185, GEOG 186, GEOG 281, GEOG 287.		3
6 credits in Geography at the 100-level or above		6
3 credits in Geography at any level		3
Teaching Assistantships (GEOG 199, GEOG 299) cannot be counted toward the minor.		

## RESTRICTIONS

Ineligible Major: Geography

## GEOSPATIAL TECHNOLOGIES MINOR

### REQUIREMENTS

A total of 15 credits with at least 9 credits at or above the 100-level.

1 or more course(s) on Geospatial Technologies in the Disciplines		3-6
ENSC 130	Global Environmental Assessmnt	
CE 010	Geomatics	
CDAE 101	Drafting & Design: SketchUp II	
ENGR 002	Graphical Communication	
GEOG 081	Geospatial Cncpt&Visualization	
GEOG 144	Geomorphology	
or GEOL 151	Geomorphology	
GEOL 185	Geocomputing	
Courses in 2 or more categories (Geographic Information Systems, Remote Sensing, and Data Science)		6-9
Geographic Information Systems - Choose 1:		3
NR 143	Intro to Geog Info Systems	



or GEOG 184	Geog Info:Cncpts & Applic	
Remote Sensing - Choose 1:		3
NR 146	Remote Sensing of Natural Res	
or FOR 146	Remote Sensing of Natural Res	
GEOG 185	Remote Sensing	
Data Science - Choose from:		3-6
CS 008	QR: Intro to Web Site Dev	
CS 021	QR: Computer Programming I	
CS 087	QR: Intro to Data Science	
or STAT 087	QR: Intro to Data Science	
CS 110	QR: Intermediate Programming	
CS 142	QR: Advanced Web Design	
CS 148	QR: Database Design for Web	
STAT 087	QR: Intro to Data Science	
or CS 087	QR: Intro to Data Science	
1 or more advanced or capstone experience(s)		3-6
NR 242	Adv Geospatial Techniques	
NR 243	GIS Practicum	
GEOG 281	Adv Topic:GIS & Remote Sensing (b, Advanced GIS Applications)	
GEOG 281	Adv Topic:GIS & Remote Sensing (a, Satellite Climatology/Land Surface Applications)	
GEOG 287	Spatial Analysis	
CS 204	QR: Database Systems	
MATH 266	QR:Chaos,Fractals&Dynamcal Syst	
STAT 201	QR:Stat Computing&Data Anlysis	

## PRE/CO-REQUISITES

Variable, depending on upper level courses chosen.

## OTHER INFORMATION

Geography majors who undertake the Geospatial Technologies minor are required to complete 33 credits in Geography and 15 credits towards the Geospatial Technologies minor. GEOG 081 may be used to count towards both the major and the minor. However, students are still required to complete 33 credits of geography courses.

## DEPARTMENT OF GEOLOGY

<http://www.uvm.edu/cas/geology/>

UVM Geology majors work closely with a faculty internationally recognized for its scientific research, yet dedicated to teaching

undergraduate students. Vermont's landscape is rich in geological features, offering outstanding field study experience; in addition, the department offers exciting geological exploration in other regions.

Coursework addresses critical topics, such as the origin and evolution of mountains, actively evolving landscapes, geochemical interactions between the biosphere and geosphere, and global climate change. Study in these areas is complemented by opportunities to assist faculty pursuing rigorous and significant research around the world.

Students graduate with skills valued in a wide range of careers. In small, hands-on courses students learn measurement techniques, observation, and data analysis while working with state-of-the-art instrumentation. Small group projects encourage cooperative learning, and presentation of results develops excellent communication skills. The foundation of the Geology Department curriculum is "problem-based learning," which prepares its graduates to solve real-world issues they will face upon graduation.

## MAJORS

### GEOLOGY MAJORS

Geology B.A. (p. 285)

Geology B.S. (p. 286)

## MINORS

### GEOLOGY MINORS

Geology (p. 286)

Geospatial Technologies (p. 286)

## GRADUATE

Geology M.S.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## GEOLOGY B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

At least 44 credits, including:

GEOL 001	Earth System Science	4
or GEOL 005	Mt - Lake:Geol Lake Chmpln Bsn	
or GEOL 055	Environmental Geology	
GEOL 062	Earth Env & Life Through Time	4
GEOL 101	Field Geology	4
GEOL 110	SU: Earth Materials	4
GEOL 135	Environmental Geochemistry	4
GEOL 116	Glacial Geology	4

or GEOL 151	Geomorphology	
GEOL 231	Petrology	4
or GEOL 260	Structural Geology	
GEOL 291 & GEOL 292	Capstone: Fall Geol Seminars and Capstone: Spring Geol Seminars	2
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	8
Choose 1 of the following sequences:		6-8
MATH 019 & MATH 020	QR: Fundamentals of Calculus I and QR: Fundamentals of Calculus II	
MATH 021 & MATH 022	QR: Calculus I and QR: Calculus II	
2 semesters of introductory physics with lab is strongly recommended:		
PHYS 011 & PHYS 021	Elementary Physics and Introductory Lab I	
PHYS 012 & PHYS 022	Elementary Physics and Introductory Lab II	

## GEOLOGY B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

GEOL 001	Earth System Science	4
or GEOL 005	Mt - Lake:Geol Lake Chmpln Bsn	
or GEOL 055	Environmental Geology	
GEOL 062	Earth Env & Life Through Time	4
GEOL 101	Field Geology	4
GEOL 110	SU: Earth Materials	4
GEOL 135	Environmental Geochemistry	4
GEOL 151	Geomorphology	4
GEOL 231	Petrology	4
GEOL 240	Tectonics	3
GEOL 260	Structural Geology	4
Choose 1 of the following:		3
GEOL 201	Advanced Field Geology	
or GEOL 198	Undergraduate Research	
Or field camp		
GEOL 291 & GEOL 292	Capstone: Fall Geol Seminars and Capstone: Spring Geol Seminars	2

2 additional courses in geology or approved science, mathematics, engineering or statistics courses (at least 3 credits each) at level 100 or higher selected in consultation with a geology advisor		6
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	8
Choose 1 of the following sequences:		6-8
MATH 019 & MATH 020	QR: Fundamentals of Calculus I and QR: Fundamentals of Calculus II	
MATH 021 & MATH 022	QR: Calculus I and QR: Calculus II	
Choose 1 of the following sequences:		8-10
PHYS 011/021/012/022	Elementary Physics	
PHYS 051 & PHYS 152	Fundamentals of Physics I and Fundamentals of Physics II	
Choose either:		
STAT 141	QR: Basic Statistical Methods 1	3
or STAT 211	QR: Statistical Methods I	

## GEOLOGY MINOR

### REQUIREMENTS

1 geology course from:		4
GEOL 001	Earth System Science	
GEOL 005	Mt - Lake:Geol Lake Chmpln Bsn	
GEOL 055	Environmental Geology	
GEOL 062	Earth Env & Life Through Time	4
GEOL 101	Field Geology	4
GEOL 110	SU: Earth Materials	4
GEOL 291	Capstone: Fall Geol Seminars	1
GEOL 292	Capstone: Spring Geol Seminars	1

### RESTRICTIONS

Ineligible Majors: Geology (B.A., B.S.), Environmental Sciences: Geology (B.S.)

GEOL 007 will not count for the major or minor.

## GEOSPATIAL TECHNOLOGIES MINOR REQUIREMENTS

A total of 15 credits with at least 9 credits at or above the 100-level.

1 or more course(s) on Geospatial Technologies in the Disciplines		3-6
ENSC 130	Global Environmental Assessmnt	
CE 010	Geomatics	

CDAE 101	Drafting & Design: SketchUp II	
ENGR 002	Graphical Communication	
GEOG 081	Geospatial Cncpt&Visualization	
GEOG 144	Geomorphology	
or GEOL 151	Geomorphology	
GEOL 185	Geocomputing	
Courses in 2 or more categories (Geographic Information Systems, Remote Sensing, and Data Science)		6-9
Geographic Information Systems - Choose 1:		3
NR 143	Intro to Geog Info Systems	
or GEOG 184	Geog Info:Cncpts & Applic	
Remote Sensing - Choose 1:		3
NR 146	Remote Sensing of Natural Res	
or FOR 146	Remote Sensing of Natural Res	
GEOG 185	Remote Sensing	
Data Science - Choose from:		3-6
CS 008	QR: Intro to Web Site Dev	
CS 021	QR: Computer Programming I	
CS 087	QR: Intro to Data Science	
or STAT 087	QR: Intro to Data Science	
CS 110	QR: Intermediate Programming	
CS 142	QR: Advanced Web Design	
CS 148	QR: Database Design for Web	
STAT 087	QR: Intro to Data Science	
or CS 087	QR: Intro to Data Science	
1 or more advanced or capstone experience(s)		3-6
NR 242	Adv Geospatial Techniques	
NR 243	GIS Practicum	
GEOG 281	Adv Topic:GIS & Remote Sensing (b, Advanced GIS Applications)	
GEOG 281	Adv Topic:GIS & Remote Sensing (a, Satellite Climatology/Land Surface Applications)	
GEOG 287	Spatial Analysis	
CS 204	QR: Database Systems	
MATH 266	QR:Chaos,Fractals&Dynmcal Syst	
STAT 201	QR:Stat Computing&Data Anlysis	

## PRE/CO-REQUISITES

Variable, depending on upper level courses chosen.

## OTHER INFORMATION

Geography majors who undertake the Geospatial Technologies minor are required to complete 33 credits in Geography and 15 credits towards the Geospatial Technologies minor. GEOG 081 may be used to count towards both the major and the minor. However, students are still required to complete 33 credits of geography courses.

## DEPARTMENT OF GERMAN AND RUSSIAN

<http://www.uvm.edu/cas/germanrussian> (<http://www.uvm.edu/cas/germanrussian/>)

The Department of German and Russian provides students with excellent instruction in language, culture, and literature classes. The department offers the B.A. and M.A. degree in German, the B.A. degree in Russian, and two years of Hebrew instruction. Students move from the basics of the language through grammar, composition and conversation, to investigation of literary texts and media.

Faculty in the Department of German and Russian are recipients of numerous teaching awards, in addition to receiving national and international recognition for outstanding scholarship. Areas of particular strength include the Age of Goethe and Romanticism; German and Russian literature of the 19<sup>th</sup> and 20<sup>th</sup> centuries; Austrian literature; exile literature; German and Russian folklore and proverbs; and holocaust film and literature.

## MAJORS

### GERMAN AND RUSSIAN MAJORS

German B.A. (p. 287)

Russian B.A. (p. 288)

## MINORS

### GERMAN AND RUSSIAN MINORS

German (p. 288)

Russian (p. 288)

## GRADUATE

German M.A.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## GERMAN B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

**MAJOR REQUIREMENTS**

30 credits to include:

24 credits in German at the 100-level or higher, including:	27
3 credits in German at the 200-level	3
3 credits in world literature courses with significant German content	3

**RUSSIAN B.A.**

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

**MAJOR REQUIREMENTS**

9 courses (27 credit hours) of course work in Russian at the 100-level or above		
WLIT 118	Russian Lit in Translation	3
1 Russian history course		
1 additional course chosen from among the listings of the Russian and East European Studies (REES) program (this may be any course listed among the REES offerings, including History, Political Science, World Literature, Anthropology, and other allied fields)		

All course work to be chosen in consultation with the student's major advisor.

**GERMAN MINOR REQUIREMENTS**

15 credits to include:

12 credits in German at the 100-level or higher	12
3 credits in German at the 200-level	3

**RESTRICTIONS**

Ineligible Major: German

**PRE/CO-REQUISITES**

Through GERM 052	
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**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 1 course.

**RUSSIAN MINOR REQUIREMENTS**

20 credits to include:

RUSS 051	Intermediate Russian	4
RUSS 052	Intermediate Russian (or its equivalent)	4
4 courses in Russian at the 100- and/or 200-level		12

**RESTRICTIONS**

Ineligible Major: Russian

**PRE/CO-REQUISITES**

Through RUSS 002	
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**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 1 course.

**GLOBAL AND REGIONAL STUDIES PROGRAM**

<http://www.uvm.edu/cas/globalstudies> (<http://www.uvm.edu/cas/globalstudies/>)

For 45 years, UVM's Global and Regional Studies Program (previously known as Area & International Studies) has promoted regional and global awareness, international development programs, and exciting career opportunities. Global and Regional Studies is an interdisciplinary program that encompasses African Studies, Asian Studies, Canadian Studies, European Studies, Global Studies, Latin American and Caribbean Studies, Middle East Studies, Russian and East European Studies, and Vermont Studies. Rather than simply providing a window through which students can observe other regions of the world, the individual GRS programs seek to engage actively with those regions and their cultural, political, economic, environmental, and social issues. As such, graduates of our programs are prepared to enter exciting careers in government, business, law, journalism, or education.

**MAJORS****GLOBAL AND REGIONAL STUDIES MAJORS**

Asian Studies B.A. (p. 289)

European Studies B.A. (p. 289)

Global Studies B.A. (p. 291)

Latin American and Caribbean Studies B.A. (p. 292)

Russian and East European Studies B.A. (p. 292)

**MINORS****GLOBAL AND REGIONAL STUDIES MINORS**

African Studies (p. 292)

Asian Studies (p. 293)

Canadian Studies (p. 293)



European Studies (p. 293)

Global Studies (p. 293)

Latin American and Caribbean Studies (p. 294)

Middle East Studies (p. 294)

Russian/East European Studies (p. 294)

Vermont Studies (p. 295)

## ASIAN STUDIES B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

At least 30 credits in courses from the Asian Studies listing to include the following:

Completion of 4 semesters of study in 1 language from the subarea of concentration (e.g., Chinese, Japanese).	12-16
No more than 16 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 credit requirement	
At least 9 credits at the 100-level <sup>1</sup>	9
3 credits at the 200-level <sup>1</sup>	3
Additional Asian Studies courses at any level. <sup>1</sup>	2-6

<sup>1</sup> Courses outside of language study must be selected from at least 3 academic disciplines.

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 1 course as stipulated in the section on Distribution Requirements.

## EUROPEAN STUDIES B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

A total of 33 credits in approved European Studies courses, as described below, to include no more than 12 credits from any 1 discipline. Only 15 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.

EUROPEAN STUDIES SENIOR SEMINAR OR RESEARCH PROJECT		
All seniors must complete a senior project for at least 3 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/GRS 298, HON 234/HON 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 1 of the college's departments.		3
EUROPEAN CULTURE AND THOUGHT		
12 credits from the approved list to include 6 credits at the 100-level or higher.		12
ARTH 005	Western Art: Ancient - Medieval	
ARTH 006	Western Art: Renaissance-Modern	
ARTH 148	Greek Art	
ARTH 155	Topics in Medieval Art	
ARTH 158	Northern European 1400-1600	
ARTH 163	Italian High and Late Ren Art	
ARTH 165	Topics European Art 1600-1800	
ARTH 170	Topics in Modern Art	
ARTH 174	20th-Century Art	
ARTH 282	Seminar in Western Art (when the content is European)	
or ARTH 179 Issues in Contemporary Art		
CLAS 021	Greek History and Civilization	
CLAS 023	Classical Roman Civilization	
CLAS 024	Myths/Legends Trojan War	
CLAS 042	Mythology	
CLAS 161	The Divine Plato	
ENGS 021	Seminar in British Lit I	
ENGS 022	Seminar in British Lit II	
ENGS 027	Lit Western Trad I: Intg Humn	
ENGS 028	Lit Western Trad II: Intg Humn	
ENGS 102	Hist of English Language	
ENGS 131	Topics in Bible & Lit	
ENGS 135	Shakespeare	

ENGS 136	Topics in Shakespeare	
ENGS 137	Topics in Ren Lit & Culture	
ENGS 138	Milton	
ENGS 140	Survey Brit Lit to 1700	
ENGS 141	Restoration & 18thC Literature	
ENGS 143	Topics:18C,19C Brit Lit & Cul	
ENGS 144	Topics in Romanticism	
ENGS 145	Topics in Victorian Literature	
ENGS 221	Seminar in Literature to 1800	
ENGS 222	Seminar in Literature to 1800	
ENGS 241	Seminar in 19th Century Lit	
ENGS 242	Seminar in 19th Century Lit (when the content is European)	
FREN 141	French Lit in Context I	
FREN 142	French Lit in Context II	
FREN 237	Early French Women Writers	
FREN 266	Rev&React in 19th C Narrative	
FREN 269	La Belle Epoque	
FREN 275	20-C Lit - Society and Writers	
FREN 279	Women's Autobiographies	
FREN 292	Topics in French Culture	
GERM 122	20th C Culture & Civilization	
GERM 155	Topics in 18th-19th Cen Lit	
GERM 156	Topics in 20th-21st Cen Lit	
GERM 281	Sem in Lit Genre,Period,Theme	
GERM 282	Sem on Particular Author	
Greek: all courses above 100-level		
HS 017	German Literature:Translation	
HS 112	D2: History of Zionism to 1948	
HS 115	History of Poland	
HS 119	D2: Modern Jewish History	
HS 139	Modern Germany	
HS 180	Moral&Rel Persp on Holocaust	
HS 190	The Holocaust	
HS 191	World War II	
HS 227	Seminar in Modern Europe	
ITAL 121	Issues in Italian Culture	

ITAL 122	History of Italian Cinema	
ITAL 158	Early Italian Lit in Context	
Latin: all courses above 100-level		
MU 111	Music History & Literature I	
MU 112	Music History & Literature II	
PHIL 101	History of Ancient Philosophy	
PHIL 102	History of Modern Philosophy	
POLS 141	History of Political Thought	
POLS 142	History of Political Thought	
REL 124	Christianity	
REL 180	Moral&Rel Persp on Holocaust	
REL 224	Studies in Christianity	
SPAN 143	Spain: Diversity & Expansion	
SPAN 144	Spain: Monarchy to Democracy	
SPAN 237	Issues in Early Spanish Lit	
SPAN 291	Early Cultures of Spain	
THE 150	Hist I:Class/Med/Ren Thtr	
WLIT 017	German Lit in Translation	
WLIT 024	Myths & Legends of Trojan War	
WLIT 042	Mythology	
WLIT 117	German Lit in Translation	
European History and Society		
12 credits from the approved list to include 6 credits at the 100-level or higher:		12
CLAS 121	Greek History and Civilization	
CLAS 122	Roman History and Civilization	
FREN 131	French Civilization	
FREN 132	Contemporary France	
FREN 292	Topics in French Culture	
HS 139	Modern Germany	
HS 190	The Holocaust	
HS 191	World War II	
HS 227	Seminar in Modern Europe	
HST 013	Ideas in the Western Tradition	
HST 015	Early Europe	
HST 016	Modern Europe	
HST 021	Greek History and Civilization	

HST 022	Roman History and Civilization	
HST 109	The British Isles, 1300-1688	
HST 110	Britain since 1688	
HST 115	History of Poland	
HST 116	Medieval Mystics & Heretics	
HST 117	Medieval Urban Legends	
HST 121	Greek History and Civilization	
HST 122	Roman History and Civilization	
HST 125	The Renaissance	
HST 139	Modern Germany	
HST 167	London: A Cultural History	
HST 190	The Holocaust	
HST 191	World War II	
HST 224	Seminar in Medieval Europe	
HST 225	Seminar in Early Modern Europe	
HST 227	Seminar in Modern Europe	
European Language		
6 credits of a European language other than English at or above the 100-level. Students who fulfill 9 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.		6

## GLOBAL STUDIES B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

30 credits, including:

GRS 001	D2:SU:Intro to Global Studies	3
CORE COMPETENCY COURSES		
Choose 1 course from each of the 3 categories below:		
Political-Economic Perspectives on Globalization:		3
CDAE 002	D2:SU:World Food,Pop & Develop	
POLS 051	Intro International Relations	
POLS 071	Comparative World Politics	
EC 040	D2:SU:Econ of Globalization	
Human and Environmental Perspectives on Globalization:		3
ANTH 021	D2:SU: Cultural Anthropology	
GEOG 050	D2:SU:Global Envmnts& Cultures	

Humanities Perspectives on Globalization:		3
HST 009	D2: Global History to 1500	
HST 010	D2: Global History since 1500	
REL 020	D2: Comparing Religions	
REL 029	D2:Religion and Globalization	
WLIT 020	D2: Literatures of Globalizatn	
1 additional core course from any of the core competency options.		3
THEMATIC ELECTIVES		
Take 4 courses at the 100-level or above in 1 of the following concentrations. Special Topics, study abroad, and other courses may be added to these concentrations with the approval of an advisor.		12
Political-Economic		
CDAE 102	Sustainable Community Dev	
GEOG 150	D2:Geography of Africa	
GEOG 272	Adv Top:Space, Power, Identity	
EC 143	International Econ I: Trade	
EC 220	Macroecon & Finance w Writing	
HST 191	World War II	
POLS 150	International Security	
POLS 154	Internatl Political Economy	
POLS 259	Sem in International Relations	
SOC 112	D2: Global Deviance	
Human-Environment		
ANTH 173	D2: Fndns of Global Health	
ANTH 174	D2:Culture, Health and Healing	
ANTH 285	Anthropology of Food and Labor	
ENSC 130	Global Environmental Assessmnt	
ENVS 167	D2: Global Env History	
GEOG 145	SU: Geography of Water	
GEOG 148	Global Environmental Change	
GEOG 173	Political Ecology	
HLTH 105	D2:Cultural Health Care	
POLS 159	Int'l Environmental Governance	
Humanities		
ARTH 165	Topics European Art 1600-1800	
ENGS 182	D2:Colonial/Post-Col World Lit	
FTS 123	Global Studies in Film/TV	

REL 104	Mysticism, Shamanism & Possessn	
REL 255	Religion, Nation, and State	
SPAN 111	SU: Race, Identity & Migrant Labor	
SPAN 145	D2: LatAm: Colonialism & Resistnce	
SPAN 264	D1: Border Literatures	
WLIT 145	D2: Comparative Epic	
GRS 200	D2: Seminar in Global Studies	3
No more than 9 credits used toward the major may be taken from any 1 discipline.		
Students must complete 4 courses totaling at least 12 credits in a foreign language, at least 3 credits of which must be at the 100-level or above; or a minor in a foreign language. Students studying a language not regularly offered at UVM are exempt from the 100-level requirement.		

## LATIN AMERICAN AND CARIBBEAN STUDIES B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

30 credits including:

SPAN 145	D2: LatAm: Colonialism & Resistnce	3
SPAN 146	D2: LatAm: Revolutn & Globalizatn	3
MU 014	D2: Music of Latin Am & Carib	3
HST 063	D2: Modern Latin Amer History	3
POLS 174	D2: Latin American Politics	3
An additional 15 credits from related courses (see LACS Schedule of Courses) chosen in consultation with an adviser		15

Students interested in pursuing in-depth study of a non-Spanish speaking area of Latin America or the Caribbean may substitute with the director's permission an equivalent level of the relevant language (other than English) for the Spanish requirement.

Many students in the Latin American and Caribbean Studies program participate in study abroad programs. Courses from these programs may be substituted for equivalent UVM courses with approval of the director. At least 15 of the 30 credits used to satisfy this major must be taken at the University of Vermont.

## RUSSIAN AND EAST EUROPEAN STUDIES B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

30 credits, including:

Required Courses		
Choose 2 of the following:		6
EC 011	Principles of Macroeconomics	
or EC 012	Principles of Microeconomics	
EC 116	Comparative Economic Systems	
HST 115	History of Poland	
POLS 172	Politic & Society in Russian Fed	
WLIT 118	Russian Lit in Translation	
2 courses at the 100-level or higher in Russian		6
6 additional courses with Russian and East European content chosen in consultation with an advisor in the major		18

The program also offers an interdisciplinary Individually Designed Major (IDM) 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 (35 credits)

2 courses in Russian at the intermediate level	
4 courses in economics including EC 011 or EC 012	
1 Russian and East European Studies course other than those in economics	
2 courses in business administration	
2 approved electives at the 100-level or higher	

## AFRICAN STUDIES MINOR REQUIREMENTS

A total of 18 credits (6 courses) must be completed. These must include the following:

At least 3 core courses from the following list:		9
ENGS 061	D2: Intro to African Literature	
GEOG 150	D2: Geography of Africa (presumes completion of prerequisite)	
HST 041	D2: Africa C-1870 to Present	
POLS 177	D2: Pol Systs of Trop Africa (presumes completion of prerequisite)	
REL 026	D2: Religions in Africa	
Other Africa-focused survey courses approved by the Director of the African Studies Program, including equivalencies obtained while studying abroad		



3 additional courses from the list of courses appearing under African Studies for the current semester, or related courses approved by the director. The latter include courses taken while studying abroad and other courses deemed by the director to have at least 35 percent Africa-related content.	9
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## OTHER INFORMATION

At least 9 credit hours must be completed from courses at or above the 100-level.

No more than 6 credit hours used toward the minor may be taken from any 1 discipline.

## ASIAN STUDIES MINOR

### REQUIREMENTS

18 credits in Asian Studies including:

At least 2 courses in an Asian language	
At least 1 course in each of 2 other academic disciplines	
At least 9 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.

### RESTRICTIONS

Ineligible Major: Asian Studies

### PRE/CO-REQUISITES

1 or 2 intro level courses may be necessary in order to get into a 100-level Asian Studies course.

## CANADIAN STUDIES MINOR

### REQUIREMENTS

18 credits including:

HST 065	History of Canada	3
FREN 051	Intermediate I (or above or its equivalent)	3
4 additional courses from the Canadian Studies listings:		12
No more than 3 courses may be in any 1 academic discipline		
9 credits must be taken at or above the 100-level		

### PRE/CO-REQUISITES

Through FREN 002 or equivalent.	
Intro level courses for varying subject areas to get to the 100-level in course offerings.	

## EUROPEAN STUDIES MINOR

### REQUIREMENTS

18 credits to include:

3 credits at the 200-level from both European culture and thought and European history and society areas	6
6 credits at the 100-level or above from the European language area	6

### RESTRICTIONS

Ineligible Major: European Studies

### PRE/CO-REQUISITES

Through 052 in a European language	
Intro and intermediate level courses in varying subject areas to get to the appropriate 200-level in 2 different areas	

### 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 1 course.

## GLOBAL STUDIES MINOR

### REQUIREMENTS

18 credits, including:

GRS 001	D2:SU:Intro to Global Studies	3
CORE COMPETENCY COURSES		
2 of the following courses:		6
ANTH 021	D2:SU: Cultural Anthropology	
CDAE 002	D2:SU:World Food,Pop & Develop	
EC 040	D2:SU:Econ of Globalization	
GEOG 050	D2:SU:Global Envmnts& Cultures	
HST 009	D2: Global History to 1500	
HST 010	D2: Global History since 1500	
POLS 051	Intro International Relations	
POLS 071	Comparative World Politics	
REL 020	D2: Comparing Religions	
REL 029	D2:Religion and Globalization	
WLIT 020	D2: Literatures of Globalizatn	
THEMATIC ELECTIVES		
Take 3 courses at the 100-level or above in 1 of the following concentrations. Special Topics, study abroad, and other courses may be added to these concentrations with the approval of an advisor.		9

Political-Economic	
CDAE 102, GEOG 150, GEOG 272, EC 143, EC 220, HST 191, POLS 150, POLS 154, POLS 259, SOC 112	
Human-Environment	
ANTH 173, ANTH 174, ANTH 285, ENSC 130, ENVS 167, GEOG 145, GEOG 148, GEOG 173, HLTH 105, POLS 159	
Humanities	
ARTH 165, ENGS 182, FTS 123, REL 104, REL 255, SPAN 111, SPAN 145, SPAN 264, WLIT 145	
No more than 6 credits used toward the major may be taken from any 1 discipline.	

## RESTRICTIONS

Ineligible Major: Global Studies

## LATIN AMERICAN AND CARIBBEAN STUDIES MINOR

### REQUIREMENTS

18 credits (6 courses)

6 credits of Spanish at the level of SPAN 052 or above *	6
12 credits of courses eligible for LACS credit (see LACS Schedule of Courses) including at least 1 course in each of 2 other academic disciplines.	12
At least 9 credits of the minor must be at the 100 level or above.	

Many students in the Latin American and Caribbean Studies program participate in study abroad programs. Courses from these programs may be substituted for equivalent UVM courses with approval of the director. At least 9 of the 18 credits used to satisfy this minor must be taken at the University of Vermont.

\*Students interested in pursuing in-depth study of a non-Spanish speaking area of Latin America or the Caribbean may substitute with the director's permission an equivalent level of the relevant language (other than English) for the Spanish requirement.

Ineligible Majors: Latin American and Caribbean Studies

## PRE/CO-REQUISITES

Through SPAN 051	
Intro and intermediate level courses for varying subject areas to get to the appropriate level of 100 or 200	

## MIDDLE EAST STUDIES MINOR

### REQUIREMENTS

18 credits (6 courses) related to the Middle East.

All students pursuing the minor must take:	3
HST 045	D2: Hst Islam&Middle E to 1258
or HST 046	D2: Hst Islam&Mid E since 1258
The remaining 5 courses can be chosen from the list of Middle East Studies courses offered each semester. At least 3 of these 5 courses should be 100-level (intermediate) or higher	15

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.

## PRE/CO-REQUISITES

Intro and intermediate level courses for varying subject areas to get to the appropriate level of 100 or 200.

## RUSSIAN AND EAST EUROPEAN STUDIES MINOR

### REQUIREMENTS

20 credits, including:

RUSS 051	Intermediate Russian	4
RUSS 052	Intermediate Russian (or its equivalent)	4
4 courses from the following:		12
EC 011	Principles of Macroeconomics	
or EC 012	Principles of Microeconomics	
EC 116	Comparative Economic Systems	
HST 115	History of Poland	
POLS 172	Politic&Society in Russian Fed	
WLIT 118	Russian Lit in Translation	

## RESTRICTIONS

Ineligible Major: Russian and East European Studies

## PRE/CO-REQUISITES

Through RUSS 002	
Intro level courses for varying subject areas to get to the appropriate level of 100	

## VERMONT STUDIES MINOR

### REQUIREMENTS

18 credits (at least 5 courses), of which at least 9 credits must be at the 100-level or above. As an interdisciplinary minor, it must include at least 15 credits from departments outside the major.

VS 052	Sustainable Vermont	3
Choose 3 of the following:		9-10
GEOL 055	Environmental Geology	
POLS 123	The Vermont Political System	
HST 158	History of New England	
VS/HST 184	Vermont History	
2 additional courses from an approved list chosen in consultation with the Vermont Studies advisor		6

## HEALTH AND SOCIETY

<https://www.uvm.edu/cas/healthsociety> (<https://www.uvm.edu/cas/healthsociety/>)

Health and Society is an interdisciplinary cross-college program that brings together an array of social science approaches to address critical questions concerning health, healing, and health care in human populations. Program faculty and students examine the many ways in which human health, healing, and health care are defined, perceived, and enacted, and in which access to health and health care are distributed, within and across populations.

### MAJORS

#### HEALTH AND SOCIETY MAJOR

Health and Society B.A. (p. 295)

### MINORS

#### HEALTH AND SOCIETY MINOR

Health and Society (p. 296)

## HEALTH AND SOCIETY B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

33 credits, including:

3 core introductory courses:		
HSCI 021	Introduction to Public Health	3
HSOC/SOC 054	Health Care in America	3
HSOC/ANTH 089	D2:SU:Global Health Devl & Div	3

1 100-level methods course:		3-4
SOC 100	Fund of Social Research	
STAT 111	QR: Elements of Statistics	
STAT 141	QR:Basic Statistical Methods 1	
1 or 2 100-level College of Arts and Sciences (CAS) courses:		3-6
ANTH 172/ GSWS 165	D2:Gender Sex Race & the Body	
ANTH 173/ HSOC 103/ HSCI 103	D2: Fndns of Global Health	
ANTH 174/ SOC 155	D2:Culture, Health and Healing	
SOC 120	Aging in Modern Society	
SOC/GSWS 140	Gender, Sexualities & Medicine	
SOC 157	QR:Population Health Research	
Up to 1 100-level non-CAS course:		0-3
EDHE 146	Personal Health	
ENVS/ HLTH/NR 107	SU: Human Health & Envirnmnt	
ENVS 181	D1:Environmental Justice	
HLTH 105	D2:Cultural Health Care	
HLTH 155	D1:Racism & Health Disparities	
HSCI 102	Epidemics-Dyn. of Inf. Disease	
HSCI 130	Health Promotion	
HSCI 160	Health Communication	
NFS 114/ FS 103	Human Health in the Food Syst	
NFS 143	Nutrition in the Life Cycle	
1 or 2 200-level CAS courses. Of their 200-level courses, students are encouraged to take 1 methods course.		3-6
ANTH/BIOL 241	Human Diversity and Evolution	
ANTH 288	Anthro Research Global Health	
PSYS 276	D1:Cross-Cultrl Psyc:Clin Pers	
PSYS 279	Intro to Health Psychology	
SOC 223/ GSWS 250	Sociology of Reproduction	
CAS Methods Courses:		
ANTH/BIOL 242	Research in Hum Biol Diversity	

ANTH 288	Anthro Research Global Health	
ANTH 290	Ethnographic Field Methods	
GEOG 287	Spatial Analysis	
POLS 230	VT Legislative Research Svc	
SOC 274	Qualitative Research Methods	
SOC 275	Meth of Data Anyl in Soc Rsch	
Up to 1 200-level non-CAS course. Of their 200-level courses, students are encouraged to take 1 methods course.		0-3
CSD/EDSP 274	D2: Culture of Disability	
NFS 244	Nutr in Hlth & Disease Prevntn	
Non-CAS Methods Courses:		
CDAE 250	Applied Research Methods	
EDFS 209	Intro to Research Methods	
HSCI 240	Project Planning and Eval.	
STAT 200	QR: Med Biostat&Epidemiology	
9 additional credits drawn from the list of HSOC electives posted each semester, at least 3 credits of which must be taken at the 100-level or above. May include any of the courses listed above that have not already been counted toward your degree (except additional 100-level methods courses) and/or any courses listed as HSOC elective courses.		9

## RESTRICTIONS

For interdisciplinary exposure, no more than 21 credits of courses can come from a single course prefix.

## OTHER INFORMATION

To meet the CAS 84-hour rule for cross-college majors, HSOC majors must take at least 84 of their 120 credits in CAS-designated courses. To help meet this requirement, pay attention to which HSOC courses count toward the CAS hour rule as listed on HSOC advising documents each semester. Use degree audit tools to track overall progress toward at least 84 CAS-designated course credits.

No more than 1 course may overlap between a student's major and minor, or between a student's 2 majors in a double major.

Please be aware that some courses have extra prerequisites.

Navigating a cross-college major, multiple majors, or dual degrees can be complex, so all Health and Society majors should meet with an academic advisor to ensure their course plans are suitable.

Students who are pre-health track should take (BIOL 001 and BIOL 002) or (BCOR 011 and BCOR 012) or (BCOR 021 and BCOR 103) as their Natural Science distribution.

## HEALTH AND SOCIETY MINOR REQUIREMENTS

18 credits, including:

HSCI 021	Introduction to Public Health	3
1 of the following core introductory courses:		3
ANTH/HSOC 089	D2:SU:Global Health Devl & Div	
SOC/HSOC 054	Health Care in America	
1 methods course at the 100-level:		3-4
SOC 100	Fund of Social Research	
STAT 111	QR: Elements of Statistics	
STAT 141	QR:Basic Statistical Methods 1	
9 additional credits in HSOC courses, with 6 of those credits at the 100-level or above. These may include any of the introductory courses listed above not already counted toward your minor, any courses listed as options for the HSOC major, and/or listed HSOC elective courses.		9

## RESTRICTIONS

Ineligible Major: Health and Society

For interdisciplinary exposure, no more than 12 credits of courses can come from a single course prefix.

## OTHER INFORMATION

For students with majors in the College of Arts and Sciences, no more than 1 course may overlap with a student's major(s) or other minor(s). If the major is outside the College of Arts and Sciences, check with the home college for information on overlap, and whether a course may be counted toward both major and minor requirements.

Students pursuing the Health Sciences major, the Global Health Concentration in the Anthropology major, and/or the Health and Healing track in the Environmental Studies major should be especially mindful of the course overlap restrictions in the college of their major.

If pursuing an Anthropology major, ANTH courses used for the HSOC minor are included in the 45-credit major rule. If pursuing an Environmental Studies major, ENVS courses used for the HSOC minor are included in the 45-credit major rule.

In taking intermediate and/or upper level courses, HSOC minors need to be mindful of prerequisites and plan ahead accordingly.

HSOC minors are encouraged to discuss their minor with both the HSOC minor advisor and their major advisor in order to tailor a plan of study that fits their strengths and interests.

## DEPARTMENT OF HISTORY

<https://www.uvm.edu/cas/history/>



The History Department at the University of Vermont is large enough to offer a wide range of courses and small enough to give students individual attention. Many of our faculty have earned international reputations for their contributions to historical scholarship and have held leadership positions in fields as diverse as Islamic law, the history of gender and sexuality, Holocaust Studies, Russian film, and the history of slavery. At the same time, they are all dedicated teachers, offering innovative and exciting classes at all levels.

Majors are required to take a class on historical methods and courses in three areas: the Americas, Europe, and the non-Western world. All students in the department are encouraged, if possible, to spend a semester or year studying abroad. A capstone of the major is the senior research seminar, an opportunity to engage deeply with the work of other historians and conduct independent research under faculty direction.

History students master essential life skills, most notably the ability to reach conclusions based upon the analysis of complex and often contradictory evidence, and the skill to articulate these findings clearly and persuasively in written form and oral presentations.

## HISTORIC PRESERVATION PROGRAM

<https://www.uvm.edu/cas/historicpreservation> (<https://www.uvm.edu/cas/historicpreservation/>)

Since its founding in the 1970s, the University of Vermont Historic Preservation Program has offered a graduate degree in Historic Preservation and courses to upper-level undergraduate students. Enrollment in these courses may require instructor permission or registration overrides.

Recognizing the diverse contributions that succeeding generations have made to the historic environment, the program regards historic preservation as an impartial form of management which keeps these contributions in balance. The primary education goal is the development of a long-term professional perspective bolstered by training in appropriate skills.

## MAJORS

### HISTORY MAJOR

History B.A. (p. 297)

## MINORS

### HISTORY MINOR

History (p. 298)

## GRADUATE

History AMP

History M.A.

Historic Preservation AMP

Historic Preservation M.S.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## HISTORY B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

33 credits to include:

1 survey course at the introductory level.	3
Select from HST 009 through HST 067 <sup>1</sup>	
1 history methods course:	3
HST 101      History Methods	
At least 15 credits of HST at or above the 100-level	15
At least 3 credits of HST at or above the 200-level	3
9 additional credits in HST courses at any level	9
Students must complete 1 of the following concentrations:	
Americas: at least 15 credits in American history courses, including at least 1 200-level seminar and at least 1 course in Canadian or Latin American history; at least 6 credits in European history; and at least 6 credits in Africa/Asia/Middle East/Global history	
Europe: at least 15 credits in European history courses, including at least 1 200-level seminar; at least 6 credits in American history; and at least 6 credits in Africa/Asia/Middle East/Global history	
Africa/Asia/Middle East/Global: at least 15 credits in African, Asian, Middle Eastern, and/or Global history courses, including at least 1 200-level seminar; at least 6 credits in American history; and at least 6 credits in European history	
Courses count toward the concentrations as follows:	
Americas:	
HST 011, HST 012, HST 017, HST 072, HST 080, HST 102, HST 153, HST 158, HST 172, HST 177, HST 182, HST 184, HST 187, HST 188, HST 191, HST 201, HST 240, HST 271, HST 275, HST 280, HST 284	
Canada and Latin America:	
HST 063, HST 065, HST 162, HST 165, HST 265	
Europe:	
HST 013, HST 015, HST 016, HST 021, HST 022, HST 103, HST 109, HST 110, HST 111, HST 112, HST 115, HST 116, HST 117, HST 118, HST 119, HST 121, HST 122, HST 125, HST 136, HST 139, HST 167, HST 190, HST 191, HST 224, HST 225, HST 226, HST 227, HST 240, HST 280	
Africa/Asia/Middle East/Global:	
HST 009, HST 010, HST 041, HST 045, HST 046, HST 055, HST 067, HST 104, HST 141, HST 142, HST 144, HST 145, HST 146, HST 148, HST 150, HST 151, HST 156, HST 191, HST 209, HST 240, HST 250, HST 252	

Specific sections of HST 095, HST 096, HST 195, HST 196, HST 295, HST 296, and other HST courses may count toward the concentrations; see the department's website.	
Restrictions:	
AP or IB Credit: No more than 6 credits of Advanced Placement (AP) or International Baccalaureate (IB) History can count toward the 33 credits required for the major, and no more than 3 credits of AP or IB History can count toward any 1 of the major's geographic requirements (Americas, Europe, Africa/Asia/Middle East/Global).	
Internships, Research, Thesis, Independent Study Credit: No more than 6 credits of internships, undergraduate research, thesis credits, and/or independent studies can count toward the 33 credits required for the major.	
At least 17 of the 33 credits used to satisfy this major must be taken at the University of Vermont.	

- <sup>1</sup> With the approval of the department, some sections of HST 072 through HST 096 may be counted toward this requirement.

## HISTORY MINOR

### REQUIREMENTS

18 credits to include:

3 credits of HST at the introductory level	3
9 credits at the 100- or 200-level	9
At least 6 credits must be in 1 of the concentrations (the Americas, Europe, or Africa/Asia/Middle East/Global) and at least 6 credits must be in a second concentration.	6
Courses count toward the concentrations as follows:	
Americas:	
HST 011, HST 012, HST 017, HST 063, HST 065, HST 072, HST 080, HST 102, HST 153, HST 158, HST 162, HST 165, HST 172, HST 177, HST 182, HST 184, HST 187, HST 188, HST 191, HST 201, HST 240, HST 265, HST 271, HST 275, HST 280, HST 284	
Europe:	
HST 013, HST 015, HST 016, HST 021, HST 022, HST 103, HST 109, HST 110, HST 111, HST 112, HST 115, HST 116, HST 117, HST 118, HST 119, HST 121, HST 122, HST 125, HST 136, HST 139, HST 167, HST 190, HST 191, HST 224, HST 225, HST 226, HST 227, HST 240, HST 280	
Africa/Asia/Middle East/Global:	
HST 009, HST 010, HST 041, HST 045, HST 046, HST 055, HST 067, HST 104, HST 141, HST 142, HST 144, HST 145, HST 146, HST 148, HST 150, HST 151, HST 156, HST 191, HST 209, HST 240, HST 250, HST 252	
Specific sections of HST 095, HST 096, HST 195, HST 196, HST 295, HST 296, and other HST courses may count toward the concentrations; see the department's website.	

No more than 6 credits of Advanced Placement (AP) or International Baccalaureate (IB) History can count toward the 18 credits required for the minor, and no more than 3 credits of AP or IB History can count toward any 1 of the minor's geographic requirements (Americas, Europe, Africa/Asia/Middle East/Global).	
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## RESTRICTIONS

Ineligible Major: History

## HOLOCAUST STUDIES PROGRAM

### OVERVIEW

<https://www.uvm.edu/cas/holocauststudies> (<https://www.uvm.edu/cas/holocauststudies/>)

The study of the Holocaust offers more than an opportunity to acquire knowledge about a singular historical event. It provides an opportunity to examine a range of broader issues, such as antisemitism, racism, xenophobia, militarism, homophobia, and the formation and functioning of stereotypes. It provides important insight into behaviors such as obedience to authority, conformity, altruism, and civil courage. A minor in Holocaust Studies is an excellent complement to any major at UVM.

## MINORS

### HOLOCAUST STUDIES MINOR

Holocaust Studies (p. 298)

## HOLOCAUST STUDIES MINOR

### REQUIREMENTS

18 credits of relevant course work:	18
At least 9 of which must be at the 100-level or above	
Must Include HST 139 and HST 190	
No more than 3 credits may come from courses also used to fulfill a major	

## PRE/CO-REQUISITES

HST 016	Modern Europe	3
2 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 1 course.

## INDIVIDUALLY DESIGNED

### OVERVIEW

[https://www.uvm.edu/cas/individually\\_designed\\_major/minor\\_idm](https://www.uvm.edu/cas/individually_designed_major/minor_idm) ([https://www.uvm.edu/cas/individually\\_designed\\_major/minor\\_idm/](https://www.uvm.edu/cas/individually_designed_major/minor_idm/))

Designing an Individually Designed Major (IDMajor) or Individually Designed Minor (IDMinor) is an opportunity to receive credit for pursuing a course of study of your own choice sponsored by a faculty member.

In the College of Arts and Sciences (CAS), the IDMajor and IDMinor are nondepartmental, interdisciplinary majors and minors for those students whose academic interests in the arts and sciences are not met by the programs currently offered in CAS. It is not CAS's intention that such a special major or minor be a program of narrow professional training. Rather, the IDMajor must lead to an intensive investigation of some broad area of human knowledge that is not presently defined by a single departmental discipline in CAS. Similarly, the course of study for an IDMinor should constitute a coherent and intensive concentration of courses consistent with the philosophy underlying liberal education.

## MAJORS

### INDIVIDUALLY DESIGNED MAJOR

Individually Designed B.A. (p. 299)

## MINORS

### INDIVIDUALLY DESIGNED MINOR

Individually Designed (p. 299)

### INDIVIDUALLY DESIGNED B.A.

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 3 credit tutorial for which they complete a paper or an equivalent project which demonstrates the essential coherence of the major. A college Honors project (6 credits) may be substituted for the tutorial requirement. An application to pursue an IDM should be approved by the CAS Associate Dean responsible for IDM advising, subject to the oversight of the CAS Curriculum Committee, before the end of the candidate's junior year. For more information, contact [cas@uvm.edu](mailto:cas@uvm.edu).

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

36 hours and no more than 45 credit hours total to include:	
Core: 18 credits at 100 level or above	18
Electives: 18 credit hours.	18

In order to accommodate the possibility that selected courses may not be offered at a given time, students should submit 1 alternate course in the core and 2 alternate courses in the elective list. All core and elective courses including alternates must be in courses offered by the College of Arts and Sciences.

6 of these credit hours must be at the 200-level

Senior Project: The major must include a 3 credit senior project, taken as Undergraduate Research in the faculty sponsor's department, in which the student submits to a Committee of 3 or more professors a paper or an equivalent project that demonstrates the essential coherence of the IDM. The evaluation Committee will include the student's advisor and at least 1 representative from another academic department with courses included in the core of the IDM. This requirement may be replaced with 6 credits of College Honors.

3

## RESTRICTIONS

No more than 12 credits that count for the major can come from courses outside the College of Arts and Sciences.

The department of the student's faculty sponsor shall be considered the major's department; the student cannot take a minor in that department.

Consistent with the College of Arts and Sciences curricular policies, no more than 1 course included in the major can be in the minor.

No more than 18 credits in the proposed major may be completed or begun at the time of application.

No more than 6 hours of Readings and Research may be applied toward the completion of an IDM.

## INDIVIDUALLY DESIGNED MINOR

The Independently Designed Minor is a non-departmental, interdisciplinary option for students with academic interests that are not met by the minors currently offered. 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. At the same time, an IDM should not consist of a grouping of loosely associated courses; rather it should be a carefully crafted, coherent curriculum allowing the student to concentrate in a unique area of study. An application to pursue an IDM should be approved by the CAS Associate Dean responsible for IDM advising, subject to the oversight of the CAS Curriculum Committee, before the end of the candidate's junior year.

## REQUIREMENTS

18 hours to include:

Core: 9 credits at the 100 level or above	9
Electives: 9 credit hours	9
In order to accommodate the possibility that selected courses may not be offered at a given time, students should submit 1 alternate course in the core and 1 alternate course in the elective list.	

## RESTRICTIONS

No more than 9 credits completed prior to application for the ID minor may be applied to the 18 credits required for the proposed minor.

No courses in the student's Arts and Sciences major department may be applied to the 18 credits required for the minor.

## OTHER INFORMATION

No more than 9 credits in the proposed minor may be completed or begun at the time of application.

No more than 6 credits that count for the minor can come from courses outside the College of Arts and Sciences.

Consistent with the College of Arts and Sciences curricular policies, no more than 1 course included in the major can be in the minor.

## LINGUISTICS

### OVERVIEW

<https://www.uvm.edu/cas/linguistics> (<https://www.uvm.edu/cas/linguistics/>)

Linguistics is the study of language: its structure and how it is used on a day-to-day basis. Students in the Linguistics program have access to an interdisciplinary array of courses taught by professors who specialize in a range of language topics including formal grammar, language and culture, language acquisition, cognition, and bilingualism. Since most fields require a working knowledge of language in oral and written communication, a major or minor in Linguistics offers an excellent combination with many other concentrations at UVM.

The Linguistics Program also offers a certificate in Teaching English to Speakers of Other Languages (TESOL), a five-course sequence that provides academic coursework as well as teaching experience. While it is not a substitute for a M.S. in TESOL or a teaching certification, it does prepare students for graduate work in the field, teaching English in other countries, and working with speakers of other languages in general.

## MAJORS

### LINGUISTICS MAJOR

Linguistics Major (p. 300)

## MINORS AND CERTIFICATES

### LINGUISTICS MINORS AND CERTIFICATES

Linguistics (p. 301)

Teaching English to Speakers of Other Languages (p. 301) - Undergraduate Certificate

## LINGUISTICS B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

This page also includes specific requirements for the Linguistics concentrations:

Sociolinguistics Concentration (p. 300)

Psycholinguistics Concentration (p. 300)

## MAJOR REQUIREMENTS

33 credits, including:

LING 080	Introduction to Linguistics	3
LING 160	Introduction to Phonology	3
LING 165	Phonetic Theory and Practice	3
LING 166	Introduction to Syntax	3
LING 250	Linguistics Capstone Seminar	3
Choose 1 of the following:		3
LING 158	Introduction to Morphology	
LING 163	QR:Introduction to Semantics	
LING 167	Historical Linguistics	
LING 168	Introduction to Pragmatics	
6 credits of linguistics electives		6
9 credits of concentration courses		9

At least 1 elective or concentration course must be at the 200-level. The first 3 credits of an undergraduate thesis may count toward the major. No more than 3 credits may come from classes also used to fulfill the student's minor or a second major.

### Sociolinguistics Concentration

LING 162	American English Dialects	3
LING 176	D1: African American English	3
LING 178	Sociolinguistics	3
100-level approved elective		3

### Psycholinguistics Concentration

CSD 094	Dev of Spoken Language	3
LING 171	Intro to Psycholinguistics	3
LING 177	Second Language Acquisition	3
LING 280	Memory & Language Learning	3

Additional concentration courses may be substituted with the approval of a linguistics faculty member.



## LINGUISTICS MINOR

### REQUIREMENTS

18 credits, to include:

LING 080	Introduction to Linguistics	3
6 credits of Linguistics core courses chosen from the following:		6
LING 158	Introduction to Morphology	
LING 160	Introduction to Phonology	
LING 165	Phonetic Theory and Practice	
LING 166	Introduction to Syntax	
LING 168	Introduction to Pragmatics	
9 additional credits of Linguistics courses		9
Other relevant courses may be chosen with the consultation of a Linguistics minor advisor		
Of these 15 credits, at least 9 credits must be at the 100-level or above		
No more than 3 credits may come from courses also used to fulfill the student's major		

### PRE-CO-REQUISITES

PSYS 053 or PSYS 150 (or permission) required for CSD 208	
Foreign language courses 001, 002, 051 and 052 are required for upper level courses	

## TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES UNDERGRADUATE CERTIFICATE

### REQUIREMENTS

16 credits, including:

LING 080	Introduction to Linguistics	3
LING 081	Structure of English Language	3
LING 170	TESOL and Applied Linguistics	3
LING 177	Second Language Acquisition	3
LING 270	Techniques & Procedures in ESL	4

### RESTRICTIONS

No more than 2 classes may overlap between the TESOL certificate and the ELL endorsement (CESS).

No more than 2 classes may overlap between the TESOL certificate and the Linguistics major or the Linguistics minor.

## MATHEMATICS AND STATISTICS IN THE COLLEGE OF ARTS AND SCIENCES

<https://www.uvm.edu/cems/mathstat> (<https://www.uvm.edu/cems/mathstat/>)

The Department of Mathematics and Statistics resides in the College of Engineering and Mathematics Sciences. The College of Arts and Sciences offers a B.A. in Mathematics while CEMS offers a B.S. in Mathematics.

### COLLEGE OF ARTS AND SCIENCES MATHEMATICS MAJOR

Mathematics is an independent field of study valued for precision of thought and intrinsic beauty, as well as a rich source of techniques and methods with infinite practical applications. The Department takes great pride in making sure that both of these aspects of mathematics are well represented in the curriculum. Students are encouraged to pursue their talent for finding innovative solutions to complex problems. Many also acquire expertise in other fields, such as physics, chemistry, biology, medicine, engineering, and computer science.

UVM's Mathematics and Statistics Department keeps its classes small, allowing close student-faculty interactions. Talented faculty members teach all levels, from introductory to advanced courses, while also editing major international journals, engaging in research, and writing fundamental textbooks used all over the world. Students go into such diverse fields as computer science, business, law, and government organizations such as the National Security Agency.

Majors may pursue their degrees either through the University's College of Engineering and Mathematical Sciences (B.S.) or the College of Arts and Sciences (B.A.).

### MAJORS

#### MATHEMATICS AND STATISTICS MAJOR

Mathematics B.A. (p. 301)

### GRADUATE

Mathematics AMP

Mathematics M.S.

Mathematics M.S.T.

Mathematical Sciences Ph.D.

Statistics AMP

Statistics M.S.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

### MATHEMATICS B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

As part of the Bachelor of Arts degree in the College of Arts and Sciences, mathematics majors may choose from 2 concentrations: Mathematics or Statistics.

## MAJOR REQUIREMENTS

### Mathematics Concentration

MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
MATH 121	QR: Calculus III	4
MATH 052	QR: Fundamentals of Mathematics	3
MATH 124	QR: Linear Algebra	3
18 additional credits in mathematics/statistics courses at the 100-level or higher, with at least 12 credits numbered 200 or higher		18

### Statistics Concentration

33 credits of mathematics/statistics courses numbered MATH 021 or higher, including:		33
MATH 121	QR: Calculus III	
MATH 124	QR: Linear Algebra	
STAT 141	QR: Basic Statistical Methods 1	
or STAT 143	QR: Statistics for Engineering	
or STAT 211	QR: Statistical Methods I	
STAT 151	QR: Applied Probability	
or STAT 251	QR: Probability Theory	
STAT 201	QR: Stat Computing & Data Analysis	
STAT 221	QR: Statistical Methods II	
STAT 241	QR: Statistical Inference	
or STAT 261	QR: Statistical Theory	
STAT 281	Capstone Experience	
or STAT 293	Undergrad Honors Thesis	
At least 12 credits must be at the 200-level or higher.		

## DEPARTMENT OF MUSIC

### OVERVIEW

<http://www.uvm.edu/cas/music> (<http://www.uvm.edu/cas/music/>)

Studying music and dance at the University of Vermont will capture students' imaginations, whether their interests lie in playing in an ensemble; taking private lessons; or studying music theory, world music, composition, jazz, music education or dance.

## MUSIC

The University of Vermont offers two undergraduate degrees in music: one through the College of Arts and Sciences, and one through the College of Education and Social Services.

The B.A. degree offers concentrations in Classical Performance, Composition/Theory, Literature/History, Jazz Studies, and Music Technology and Business. This program offers a strong foundation in all of the areas of music and requires involvement in all aspects of the discipline.

The B.S. degree in Music Education prepares students for careers as licensed public school music teachers.

## MAJORS

### MUSIC MAJORS

Music B.A. (p. 302)

## MINORS AND CERTIFICATES

### MUSIC MINORS AND UNDERGRADUATE CERTIFICATES

Community Music: Organ (p. 305) Undergraduate Certificate

Music (p. 305)

Music Technology and Business (p. 306)

Musical Theatre (p. 307)

## MUSIC B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

In the Bachelor of Arts program, music majors may choose from 5 concentrations:

Concentration in Music History and Literature (p. 303)

Concentration in Music Performance (Classical) (p. 303)

Concentration in Music Technology and Business (p. 303)

Concentration in Composition and Theory (p. 304)

Concentration in Jazz Studies (p. 305)

## MAJOR REQUIREMENTS

All students interested in majoring in music must first pass a Level II Jury on an instrument or voice. With the exception of the Music Technology and Business concentrators, the Level II Jury must be passed before declaring the major. Prior to graduation, Music Technology and Business concentrators must pass the Level II Jury, and all other music majors must pass a Level III Jury (attaining an intermediate level on their principal instrument or voice). In addition, Jazz Studies and Classical Music Performance concentrators must pass a Level IV Jury prior to their Senior Recital. Except for Jazz

Studies and Music Technology and Business concentrators, all majors must have or acquire piano skills sufficient to pass the piano proficiency examination. The piano proficiency exam must be passed prior to enrolling in the final capstone course (senior recital or senior project).

### Concentration in Music History and Literature

The Bachelor of Arts degree in Music, with a concentration in Music History and Literature, is designed for students who wish to pursue this area of music within a liberal arts context. Admission through Level II audition.

40 credits, including:

Music History and Literature		
MU 111	Music History & Literature I	3
MU 112	Music History & Literature II	3
6 additional credits in music history and literature at the 100-level or higher.		6
MU 211	Senior Music History Project	1
Music Theory		
MU 109	Harmony and Form I	3
MU 101	Harmony and Form Lab I	1
MU 110	Harmony and Form II	3
MU 102	Harmony and Form Lab II	1
MU 209	Harmony and Form III	3
MU 154	Harmony and Form Lab III	1
MU 210	Harmony and Form IV	3
MU 156	Harmony and Form Lab IV	1
Performance		
8 credits in private lessons and/or performing ensemble, in any combination. Choose from the following:		8
MUL 134	Private Lessons: Music Majors	
MUL 234	Private Lessons: Music Majors	
MUE 101	Small Ensembles	
MUE 112	Jazz Vocal Ensemble	
MUE 121	University Concert Band	
MUE 122	University Concert Choir	
MUE 123	University Symphony Orchestra	
MUE 124	University Jazz Ensemble	
MUE 201	Advanced Small Ensembles	
MUE 211	Catamount Singers	
MUE 213	Vermont Wind Ensemble	

Additional Requirement	
3 credits in a music concentration other than history and literature	3

### Concentration in Music Performance (CLASSICAL)

The Bachelor of Arts degree in Music, with a concentration in Performance, is designed for students who wish to pursue this area of music within a liberal arts context. Admission through Level II audition.

36 credits, including:

Performance		
6 hours of MUL 134 Private Lessons: Music Majors		6
5 hours of MUL 234 Private Lessons: Music Majors		5
MUL 250	Senior Recital	1
4 credits in ensembles, in any combination. Choose from the following:		4
MUE 101	Small Ensembles	
MUE 121	University Concert Band	
MUE 122	University Concert Choir	
MUE 123	University Symphony Orchestra	
MUE 201	Advanced Small Ensembles	
MUE 211	Catamount Singers	
MUE 213	Vermont Wind Ensemble	
Students must appear each year in Student Performance Recitals.		
Students must pass a Solo Recital (Level IV) Jury prior to their Senior Recital.		
Music History and Literature		
MU 111	Music History & Literature I	3
MU 112	Music History & Literature II	3
Music Theory		
MU 109	Harmony and Form I	3
MU 101	Harmony and Form Lab I	1
MU 110	Harmony and Form II	3
MU 102	Harmony and Form Lab II	1
MU 209	Harmony and Form III	3
MU 210	Harmony and Form IV	3

### Concentration in Music Technology and Business

The Bachelor of Arts degree in Music, with a concentration in Music Technology and Business, is designed for students who wish to pursue this area of music within a liberal arts context.

36 credits, including:

Music Technology and Business		
MU 060	Intro to Music Technology	3
MU 161	Studio Production I	2
MU 162	Studio Production II	2
MU 261	Studio Production III	2
MU 172	Arts Management	3
MU 185	Music Business and Copyright	3
MU 262	Senior Project in Music Tech	1
or MU 291	Music Technology Internship	
or AS 190	Internship	
3 additional credits from the following:		3
MU 063	Live Sound Reinforcement	
MU 160	Creating Music for Video	
Music History and Literature		
6 credits in music history and literature from the following:		6
MU 001	Exploring Music History	
MU 005	D1: Intro to Jazz History	
MU 007	D2: Intro World Music Cultures	
MU 010	D1: Blues & Related Traditions	
MU 012	D1: Music & Culture: New Orleans	
MU 014	D2: Music of Latin Am & Carib	
MU 015	History of Rock and Roll	
MU 105	History of Jazz	
MU 107	D2: World Music Cultures	
MU 111	Music History & Literature I	
MU 112	Music History & Literature II	
Music Theory		
6 credits from the following:		6
MU 009	Music Theory Fundamentals	
MU 103	Jazz Harmony	
MU 109	Harmony and Form I	
MU 110	Harmony and Form II	
MU 159	Theory/Prac Jazz Improv I	
Performance		
MUL 116	Group Jazz Piano I	1
or MUL 118	Piano Proficiency I	

4 credits in MUL 074 (Private Lessons) or MUL 134 (Private Lessons: Music Majors)		4
Recommended Optional Electives:		
MU 063	Live Sound Reinforcement	3
MU 160	Creating Music for Video	3
MU 101	Harmony and Form Lab I	1
MU 102	Harmony and Form Lab II	1
MU 104	Jazz Harmony Lab	1
Additional group piano study, ensembles, and/or private lessons		

### Concentration in Composition and Theory

The Bachelor of Arts degree in Music, with a concentration in Composition and Theory, is designed for students who wish to pursue this area of music within a liberal arts context. Admission through Level II audition.

38 credits, including:

Music Theory		
MU 109	Harmony and Form I	3
MU 101	Harmony and Form Lab I	1
MU 110	Harmony and Form II	3
MU 102	Harmony and Form Lab II	1
MU 209	Harmony and Form III	3
MU 154	Harmony and Form Lab III	1
MU 210	Harmony and Form IV	3
MU 156	Harmony and Form Lab IV	1
Composition and/or Additional Music Theory		
9 additional credits in Composition and/or Theory from the following:		9
MU 157	Composition	
MU 256	Advanced Composition	
MU 257	Jazz Composition and Arranging	
MU 258	Advanced Jazz Comp and Arr	
MU 160	Creating Music for Video	
MU 260	Sr Composition/Theory Project	1
Music History and Literature		
MU 111	Music History & Literature I	3
MU 112	Music History & Literature II	3
Performance		
6 credits of private lessons (on primary instrument)		6



Students must pass a Level III examination.	
Students must pass a Piano Proficiency examination.	

### Concentration in Jazz Studies

The Bachelor of Arts degree in Music, with a concentration in Jazz Studies, is designed for students who wish to pursue this area of music within a liberal arts context. Admission through Level II audition.

36 credits, including:

Music Theory		
MU 103	Jazz Harmony	3
MU 104	Jazz Harmony Lab	1
MU 159	Theory/Prac Jazz Improv I	3
MU 257	Jazz Composition and Arranging	3
MU 259	Thry & Prac of Jazz Improv II	3
Music History and Literature		
MU 105	History of Jazz	3
3 additional credits from the following:		3
MU 107	D2: World Music Cultures	
MU 111	Music History & Literature I	
MU 112	Music History & Literature II	
Performance		
MUL 116	Group Jazz Piano I	1
MUL 117	Group Jazz Piano II	1
3 credits from the following ensembles:		3
MUE 101	Small Ensembles (Jazz Guitar Ensemble, Latin Jazz Ensemble, Nonet, Jazz Combo)	
MUE 112	Jazz Vocal Ensemble	
MUE 124	University Jazz Ensemble	
MUE 201	Advanced Small Ensembles (Post Bop Ensemble)	
11 credits of private lessons for music majors chosen from:		11
MUL 134	Private Lessons: Music Majors	
or MUL 234	Private Lessons: Music Majors	
MUL 250	Senior Recital	1
Students must pass an entrance audition (Level II) and a Level III examination.		
Students must appear each year in Student Performance Recitals.		
Students must pass a Solo Recital (Level IV) Jury prior to their Senior Recital.		
Recommended Optional Electives:		

MU 014	D2: Music of Latin Am & Carib	
MU 201	Composer Seminar	
MU 258	Advanced Jazz Comp and Arr	

## COMMUNITY MUSIC: ORGAN UNDERGRADUATE CERTIFICATE REQUIREMENTS

13 credits, including:

MUL 134	Private Lessons: Music Majors (Intermediate Organ Playing, a total of 3 credits)	1 or 2
MUL 234	Private Lessons: Music Majors (Advanced Organ Playing, a total of 3 credits)	1 or 2
MU 172	Arts Management	3
AS 190	Internship (with area community)	1
3 credits selected from the following:		3
MU 181	Conducting (3 credits)	
MU 080	Vocal Techniques (2 credits)	
MUE 112	Jazz Vocal Ensemble (1 credit, may be repeated)	
MUE 122	University Concert Choir (1 credit, may be repeated)	
MUE 211	Catamount Singers (1 credit, may be repeated)	

### PRE/CO-REQUISITES

MUL 134 P: Level II audition. MUL 234 P: Level III audition.  
MU 172: sophomore standing. Capstone: AS 190 A or B: successful completion of above, and approved work-plan.

## MUSIC MINOR REQUIREMENTS

18 credits in music composed of:

6 credits in music history/literature from the following:		6
MU 001	Exploring Music History	
MU 005	D1: Intro to Jazz History	
MU 007	D2: Intro World Music Cultures	
MU 010	D1: Blues & Related Traditions	
MU 012	D1: Music & Culture: New Orleans	
MU 014	D2: Music of Latin Am & Carib	
MU 015	History of Rock and Roll	
MU 105	History of Jazz	
MU 107	D2: World Music Cultures	

MU 111	Music History & Literature I	
MU 112	Music History & Literature II	
3 credits in music theory/composition from the following:		3
MU 103	Jazz Harmony	
MU 109	Harmony and Form I	
3 additional credits in music theory/composition from the following:		3
MU 009	Music Theory Fundamentals	
MU 060	Intro to Music Technology	
MU 103	Jazz Harmony	
MU 101	Harmony and Form Lab I	
MU 102	Harmony and Form Lab II	
MU 103	Jazz Harmony	
MU 109	Harmony and Form I	
MU 110	Harmony and Form II	
MU 157	Composition	
MU 159	Theory/Prac Jazz Improv I	
MU 160	Creating Music for Video	
MU 256	Advanced Composition	
MU 257	Jazz Composition and Arranging	
MU 258	Advanced Jazz Comp and Arr	
MU 259	Thry & Prac of Jazz Improv II	
6 credits in private lessons or performing ensemble (in any combination, including repetitions):		6
MUL 133	Private Lessons: Music Minors (lab fee required)	
MUE 101	Small Ensembles	
MUE 112	Jazz Vocal Ensemble	
MUE 121	University Concert Band	
MUE 122	University Concert Choir	
MUE 123	University Symphony Orchestra	
MUE 124	University Jazz Ensemble	
MUE 201	Advanced Small Ensembles	
MUE 211	Catamount Singers	
MUE 213	Vermont Wind Ensemble	

Nine credits in the minor must be at the 100-level or above.

## RESTRICTIONS

Ineligible Majors: Music (B.A.)

## MUSIC TECHNOLOGY AND BUSINESS MINOR

### REQUIREMENTS

18 credits in Music, including:

1 course in Music History or Music Literature from the following:		3
MU 001	Exploring Music History	
MU 005	D1: Intro to Jazz History	
MU 007	D2: Intro World Music Cultures	
MU 010	D1: Blues & Related Traditions	
MU 012	D1: Music & Culture: New Orleans	
MU 014	D2: Music of Latin Am & Carib	
MU 015	History of Rock and Roll	
MU 105	History of Jazz	
MU 107	D2: World Music Cultures	
MU 111	Music History & Literature I	
MU 112	Music History & Literature II	
1 course in Music Theory course from the following:		3
MU 009	Music Theory Fundamentals	
MU 103	Jazz Harmony	
MU 109	Harmony and Form I	
MU 159	Theory/Prac Jazz Improv I	
1 required course in Music Technology:		
MU 060	Intro to Music Technology	3
9 credits in Music Business and Technology, including		9
3 to 6 credits in Music Business		
MU 172	Arts Management	
MU 185	Music Business and Copyright	
3 to 6 additional credits in Music Business and Technology		
MU 063	Live Sound Reinforcement	
MU 160	Creating Music for Video	
MU 161	Studio Production I	
MU 162	Studio Production II	
MU 261	Studio Production III	
MU 262	Senior Project in Music Tech	
MU 291	Music Technology Internship	

9 credits in the minor must be at the 100-level or above.

**Restrictions**

Ineligible majors: Music (B.A.)

## MUSICAL THEATRE MINOR REQUIREMENTS

20 credits including:

THE 010	Acting I: Intro to Acting	3
THE 119	Performing Musical Theatre	3
DNCE 021	Ballet I (substitute Ballet II or III with Instructor permission)	2
DNCE 116	Musical Theatre Dance	3
THE 050	Dramatic Analysis	3
MU 009	Music Theory Fundamentals (can substitute MU 103 or MU 109 with Instructor permission)	3
THE 190	Theatre Practicum (non-performance/no Teaching Assistant)	1
2 of the following:		2
MUE 122	University Concert Choir	
MUE 124	University Jazz Ensemble	
MUL 133	Private Lessons: Music Minors (Students should register for Voice)	

**RESTRICTIONS**

Ineligible major: Music, Theatre

**OTHER INFORMATION**

THE 010 is the prerequisite for THE 119 ; DNCE 021 or DNCE 022 or DNCE 121 are prerequisites for DNCE 116.

## NEUROSCIENCE IN THE COLLEGE OF ARTS AND SCIENCES

<https://www.uvm.edu/cas/neuro> (<https://www.uvm.edu/cas/neuro/>)

Neuroscience is the study of the nervous system and how it regulates behavior. Often described as one of the 'last frontiers', neuroscience is an exciting and challenging interdisciplinary field in which scientists share an interest in studying the anatomy, physiology, and function of the nervous system. Psychological science and biology have been traditional disciplines that share this interest, but fields such as communication sciences, physics, computer science and other diverse fields are also intensely interested in neuroscience. The interdisciplinary nature of neuroscience requires an understanding of a broad range of methods of inquiry, ranging from laboratory methods associated with basic 'bench' sciences such as cell and molecular biology to clinical methods associated with the study of medical disorders or disease states.

## COLLEGE OF ARTS AND SCIENCES NEUROSCIENCE MAJOR

The neuroscience major at UVM is a cooperative effort by faculty in the Departments of Biology, Psychological Science, Communication Sciences, Neurological Sciences, and a number of other neuroscientists at UVM. The challenging curriculum of the major at UVM is driven by the nature of the field of neuroscience and by the unique opportunities provided by course offerings and by faculty expertise. It features a strong life science foundation, research methods and experiences, and a strong core of neuroscience courses. These include many courses in at multiple levels of neuroscience that are unique to UVM and offered by multiple departments in three different colleges. The curriculum gives students the freedom to select advanced courses that will prepare them for a wide variety of post-graduation career options, including (but certainly not limited to) graduate study, medical school and other health-care career options, laboratory technician positions, and science writing.

**NEUROSCIENCE MINOR**

The neuroscience minor was created for students who have a core interest in another major and are interested in neuroscience as either a supplement to their major or as simply a field of inquiry that they enjoy studying. The minor was designed to introduce students from multiple backgrounds to the interdisciplinary field of neuroscience.

**MAJORS****NEUROSCIENCE MAJOR**

Neuroscience B.S. (p. 307)

**MINORS****NEUROSCIENCE MINOR**

Neuroscience (p. 309)

**GRADUATE**

Neuroscience M.S.

Neuroscience Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

**NEUROSCIENCE B.S.**

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

**MAJOR REQUIREMENTS**

FUNDAMENTAL COURSES:		
PSYS 001	Intro to Psychological Science	3
Choose 1 of the following Biology options:		4-8
Option A (recommended)		
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	

Option B		
BCOR 021	Accelerated Biology	
Option C		
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
Chemistry:		8
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
Choose 1 of the following Mathematics options:		6-8
MATH 019	QR: Fundamentals of Calculus I	
or MATH 021 QR: Calculus I		
MATH 020	QR: Fundamentals of Calculus II	
or MATH 022 QR: Calculus II		
FOUNDATION COURSES:		
NSCI 111	Exploring Neuroscience	3
NSCI 112	Exploring Neurosci Laboratory	1
BCOR 101	Genetics	3
Choose 1 of the following Organic Chemistry options:		4-8
Option A		
CHEM 042	Intro Organic Chemistry	
Option B		
CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2	
Choose 1 of the following:		3-4
PSYS 111	Learning, Cognition & Behavior	
CSD 101	Speech & Hearing Science	
CSD 281	Intro Cognitive Neuroscience	
CHOOSE 1 OF THE FOLLOWING EXPERIMENTAL DESIGN OPTIONS		7-9
Option A (recommended)		
PSYS 053	Research Methods	
PSYS 054	Statistics for Psych Sci	
Option B		
STAT 141	QR: Basic Statistical Methods 1	
or STAT 211 QR: Statistical Methods I		
STAT 221	QR: Statistical Methods II	
STAT 231	QR: Experimental Design	
Option C		

STAT 141	QR: Basic Statistical Methods 1	
or STAT 211 QR: Statistical Methods I		
STAT 221	QR: Statistical Methods II	
PSYS 053	Research Methods	
ADVANCED CORE NEUROSCIENCE COURSES:		
NSCI 270	Diseases of the Nervous System	3
Choose 3 of the following:		9-10
BIOL 261	Neurobiology	
PSYS 214	Adv Cognitive Neuroscience	
NSCI 222	Cellular Neurophysiology	
NSCI 225	Human Neuroanatomy	
PSYS 215	Physiological Psychology	
ELECTIVES:		
4 courses of neuroscience electives, with at least 1 from each of the following categories:		12-14
Category A		
CSD 208	Cognition & Language	
PSYS 211	Learning	
PSYS 218	Hormones and Behavior	
PSYS 252	Emotional Devlmt & Temperament	
Category B		
BCOR 103	Molecular and Cell Biology	
BIOL 266	Neurodevelopment	
NSCI 255	Neuroregeneration	
NSCI 280	Glia: Not Just Neuron Glue	
PHRM 201	Introduction to Pharmacology	
PHRM 290	Topics Molecular&Cell Pharm	
PSYS 216	Psychopharmacology	
Category C (No more than 6 credits may be counted toward the major.)		
CSD 262	Measurement of Comm Processes	
NSCI 198	Undergraduate Research	
NSCI 298	Undergraduate Research	
HON 281	Honors: Neuroscience	
HON 282	Honors: Neuroscience	
Additional courses may be accepted as Advanced Course Options with prior approval from the Neuroscience Directors.		



NSCI 3XX courses may be accepted as Advance Course Options with prior approval from the Neuroscience Directors. These courses are often open to upper level undergraduate students with instructor permission

### Restrictions:

Students completing the B.S. in Neuroscience may not also receive the B.A. in Psychological Science.

## NEUROSCIENCE MINOR REQUIREMENTS

18 credits, including:

NSCI 111	Exploring Neuroscience	3
PSYS 053	Research Methods	3
4 courses from either of the following lists; at least 1 course must be taken in each category		12
Category A (Cognitive/Behavioral)		
PSYS 111	Learning, Cognition & Behavior	
CSD 281	Intro Cognitive Neuroscience	
PSYS 214	Adv Cognitive Neuroscience	
PSYS 215	Physiological Psychology	
PSYS 218	Hormones and Behavior	
Category B (Cell/Molecular)		
BCOR 101	Genetics	
BCOR 103	Molecular and Cell Biology	
BIOL 261	Neurobiology	
BIOL 266	Neurodevelopment	
NSCI 225	Human Neuroanatomy	
NSCI 255	Neuroregeneration	
PSYS 216	Psychopharmacology	
PHRM 201	Introduction to Pharmacology	
PHRM 290	Topics Molecular&Cell Pharm	
NSCI 3xx courses may be accepted as Category A/B options with prior approval from the Neuroscience Program.		

### RESTRICTIONS

Note that for a B.A. in Psychological Science, no more than 45 credits of PSYS courses may be applied to the 120 credits required to graduate, and for a B.S. in Psychological Science, no more than 50 credits may be applied to the 120 credits required to graduate.

### PREREQUISITES

PSYS 001: Introduction to Psychological Science

CHEM 023: Outline of General Chemistry or CHEM 031: General Chemistry I

One of the following pairs of courses:

BIOL 001 and BIOL 002: Principles of Biology

or BCOR 011 and BCOR 012: Exploring Biology

or ANPS 019 and ANPS 020: Undergraduate Anatomy and Physiology

### OTHER INFORMATION

Ineligible majors: Neuroscience

## DEPARTMENT OF PHILOSOPHY

<https://www.uvm.edu/cas/philosophy> (<https://www.uvm.edu/cas/philosophy/>)

The Philosophy Department offers undergraduate instruction in all major areas of philosophy, including historical and contemporary approaches to the discipline. In addition to an understanding of substantive philosophical issues, a philosophy education provides a student with strong analytical skills, the ability to read complex material critically, and the ability to express oneself clearly, both orally and in writing.

Philosophy is a quest to understand the fundamental truths of life, such as the nature of right and wrong and the relationship between the mental and the physical. The University's Philosophy faculty consistently rates among the nation's top six in schools that do not offer graduate studies in the discipline, according to the Philosophical Gourmet Report, the preeminent ranking of philosophy programs in the English-speaking world.

The Department's strengths include faculty outstanding in their fields; small, discussion-based classes taught by these faculty members; close interactions between students and their professors; and a diverse range of courses and research opportunities. Faculty interests range from metaphysics, medical ethics, feminism and philosophy of law to free will and determinism, Chinese philosophy, and metaethics. Philosophy majors develop skills applicable to professions such as law, medicine, public policy, teaching, business, journalism, politics, and many other fields.

### MAJORS

#### PHILOSOPHY MAJOR

Philosophy B.A. (p. 309)

### MINORS

#### PHILOSOPHY MINOR

Philosophy (p. 310)

### PHILOSOPHY B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

30 credits including:

PHIL 013	QR: Introduction to Logic	3
PHIL 101	History of Ancient Philosophy	3
PHIL 102	History of Modern Philosophy	3
At least 4 200-level courses (12 credits) in philosophy <sup>1</sup>		12
2 additional courses in philosophy at/above the 100-level (6 credits)		6
1 additional philosophy course at any level		3

<sup>1</sup> No more than 3 credits of undergraduate research, thesis credits, and/or independent studies may be taken in fulfillment of this requirement.

Whenever possible, PHIL 013 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.

ENGS 050 is recommended, and, whenever possible, should be taken in advance of higher level course work in philosophy.

Credit not awarded for more than 1 philosophy course numbered below 100, except that credit will be given for PHIL 013 in addition to 1 other course numbered below 100.

## PHILOSOPHY MINOR REQUIREMENTS

18 credits in philosophy including:

Choose 1 of the following:		3
PHIL 101	History of Ancient Philosophy	
PHIL 102	History of Modern Philosophy	
1 additional course at/above the 100-level		3
1 course at the 200-level		3
3 courses at any level		9

## RESTRICTIONS

Ineligible Major: Philosophy

Credit not awarded for more than 1 philosophy course numbered below 100, except that credit will be given for PHIL 013 in addition to 1 other course numbered below 100.

## DEPARTMENT OF PHYSICS

<https://www.uvm.edu/cas/physics> (<https://www.uvm.edu/cas/physics/>)

An education in physics provides students with the foundation for a variety of careers. In addition to preparation for graduate study

in physics and related fields, undergraduate study in physics is an excellent preparation for professional careers in engineering, management, teaching, law, and medicine.

The curriculum consists of core courses on the fundamentals of physics, such as mechanics, electromagnetism, and quantum theory. Students can then choose from an array of electives to explore subfields in physics, such as astrophysics, biological physics, condensed matter physics, general relativity, nanotechnology, quantum optics, and nuclear and particle physics.

Under the guidance of faculty members, many physics majors become active in research in their second or third year of study. For eligible students, this experience can lead to college honors with the completion of a senior thesis project.

## MAJORS

### PHYSICS MAJORS

Physics B.A. (p. 310)

Physics B.S. (p. 311)

## MINORS

### PHYSICS MINORS

Astronomy (p. 312)

Physics (p. 312)

## GRADUATE

Physics AMP

Physics M.S.

Physics Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## PHYSICS B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

At least 33 credits, including:

1 of the following sequences:		8
PHYS 051 & PHYS 152	Fundamentals of Physics I and Fundamentals of Physics II	
PHYS 031 & PHYS 125 & PHYS 022	Physics for Engineers I and Physics for Engineers II and Introductory Lab II	
PHYS 128	Waves and Quanta	4
PHYS 199	Experimental Physics I	3
or PHYS 202	Experimental Physics II	

PHYS 211	Classical Mechanics	3
PHYS 213	Electricity & Magnetism	3
or PHYS 273	Quantum Mechanics I	
9 additional credits of physics and astronomy electives at the 100-level or higher		9
Mathematics through MATH 121		
3 credits of approved mathematical electives		3
An additional laboratory science is strongly recommended		

## PHYSICS B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

All courses in core and all courses in one of the listed options.

CORE:		
Choose 1 of the following sequences:		8
PHYS 051 & PHYS 152	Fundamentals of Physics I and Fundamentals of Physics II	
PHYS 031 & PHYS 125 & PHYS 022	Physics for Engineers I and Physics for Engineers II and Introductory Lab II	
PHYS 128	Waves and Quanta	4
PHYS 211	Classical Mechanics	3
PHYS 213	Electricity & Magnetism	3
PHYS 273	Quantum Mechanics I	3
PHYS 274	Applications of Quantum Mechanics	3
MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
MATH 121	QR: Calculus III	4
MATH 230	QR: Ordinary Differential Equation	3
MATH 124	QR: Linear Algebra	3
or MATH 122	QR: Applied Linear Algebra	
CHEM 031	General Chemistry I	4
One additional course in chemistry (CHEM 032 recommended)		4
CS 021	QR: Computer Programming I <sup>1</sup>	3
or PHYS 256	Computational Physics	
OPTIONS		
Pure Physics:		21
PHYS 199	Experimental Physics I	

PHYS 202	Experimental Physics II <sup>1</sup>	
PHYS 265	Thermal & Statistical Physics	
12 credits of approved physics electives		
Mechanical Engineering:		29
ME 012	Dynamics	
ME 014	Mechanics of Solids	
ME 040	Thermodynamics	
ME 042	SU: Applied Thermodynamics	
ME 101	Materials Engineering	
ME 111	System Dynamics	
ME 143	Fluid Mechanics	
CE 001	Statics	
EE 100	Electrical Engr Concepts	
Civil and Environmental Engineering:		30
CE 001	Statics	
CE 010	Geomatics	
CE 100	Mechanics of Materials	
CE 170	Structural Analysis	
CE 173	Reinforced Concrete	
ME 012	Dynamics	
ME 040	Thermodynamics	
EE 100	Electrical Engr Concepts	
Electrical Engineering (Signals and Systems):		30
EE 003	Linear Circuit Analysis I	
EE 004	Linear Circuit Analysis II	
EE 081	Linear Circuits Laboratory I	
EE 082	Linear Circuits Laboratory II	
EE 120	Electronics I	
EE 121	Electronics II	
EE 171	Signals & Systems	
EE 174	Communication Systems	
EE 275	Digital Signal Processing	
EE 295	Special Topics	
Electrical Engineering (Circuits and Devices):		30
EE 003	Linear Circuit Analysis I	
EE 004	Linear Circuit Analysis II	

EE 081	Linear Circuits Laboratory I	
EE 082	Linear Circuits Laboratory II	
EE 120	Electronics I	
EE 121	Electronics II	
EE 131	Fundamentals of Digital Design	
EE 183	Electronics Laboratory	
EE 184	Electronics Design Project	
EE 221	Digital VLSI Circuit Design	
Astrophysics:		21
PHYS 199	Experimental Physics I	
PHYS 202	Experimental Physics II <sup>1</sup>	
PHYS 214	Electromagnetism	
PHYS 265	Thermal & Statistical Physics	
3 credits of approved 200-level ASTR electives		
6 credits of approved science or mathematics electives		

<sup>1</sup> PHYS 202 and CS 021 may be waived in favor of credit in undergraduate research.

## ASTRONOMY MINOR REQUIREMENTS

16 credits in astronomy including:

ASTR 005	Exploring the Cosmos	3
ASTR 023	Astr Lab I: Measuring the Sky	1
Choose 3 of the following:		9
ASTR 153	Moons & Planets	
ASTR 155	The Big Bang	
ASTR 157	Stars & Galaxies	
ASTR 177	Spacecraft Astronomy	
3 additional credits in ASTR		3

3 credits of Special Topics in ASTR may count towards the minor with departmental approval.

## PHYSICS MINOR REQUIREMENTS

Select 1 of the following options:		8
Option A		
PHYS 051	Fundamentals of Physics I	
PHYS 152	Fundamentals of Physics II	

Option B		
PHYS 031	Physics for Engineers I	
PHYS 125 & PHYS 022	Physics for Engineers II and Introductory Lab II	
PHYS 128	Waves and Quanta	4
3 additional credits at the PHYS 200-level excluding PHYS 202		3

## RESTRICTIONS

Ineligible Majors: Physics (B.A., B.S.)

## PRE/CO-REQUISITES

MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
MATH 121	QR: Calculus III	4

## PLANT BIOLOGY IN THE COLLEGE OF ARTS AND SCIENCES

<https://www.uvm.edu/cals/plantbiology> (<https://www.uvm.edu/cals/plantbiology/>)

## COLLEGE OF ARTS AND SCIENCES PLANT BIOLOGY MAJOR

The undergraduate Plant Biology program at the University of Vermont provides a broad introduction to the life sciences, from biochemistry and molecular biology to whole plant physiology and ecosystem ecology. Students receive individualized faculty attention via one-on-one advising to develop a personalized course of study. Popular study opportunities include a biennial trip to Costa Rica and an annual trip to the Galapagos. All students complete a senior capstone experience. Most students opt to conduct undergraduate research as part of a faculty-led research group, either in a plant science laboratory or at the internationally acclaimed Proctor Maple Research Center or at the Pringle Herbarium, the third largest plant collection in New England.

## MAJORS

### PLANT BIOLOGY MAJOR

Plant Biology B.S. (p. 313)

## MINORS

### PLANT BIOLOGY MINOR

Plant Biology (p. 313)

## GRADUATE

Field Naturalist M.S.

Plant Biology M.S.

Plant Biology Ph.D.



See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## PLANT BIOLOGY B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

Required foundational courses:		
BCOR 011	Exploring Biology	4
BCOR 012	Exploring Biology	4
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4
Choose 1 of the following sequences:		6-8
MATH 019 & MATH 020	QR: Fundamentals of Calculus I and QR: Fundamentals of Calculus II	
MATH 021 & MATH 022	QR: Calculus I and QR: Calculus II	
Choose 1 of the following:		3
STAT 141	QR: Basic Statistical Methods 1	
STAT 211	QR: Statistical Methods I	
NR 140	Applied Environ Statistics	
Choose 1 of the following:		4-5
PHYS 011 & PHYS 021	Elementary Physics and Introductory Lab I	
PHYS 051	Fundamentals of Physics I	
Required major courses:		
BCOR 101	Genetics	3
BCOR 102	SU: Ecology and Evolution	4
or BCOR 103	Molecular and Cell Biology	
PBIO 104	Plant Physiology	4
PBIO 108	Morph & Evo of Vascular Plants	4
or PBIO 109	Plant Systematics	
At least 12 additional PBIO credit hours at the 100 or 200-level. At least 6 of these must be at the 200-level. PBIO 185 and PBIO 187 do not meet this requirement.		12
PBIO 295	Advanced Special Topics (SENIOR CAPSTONE)	1
Required elective courses:		

An additional 12-14 credits of elective courses at the 100-level or above relevant to plant biology, selected in consultation with the advisor.

12-14

## PLANT BIOLOGY MINOR

### REQUIREMENTS

At least fifteen credits of course work in Plant Biology (PBIO courses) at the 100-level or 200-level. One 100-level BCOR course may be presented in fulfillment of the minor requirements.

12 credits in PBIO at the 100-level or above	12
3-4 credits in PBIO or BCOR at the 100-level or above	3-4

### RESTRICTIONS

Ineligible Majors: Plant Biology

### PRE/CO-REQUISITES

At least one semester of introductory Biology or Plant Biology: PBIO 004, BIOL 001, BIOL 002, BCOR 011, or BCOR 012.

## DEPARTMENT OF POLITICAL SCIENCE

<https://www.uvm.edu/cas/polisci> (<https://www.uvm.edu/cas/polisci/>)

Harold Lasswell, one of the founders of political science as an academic discipline, defined the field as the study of 'who gets what, when and how.' As the role of the state has grown — in the economy, education, environment, health, culture, international interactions, and many other fields — understanding governance and the political process has become essential to explaining modern life.

The academic field of political science is divided into four subfields: American politics, political theory, international relations, and comparative politics (the study of the domestic politics of countries other than the United States). At the University of Vermont, students can take courses in all four subfields from experienced teachers who are also leading scholars in their areas of research. Whether students are interested in American politics, law, women's issues, environmental politics, political theory, international relations, or the politics of different world areas, they will find members of the department teaching courses and doing cutting-edge research in their fields of interest.

## MAJORS

### POLITICAL SCIENCE MAJOR

Political Science B.A. (p. 314)

## MINORS

### POLITICAL SCIENCE MINORS

International Politics (p. 314)

Political Science (p. 314)

Public Policy Analysis (p. 314)

## POLITICAL SCIENCE B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

33 to 36 credits, including:

Core Courses:		
POLS 021	American Political System	3
POLS 041	Intro to Political Theory	3
POLS 051	Intro International Relations	3
POLS 071	Comparative World Politics	3
At least 15 credits at the advanced 100- or 200-level in political science subject to the following restrictions:		15
3 credits must be at the 200 level		
Students must complete at least 1 advanced 100- or 200-level course in 3 of the 4 subfields (American politics; political theory; international relations; comparative politics)		
12 of those 15 credits, including the 3 credits at the 200-level, must be in UVM political science courses (excluding study abroad, transfer credit, readings and research)		
3 additional credits in political science at any level (can include transfer credit)		3
At least 15 of the 30 credits used to satisfy this major must be taken at the University of Vermont		
Completion of the additional skill requirement. This entails completion of course work in 1 of 5 areas, as described below:		
Statistics and Methodology - STAT 051 or STAT 052 AND STAT 087 or STAT 111 or SOC 100/POLS 181 or 1 other STAT course numbered above 111		
Political Economy - EC 011 and EC 012		
Language - 1 additional course in language above the current distribution requirement of the College of Arts and Sciences. The language must be same as that for which they have met the CAS distribution requirement.		
Philosophy - PHIL 013 plus any other course in philosophy		
Geography - GEOG 081 and GEOG 184		

Note: Internships will not count toward the 30 credits required for the major.

Note: STAT 051 cannot be taken after STAT 111, and that SOC 100/POLS 181 may be reused for requirements within the major.

## INTERNATIONAL POLITICS MINOR REQUIREMENTS

18 credits in international Political Science courses including:

POLS 051	Intro International Relations	3
POLS 071	Comparative World Politics	3
At least 12 hours in international relations, comparative politics, or other POLS courses with more than 50 percent international content at the 100 level or above. Of these 12 credits, students must complete at least 6 credits in UVM Political Science courses.		12

At least 9 of the total of 18 credits used to satisfy this minor must be taken at the University of Vermont.

### RESTRICTIONS

Ineligible Major: Political Science

Ineligible Minor: Political Science

## POLITICAL SCIENCE MINOR REQUIREMENTS

18 credits in political science, including:

At least 6 credits from the core courses:		6
POLS 021	American Political System	
POLS 041	Intro to Political Theory	
POLS 051	Intro International Relations	
POLS 071	Comparative World Politics	
At least 9 credits at the level of 100 or above. Of the 9 credits at the 100-level or above, students must complete at least 6 credits in UVM political science courses		9

At least 9 of the 18 credits used to satisfy this minor must be taken at the University of Vermont.

### RESTRICTIONS

Ineligible Major: Political Science

Internships will not count toward the 18 credits required for the minor.

Only 3 credits of readings and research may count toward the minor.

## PUBLIC POLICY ANALYSIS MINOR REQUIREMENTS

15 credits, as follows:

EC 012	Principles of Microeconomics	3
EC 130	Public Policy	3
3 credits from:		3

POLS 127	The Congressional Process	
POLS 139	Public Policy:Tools&Processes	
3 additional credits from:		3
POLS 121	Law & Politics	
POLS 122	Constitutional Law:Gov Powers	
POLS 124	The Presidency	
POLS 127	The Congressional Process	
POLS 129	D1:Const Law:Civil Rights Amer	
POLS 137	Politics and Media	
POLS 138	Const Law: Civil Liberties	
POLS 139	Public Policy:Tools&Processes	
POLS 154	Internatl Political Economy	
POLS 159	Int'l Environmental Governance	
POLS 180	SU:Comparative Envir Pol	
POLS 228	Congress & Foreign Policy	
POLS 230	VT Legislative Research Srvc	
Special topics courses as approved by the POLS Undergraduate Director		
3 additional credits from:		3
POLS courses listed above		
EC 120	Money and Banking	
EC 133	SU:Economics Envrnmntl Policy	
EC 135	Law and Economics	
EC 137	Using Data for Economic Policy	
EC 143	International Econ I: Trade	
EC 150	Labor Economics	
Special topics courses as approved by the EC Department Chair		

## PREREQUISITES

EC 011	Principles of Macroeconomics	3
POLS 021	American Political System	3

## OTHER INFORMATION

If majoring in Political Science, POLS courses that are used for the minor are included in the 45 credit major rule. If majoring in Economics, EC courses that are used for the minor are included in the 45 credit major rule. Reminder: no more than 1 course can count towards both the Political Science major and the Public Policy Analysis minor. EC 012 is required for both the Economics major and

the Public Policy Analysis minor, and this is the only course that can count towards both programs.

## DEPARTMENT OF PSYCHOLOGICAL SCIENCE

<https://www.uvm.edu/cas/psychology> (<https://www.uvm.edu/cas/psychology/>)

UVM's Department of Psychological Science offers high-quality teaching and training in clinical and experimental psychology, and places an emphasis on research. Programs are arranged in four closely integrated clusters:

- **Biobehavioral Psychology** - The study of the relationship between behavior and biological processes. Research interests include behavioral and neurobiological mechanisms of Pavlovian and instrumental conditioning, stress and anxiety, and sex differences in learning and emotion.
- **Social Psychology** - The study of how the situation (or context) shapes and determines human thought, feeling, and behavior. Research interests include relationships and what makes people feel more or less connected, the experiences of targets of stigma, how to improve intergroup relations, how to foster compassion and prosocial outcomes, and the social psychology of food.
- **Developmental Psychology** - The study of the development of emotions, thoughts, and behaviors, including the interplay between biological and environmental influences. Research interests include family relationships, parental socialization, children's peer relationships, gender development, adaptation to stress, and developmental psychopathology.
- **Clinical Psychology** - The study of psychological distress, its influences, and healthy adaptation. Research interests include adult anxiety and mood disorders and sexual dysfunctions; childhood ADHD, conduct disorder, and family preventions; resiliency in adolescents; and refugee mental health.

The faculty include widely published experts, several holding leadership positions within their professional associations.

## MAJORS

### PSYCHOLOGICAL SCIENCE MAJORS

Psychological Science B.A. (p. 316)

Psychological Science B.S. (p. 316)

## MINORS AND CERTIFICATES

### PSYCHOLOGICAL SCIENCE MINORS AND CERTIFICATES

Physical Activity Promotion in Children and Youth (p. 317) - Undergraduate Certificate

Psychological Science (p. 317)

## GRADUATE

Psychology M.A.

Psychology Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## PSYCHOLOGICAL SCIENCE B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

31 credits, including:

PSYS 001	Intro to Psychological Science	3
PSYS 053	Research Methods	3
PSYS 054	Statistics for Psych Sci	4
4 of the following 5 courses:		12
PSYS 111	Learning, Cognition & Behavior	
PSYS 115	Biopsychology	
PSYS 130	Social Psychology	
PSYS 150	Developmental Psych: Childhood	
PSYS 170	Abnormal Psychology	
3 courses (3 or 4 credits each) in psychological science at the 200-level		9-12
Psychological Science majors must complete at least one course in natural science from outside the Department of Psychological Science.		
Students completing the B.A. in Psychological Science may not also receive the B.S. in Neuroscience.		

## PSYCHOLOGICAL SCIENCE B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

Choose 1 of the following sequences:		6-8
MATH 019 & MATH 020	QR: Fundamentals of Calculus I and QR: Fundamentals of Calculus II	
MATH 021 & MATH 022	QR: Calculus I and QR: Calculus II	
Choose 1 of the following sequences:		8
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
At least 3 additional credits in an approved science or in statistics. For a list of approved offerings, consult the Department of Psychological Science website.		3

43 credits of psychology including:		43
PSYS 001	Intro to Psychological Science	
PSYS 053	Research Methods	
PSYS 054	Statistics for Psych Sci	
PSYS 111	Learning, Cognition & Behavior	
PSYS 115	Biopsychology	
PSYS 130	Social Psychology	
PSYS 150	Developmental Psych: Childhood	
PSYS 170	Abnormal Psychology	
Choose 3 courses from at least 2 of the following categories:		9-10
CATEGORY A		
PSYS 211	Learning	
PSYS 212	Cognition	
PSYS 213	Motivation	
PSYS 215	Physiological Psychology	
PSYS 216	Psychopharmacology	
PSYS 218	Hormones and Behavior	
PSYS 220	Behavioral Genetics	
CATEGORY B		
PSYS 230	Advanced Social Psychology	
PSYS 232	Self and Social Cognition	
PSYS 240	Organizational Psychology	
PSYS 252	Emotional Devlmt & Temperament	
PSYS 254	Social Development	
PSYS 255	Psychology of Gender	
PSYS 257	Adolescence	
PSYS 259	Psychology of Families	
PSYS 268	Fit Kids Applied Research	
CATEGORY C		
PSYS 269	Fit Kids: Special Populations	
PSYS 270	Behav Disorders of Childhood	
PSYS 271	Intro to Clinical Psychology	
PSYS 274	Advanced Behavior Change	
PSYS 276	D1: Cross-Cultrl Psyc: Clin Pers	
PSYS 278	Science of Traumatic Stress	
PSYS 279	Intro to Health Psychology	



9 additional credits at or above the 100-level	9
Students completing the B.A. in Psychological Science may not also receive the B.S. in Neuroscience.	

## PHYSICAL ACTIVITY PROMOTION IN CHILDREN AND YOUTH UNDERGRADUATE CERTIFICATE REQUIREMENTS

Research Track - 15 credits, to include:		
Choose 2 of the following:		6
EXSC 175	Applied Kinesiology	
EDEC 001	Intro Early Care & Education	
EDSP 005	D2:Iss Aff Persons W/Disabil	
PSYS 150	Developmental Psych: Childhood	
EDPE 055	Special Topics I (Fitness Education)	
EDPE 166	Kinesiology	
Choose 2 of the following:		6
PSYS 168	Applied Psychological Research	
RMS 220	Research Methods I	
or PSYS 053	Research Methods	
PSYS 198	Undergraduate Research	
or EXSC 192	Independent Study	
or EXSC 292	Independent Study	
Choose 1 of the following:		3
PSYS 268	Fit Kids Applied Research	
PSYS 269	Fit Kids: Special Populations	
PSYS 281	Advanced Fit Kids: Applied Res	
PSYS 296	Advanced Special Topics (Advanced Fit Kids: Special Populations)	
Applied Track - 15 credits, to include:		
Choose 2 of the following:		6
EXSC 175	Applied Kinesiology	
EDEC 001	Intro Early Care & Education	
EDSP 005	D2:Iss Aff Persons W/Disabil	
PSYS 150	Developmental Psych: Childhood	
EDPE 055	Special Topics I (Fitness Education)	
EDPE 166	Kinesiology	
Choose 1 of the following:		3

PSYS 168	Applied Psychological Research	
RMS 220	Research Methods I	
or PSYS 053	Research Methods	
PSYS 198	Undergraduate Research	
or EXSC 192	Independent Study	
or EXSC 292	Independent Study	
Choose 2 of the following:		6
PSYS 268	Fit Kids Applied Research	
PSYS 269	Fit Kids: Special Populations	
PSYS 281	Advanced Fit Kids: Applied Res	
PSYS 296	Advanced Special Topics (Advanced Fit Kids: Special Populations)	

## RESTRICTIONS

For both tracks, students may not meet all 15 credits within their major department.

## PSYCHOLOGICAL SCIENCE MINOR REQUIREMENTS

18 credits including:

PSYS 001	Intro to Psychological Science	3
PSYS 053	Research Methods	3
Choose 3 of the following:		9
PSYS 111	Learning, Cognition & Behavior	
PSYS 115	Biopsychology	
PSYS 130	Social Psychology	
PSYS 150	Developmental Psych: Childhood	
PSYS 170	Abnormal Psychology	
1 course (3 or 4 credits) at the 200-level		3-4
Psychological Science minors with a major in the College of Arts and Sciences must complete at least 1 course in natural science from outside of Psychological Science		
Students earning the minor may substitute SOC 100 for PSYS 053.		

## RESTRICTIONS

Ineligible Majors: Psychological Science (B.A., B.S.)

## DEPARTMENT OF RELIGION

<https://www.uvm.edu/cas/religion> (<https://www.uvm.edu/cas/religion/>)

The study of religion at UVM is a vital part of the wider study of human cultures, global affairs, and personal identities. Our secular

approach invites students to engage the study of religion free of ties to religious training or affiliation. Department faculty, trained in the humanities and social sciences, bring a uniquely transdisciplinary and integrative approach to their teaching. The department curriculum explores a wide array of specific historical traditions, including African and African diasporic religions, Buddhism, Hinduism, Christianity, Islam, Judaism, and religions in North America, as well as broader religious dynamics shaped by ritual, race, gender, aesthetics, media, politics, and popular culture. Through their study of religion students come to understand the complexity of religious communities in specific times and places, and to appreciate diversity within particular religious communities. Students also gain an enhanced understanding of cultural diversity through the study of a variety of worldviews and behaviors, and explore international and historical perspectives that provide the necessary context for understanding their own culture.

The religion major is structured around courses that explore theories and methods in the study of religion, courses that investigate religious traditions or cultures, and courses that analyze problems in the study of religion. As part of their coursework for the major students also research, write, and revise an extended paper that serves as a capstone of their study of religion at UVM.

## MAJORS

### RELIGION MAJOR

Religion B.A. (p. 318)

## MINORS AND CERTIFICATES

### RELIGION MINORS

Jewish Studies (p. 319)

Religion (p. 319)

Religious Literacy in Professions (p. 320) - Undergraduate Certificate

## RELIGION B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

32 credits in Religion, including the following:

3 credit hours in related nondepartmental courses, chosen from the list of approved courses on the Department of Religion website, may count toward these 32 required credits.

CATEGORY A: INTRODUCTION TO RELIGION		
Choose 1 of the following (these courses may also count to fulfill category B or C below; no more than 9 credits of REL 000-level classes may count toward the Religion major):		3
REL 020	D2: Comparing Religions	
REL 021	D2: Religions in Asia	
REL 023	D2: What is the Bible?	

REL 026	D2: Religions in Africa	
REL 029	D2: Religion and Globalization	
REL 030	D2: Introducing Islam	
REL 031	D2: Introducing Hinduism	
REL 032	LASP Religion Seminar	
REL 040	D2: Religion, Health, & Healing	
REL 050	Introduction to Jewish Studies	
REL 085	On the Meaning of Life	
REL 095	Intro Special Topics	
REL 096	Intro Special Topics	

### CATEGORY B: INVESTIGATING TRADITIONS AND CULTURES

Choose 3 of the following (only 1 REL 000-level course can count toward this requirement; REL 095, REL 096, REL 195, and REL 196 may count toward this requirement depending on content—consult Department Chair):

9

REL 021	D2: Religions in Asia	
REL 023	D2: What is the Bible?	
REL 026	D2: Religions in Africa	
REL 030	D2: Introducing Islam	
REL 031	D2: Introducing Hinduism	
REL 050	Introduction to Jewish Studies	
REL 124	Christianity	
REL 125	Women in Christianity to 1500	
REL 128	D1: Religion in America	
REL 129	Religion&Pop Culture in the US	
REL 132	D2: Buddhist Traditions	
REL 141	D2: Religion in Japan	
REL 145	D2: Religion in China	
REL 224	Studies in Christianity	
REL 234	D2: Buddhism in Sri Lanka	

### CATEGORY C: ANALYZING PROBLEMS IN RELIGION

Choose 2 of the following (only 1 REL 000-level course can count toward this requirement; REL 095, REL 096, REL 195, and REL 196 may count toward this requirement depending on content—consult Department Chair):

6

REL 020	D2: Comparing Religions	
REL 029	D2: Religion and Globalization	
REL 040	D2: Religion, Health, & Healing	
REL 085	On the Meaning of Life	

REL 104	Mysticism, Shamanism & Possess	
REL 105	Religious Literacy	
REL 109	Ritualization: Rel, Body, Culture	
REL 110	Religion and Ways of Knowing	
REL 133	D2: Islam and Modernity	
REL 164	D1: Religion and Race in US	
REL 165	D1: Islam and Race	
REL 180	Moral&Rel Persp on Holocaust	
REL 254	Religion and Empire	
REL 255	Religion, Nation, and State	
REL 259	Religion and Secular Culture	
CATEGORY D: THEORIES AND RESEARCH IN RELIGION		
REL 100	Interpretation of Religion	3
REL 202	Research in Religion Practicum (taken concurrently with one course in Category E)	1
REL 203	Senior Colloquium (taken in Senior year following completion of REL 202)	1
CATEGORY E: ADVANCED SEMINARS IN RELIGION		
Choose 2 of the following:		6
REL 224	Studies in Christianity	
REL 234	D2: Buddhism in Sri Lanka	
REL 254	Religion and Empire	
REL 259	Religion and Secular Culture	
REL 297	Interdisciplinary Seminar	

## JEWISH STUDIES MINOR

### REQUIREMENTS

18 credits, including:

JS 050	Introduction to Jewish Studies	3
9 hours of approved courses at the 100-level or above		9
6 additional approved hours at any level		6
For approved courses, students should consult the list of courses appearing under Jewish Studies for the semester, or related courses approved by the director.		

### OTHER INFORMATION

No more than 3 credits may come from courses also used to fulfill a major. A major in Religion or History and a minor in Jewish Studies may be possible if additional courses in Religion or History are taken to reduce overlap to 1 course.

## RELIGION MINOR

### REQUIREMENTS

18 credits in religion, including the following:

CATEGORY A: INTRODUCTION TO RELIGION		
Choose 1 of the following (these courses may also count to fulfill category B or C below; no more than 9 credits of REL 000-level classes may count toward the Religion minor):		3
REL 020	D2: Comparing Religions	
REL 021	D2: Religions in Asia	
REL 023	D2: What is the Bible?	
REL 026	D2: Religions in Africa	
REL 029	D2: Religion and Globalization	
REL 030	D2: Introducing Islam	
REL 031	D2: Introducing Hinduism	
REL 032	LASP Religion Seminar	
REL 040	D2: Religion, Health, & Healing	
REL 050	Introduction to Jewish Studies	
REL 085	On the Meaning of Life	
REL 095	Intro Special Topics	
REL 096	Intro Special Topics	
CATEGORY B: INVESTIGATING TRADITIONS AND CULTURES		
Choose 1 of the following (REL 095, REL 096, REL 195, and REL 196 may count toward this requirement depending on content—consult Department Chair):		3
REL 021	D2: Religions in Asia	
REL 023	D2: What is the Bible?	
REL 026	D2: Religions in Africa	
REL 030	D2: Introducing Islam	
REL 031	D2: Introducing Hinduism	
REL 050	Introduction to Jewish Studies	
REL 124	Christianity	
REL 125	Women in Christianity to 1500	
REL 128	D1: Religion in America	
REL 129	Religion&Pop Culture in the US	
REL 132	D2: Buddhist Traditions	
REL 141	D2: Religion in Japan	
REL 145	D2: Religion in China	
REL 224	Studies in Christianity	

REL 234	D2:Buddhism in Sri Lanka	
CATEGORY C: ANALYZING PROBLEMS IN RELIGION		
Choose 1 of the following (REL 095, REL 096, REL 195, and REL 196 may count toward this requirement depending on content—consult Department Chair):		3
REL 020	D2: Comparing Religions	
REL 029	D2:Religion and Globalization	
REL 040	D2:Religion, Health, & Healing	
REL 085	On the Meaning of Life	
REL 104	Mysticism,Shamanism & Possessn	
REL 105	Religious Literacy	
REL 109	Ritualization:Rel,Body,Culture	
REL 110	Religion and Ways of Knowing	
REL 133	D2: Islam and Modernity	
REL 164	D1:Religion and Race in US	
REL 165	D1: Islam and Race	
REL 180	Moral&Rel Persp on Holocaust	
REL 254	Religion and Empire	
REL 255	Religion, Nation, and State	
REL 259	Religion and Secular Culture	
CATEGORY D: THEORIES AND RESEARCH IN RELIGION		
REL 100	Interpretation of Religion	3
CATEGORY E: ADVANCED SEMINARS IN RELIGION		
Choose 1 of the following:		3
REL 224	Studies in Christianity	
REL 234	D2:Buddhism in Sri Lanka	
REL 254	Religion and Empire	
REL 259	Religion and Secular Culture	
REL 297	Interdisciplinary Seminar	

## RESTRICTIONS

Ineligible Major: Religion

## RELIGIOUS LITERACY IN PROFESSIONS UNDERGRADUATE CERTIFICATE

### REQUIREMENTS

13 credits, including:

2 courses in Religion at the introductory level.		6
REL 105	Religious Literacy	3

REL 112	Religious Literacy Practicum	1
1 additional Religion course at the 100-level.		3

## RESTRICTIONS

Religion majors and minors may also take the Certificate, but no more than 1 class may overlap between the Certificate and the major or minor.

## PRE/CO-REQUISITES

All intermediate courses in the Religion Department have a prerequisite of 3 hours in Religion.

## DEPARTMENT OF ROMANCE LANGUAGES AND CULTURES

### OVERVIEW

<http://www.uvm.edu/cas/rll> (<http://www.uvm.edu/cas/rll/>)

The Department of Romance Languages and Cultures houses UVM's programs in French, Italian, and Spanish. In addition to courses in language study, the department offers a full array of classes on the literatures and cultures of the many regions of the world where the languages the department teaches are spoken.

The department offers undergraduate majors and minors in French, Italian Studies, and Spanish, as well as a separate minor in Italian. All of its language programs offer the chance to study abroad through one of UVM's exchange partner universities.

## MAJORS

### ROMANCE LANGUAGES AND CULTURES MAJORS

French (p. 320)

Italian Studies (p. 321)

Spanish (p. 321)

## MINORS

### ROMANCE LANGUAGES AND CULTURES MINORS

French (p. 322)

Italian (p. 322)

Italian Studies (p. 322)

Spanish (p. 322)

## FRENCH B.A.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 253)



## MAJOR REQUIREMENTS

30 credits in French, including:

Required Courses		
FREN 101	Writing Workshop	3
FREN 141	French Lit in Context I	3
FREN 142	French Lit in Context II	3
1 200-level literature course		3
FREN 132	Contemporary France	3
FREN 135	Topics in Frn/Frnchphne Culture	3
9 elective credits at the 100-level or above		9
3 elective credits at the 200-level		3
Note: Only 3 credits of Readings and Research (FREN 197, FREN 198) and Advanced Readings and Research (FREN 297, FREN 298) may be counted toward the major		

## ITALIAN STUDIES B.A.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

30 credits chosen from the categories below. Among the courses taught in English, no more than 12 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 Cultures.

Category A - Courses in Italian		
At least 15 credits in courses taught in Italian at the 100-level or higher		15
1 course from the following may be applied to this category:		
ITAL 197	Independent Study	
ITAL 198	Undergraduate Research	
A college Honors Thesis may be applied to this category if written in Italian		
Category B - Significant Italian Content		
Up to 15 credits from among the following courses:		15
ARTH 163	Italian High and Late Ren Art	
CLAS 023	Classical Roman Civilization	
CLAS 042	Mythology	
CLAS 122	Roman History and Civilization	
Up to 6 credits of Latin language/literature at any level		

ENGS 163	Topics:20C American Studies (if significant Italian content)	
HST 125	The Renaissance	
ITAL 051	Intermediate I	
ITAL 052	Intermediate II	
REL 124	Christianity	
THE 150	Hist I:Class/Med/Ren Thtr	
WLIT 113	Italian Lit in Translation	
A college Honors Thesis may be applied to this category if written in English		
Category C - Partial Italian Content		
Up to 9 credits from among the following courses:		9
ARTH 005	Western Art:Ancient - Medieval	
ARTH 006	Western Art:Renaissance-Modern	
ARTH 155	Topics in Medieval Art (Category B if significant Italian Content)	
HST 009	D2: Global History to 1500	
HST 010	D2: Global History since 1500	
HST 013	Ideas in the Western Tradition	
HST 015	Early Europe	
HST 016	Modern Europe	
HST 103	Topics in European History	
MU 111	Music History & Literature I	
MU 112	Music History & Literature II	
POLS 141/142	History of Political Thought (if some Italian content)	

## SPANISH B.A.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 253)

## MAJOR REQUIREMENTS

At least 30 credits, including:

SPAN 101	Topics in Composition & Convrns	3
SPAN 140	Analyzing Hispanic Literatures	3
9 credits from:		9
SPAN 143	Spain: Diversity & Expansion	
SPAN 144	Spain: Monarchy to Democracy	
SPAN 145	D2:LatAm:Colonialism&Resistnce	
SPAN 146	D2:LatAm:Revolutn&Globalizatn	

3 credits in Spanish literature at the 200-level	3
3 credits in Spanish culture or the arts at the 200-level	3
9 additional credits in Spanish at the 100-level or above	9
Only 3 credits of Readings and Research (SPAN 197, SPAN 198) and Advanced Readings and Research (SPAN 297, SPAN 298) may be counted toward the major.	

## FRENCH MINOR

### REQUIREMENTS

18 credits in French at the 100-level or above including:

FREN 101	Writing Workshop	3
FREN 131	French Civilization	3
or FREN 132	Contemporary France	
or FREN 135	Topics in Frn/Frnchne Culture	
FREN 141	French Lit in Context I	3
or FREN 142	French Lit in Context II	
3 credits at the 200-level		3
6 credits at the 100-level or above		6

### RESTRICTIONS

Ineligible Major: French

The following may not be counted toward a minor:

FREN 197	Independent Study	1-6
FREN 198	Undergraduate Research	1-6
FREN 297	Independent Study	1-6
FREN 298	Undergraduate Research	1-6

### PRE/CO-REQUISITES

Through FREN 052	
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### 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 1 course.

## ITALIAN MINOR

### REQUIREMENTS

18 credits in courses taught in the Italian language and numbered 100 or above	18
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### RESTRICTIONS

Ineligible Major: Italian

May not be counted toward a minor:

ITAL 197	Independent Study	1-6
ITAL 198	Undergraduate Research	1-6

### PRE/CO-REQUISITES

Through ITAL 052	
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### 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 1 course.

## ITALIAN STUDIES MINOR

### REQUIREMENTS

18 credits of which at least 9 credits must be at the 100-level or above from the following categories:

Category A - Courses in Italian:	
At least 6 credits in courses taught in Italian at the 100-level or above	
Category B - Significant Italian content:	
Up to 12 credits from among the courses listed under Category B in the description of the Italian Studies major	
Category C - Partial Italian content:	
Up to 3 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 6 credits may be applied from any 1 academic discipline	

### RESTRICTIONS

Ineligible Major: Italian Studies

### PRE/CO-REQUISITES

Through ITAL 052	
Intro level courses may be necessary for other subject areas that deal with Italian content and these will vary each semester	

### 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 1 course.

## SPANISH MINOR

### REQUIREMENTS

A minimum of 18 credits, including:

SPAN 101	Topics in Composition & Convrs	3
SPAN 140	Analyzing Hispanic Literatures	3

6 credits from:		6
SPAN 143	Spain: Diversity & Expansion	
SPAN 144	Spain: Monarchy to Democracy	
SPAN 145	D2:LatAm:Colonialism&Resistnce	
SPAN 146	D2:LatAm:Revolutn&Globalizatn	
6 credits in SPAN at the 200-level in courses numbered from SPAN 212 - SPAN 296, or Special Topics		6

## RESTRICTIONS

Ineligible Major: Spanish

May not be counted toward the minor:

SPAN 197	Independent Study	1-6
SPAN 198	Undergraduate Research	1-6
SPAN 297	Independent Study	1-6
SPAN 298	Undergraduate Research	1-6

## PRE/CO-REQUISITES

Through SPAN 052	
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## 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 1 course.

## DEPARTMENT OF SOCIOLOGY

<http://www.uvm.edu/cas/sociology> (<http://www.uvm.edu/cas/sociology/>)

Ideas including role models, self-fulfilling prophecies, glass ceilings and the sentiment that 'it's not what you know, it's who you know' are all concepts that originated in empirical sociological research and have since seeped into popular consciousness.

Sociology is one of the great fields of inquiry of the modern era. The idea of social relations or social forces, the idea that much of life is causally shaped by specific relations among large groups of people, belongs alongside the theory of gravity, evolution, the unconscious, and other seminal ideas that have transformed human life and consciousness in the last few centuries.

The Sociology Department of UVM carries on this field of inquiry. UVM's Sociology faculty apply the sociological lens to everything from social class to sexuality, from crime to the mass media, from aging to leisure. Students are taught how to think sociologically and to apply that thought to real-world situations. Sociology students are exposed to a variety of subfields within the discipline.

## MAJORS

### SOCIOLOGY MAJOR

Sociology B.A. (p. 323)

## MINORS

### SOCIOLOGY MINORS

Gerontology (p. 324)

Law and Society (p. 324)

Sociology (p. 325)

## SOCIOLOGY B.A.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 253)

Specific requirements for an optional concentration are included on this page:

Concentration in Social Gerontology (p. 324)

Concentration in Crime and Criminal Justice (p. 324)

## MAJOR REQUIREMENTS

34 credits, including:

SOC 001	SU: Introduction to Sociology <sup>1</sup>	3
SOC 100	Fund of Social Research <sup>1,2</sup>	4
SOC 101	Developm't Sociological Theory <sup>1</sup>	3
STAT 051	QR:Probability With Statistics (or higher which is required as a prerequisite for taking SOC 100)	3
9 additional credits in Sociology at the 100-level		9
3 Sociology credits from SOC 211 to SOC 275		3
6 additional Sociology credits at the 200-level <sup>3</sup>		6
3 Sociology credits at any level		3
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 2 courses from the advanced Theory/Methods area:		
SOC 274	Qualitative Research Methods	
SOC 275	Meth of Data Anyl in Soc Rsch	
No more than 3 credits of the following courses may count toward the major:		
SOC 188	Teaching Assistantship	
SOC 288	Teaching Assistantship	

Double majors in Sociology and Psychological Science may substitute PSYS 053 and PSYS 054 for SOC 100 and STAT 051 and thus complete the Sociology major with 33 credits.

- <sup>1</sup> SOC 001 and 1 of SOC 100 or SOC 101 or Instructor permission are prerequisites for enrollment in any 200-level course.
- <sup>2</sup> STAT 051 or higher is a prerequisite for SOC 100
- <sup>3</sup> HON 254 and HON 255 can be counted for this requirement

### Concentration in Social Gerontology

12 credits in Social Gerontology, including:

SOC 020	Aging: Change & Adaptation	3
SOC 120	Aging in Modern Society	3
SOC 220	Internship in Gerontology	3
At least 1 gerontology-related elective approved by the gerontology advisor.		3
All courses with a SOC prefix will count for both the major and the concentration.		

### Concentration in Crime and Criminal Justice

12 credits in Crime and Criminal Justice from the following:

SOC 014	Deviance & Social Control	
SOC 112	D2: Global Deviance	
SOC 115	Crime	
SOC 216	Criminal Justice	
SOC 258	Sociology of Law	
Special or variable topics courses and internships as approved by the concentration advisor		
At least 6 credits must be at the 100-level or above		
At least 3 credits must be at the 200-level		

## GERONTOLOGY MINOR

### REQUIREMENTS

18 credits, including:

Required courses:		
SOC 020	Aging: Change & Adaptation	3
or HDFS 020	Aging: Change & Adaptation	
SOC 120	Aging in Modern Society	3
HLTH 100	Biology of Aging	3
or HDFS 221	Psychology of Aging	
SOC 220	Internship in Gerontology	3
Electives:		6

HLTH 100	Biology of Aging (if not taken as a required course)	
HDFS 221	Psychology of Aging (if not taken as a required course)	
NFS 143	Nutrition in the Life Cycle	
1 approved aging-related course in a student's major or other relevant program.		

### RESTRICTIONS

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 45 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 1 course.

## LAW AND SOCIETY MINOR

### REQUIREMENTS

18 credits, including:

1 of the following		3
POLS 021	American Political System	
SOC 014	Deviance & Social Control	
15 credits from the following to include 3 credits at the 200-level		15
BSAD 117	Business Law I	
BSAD 118	Business Law II	
CDAE 157	Consumer Law and Policy	
EC 135	Law and Economics	
GSWS 258/ POLS 235	Gender and Law	
HST 147	Ancient Law	
HST 153	Topics in Diplomatic History	
PHIL 142	Philosophy of Law	
POLS 021	American Political System	
POLS 121	Law & Politics	
POLS 122	Constitutional Law: Gov Powers	
POLS 129	D1: Const Law: Civil Rights Amer	
POLS 138	Const Law: Civil Liberties	
POLS 235/ GSWS 258	Gender and Law	
SOC 014	Deviance & Social Control	
SOC 112	D2: Global Deviance	



SOC 115	Crime	
SOC 216	Criminal Justice	
SOC 258	Sociology of Law	

## RESTRICTIONS

Ineligible Minors: Political Science

Only 3 credits of internship may count toward the 18 credits required for the minor and such courses must receive a letter grade.

Only 3 credits of Readings and Research or 3 credits of Honors Thesis credits may count toward the 18 credits required for the minor and such courses must receive a letter grade.

Neither Readings and Research courses nor Honors Thesis Courses may substitute for the required 200-level seminar.

Only 1 course that counts toward this minor may also count toward a student's major or minor.

A maximum of 9 credits from any one department or program may count toward the 18 credits required for the minor.

A maximum of 6 credits from the student's major department may count toward the 18 credits required for the minor.

At least 9 of the 18 credits counted toward this minor must be taken at the University of Vermont.

## OTHER INFORMATION

Student schedules for the minor will vary, but in many instances SOC 014 or POLS 021 will be likely prerequisites for completing the minor.

## SOCIOLOGY MINOR REQUIREMENTS

18 credits including:

SOC 001	SU: Introduction to Sociology	3
STAT 051	QR: Probability With Statistics	3
SOC 100	Fund of Social Research	3-4
or SOC 101	Developm't Sociological Theory	
3 additional SOC credits at the 100-level or above		3
3 SOC credits at the 200-level		
3 additional SOC credits at any level		3

## RESTRICTIONS

Ineligible Major: Sociology

## PREREQUISITES

SOC 001; SOC 100 or SOC 101; and minimum Junior standing are prerequisites for enrollment in any 200-level course.

## DEPARTMENT OF THEATRE AND DANCE

### OVERVIEW

<https://www.uvm.edu/cas/theatreanddance> (<https://www.uvm.edu/cas/theatreanddance/>)

### THEATRE

The Department of Theatre and Dance provides a breadth and depth of experience so students gain skills to understand the various facets of theatre, while at the same time learning the vital and transferable attributes of critical analysis, problem solving, and belief in one's own contributions, creativity, and ideas.

The Department of Theatre and Dance provides students with a combination of theory and practice in understanding theatre as an art form that reflects the human condition. Students who major or minor in theatre are required to take core courses that provide an historical and critical foundation as well as fundamentals courses in areas of acting and design. A wide offering of additional courses are available that reflect theatre as social practice, personal expression, and creative collaboration.

The faculty in the department is comprised of working professionals as well as scholars who contribute to the field of theatre in the areas of acting, directing, playwriting, theatre design, and criticism. Students who study theatre have access to faculty through small workshop classes, independent study projects, honor's thesis, coaching for performance assignments, and production work.

The Department of Theatre and Dance at UVM also offers a Speech and Debate minor and houses the Lawrence Debate Union, UVM's Debate Team, which competes in national and international tournaments.

### DANCE

The Dance Program offers a major and a minor. Both are designed for students who wish to pursue dance studies within a liberal arts context and are open to both students coming to UVM with prior dance training, and those who discover dance in college. Inclusivity is a top priority.

UVM Dance combines concentrated applied and experiential practice in composition and performance with the study of dance history, theory, and culture. With an emphasis on physical/creative action and engaged inquiry, it is the goal of the Dance Program to facilitate rich and meaningful interaction amongst faculty, guest, and student artists/scholars. The Dance Program also seeks strong alliances with other art forms and related disciplines on campus. A main emphasis of the Program is on student creative work; students have many opportunities to create and present original work in on campus productions and at regional dance conferences.

Dance faculty at UVM are active artists and experienced educators, who offer a wide range of courses in different technical, stylistic, somatic, and theoretical approaches to dance studies. Both the major and the minor are designed with flexibility for students to include broad exposure to dance studies; the major culminates with a clear and focused investigation of an advanced topic and/or project.

## MAJORS

### THEATRE AND DANCE MAJORS

Dance B.A. (p. 326)

Theatre B.A. (p. 326)

## MINORS

### THEATRE AND DANCE MINORS

Dance (p. 326)

Musical Theatre (p. 307)

Speech and Debate (p. 327)

Theatre (p. 327)

## DANCE B.A.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

36 credits, including:

15 credits of the required dance core:		
DNCE 050	Dance History & Legends	3
DNCE 060	Movement & Improvisation	3
DNCE 111	Contemporary Dance III	3
DNCE 160	Dance Composition	3
DNCE 280	Advanced Studies in Dance	3
9 credits in DNCE at the 100-level or above		9
6 credits in DNCE at any level		6
6 credits in Music (MU/MUL) and/or Theatre (THE)		6
No more than 6 credits of internship, teaching assistantship, independent study, undergraduate research, or thesis credits may be counted toward the major.		

## THEATRE B.A.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 253)

### MAJOR REQUIREMENTS

A total of 42 credits to include:

THE 010	Acting I: Intro to Acting	3
THE 020	Fundamentals of Lighting	4
THE 030	Fundamentals of Scenery	4
THE 040	Fundamentals of Costuming	4
THE 050	Dramatic Analysis	3
THE 150	Hist I:Class/Med/Ren Thtr	3
THE 252	History II:17th - 21st Century	3
THE 284	Seminar: Act, Dir, SM, Write	3
3 credits of practicum, usually completed as three 1-credit projects. Students may not complete more than 2 credits in any one area of production (acting, production crew, front of house, marketing, and design)		
THE 190	Theatre Practicum	1-3
12 additional credits (4 courses, 2 of which must be at the 100-level or above)		12

## DANCE MINOR

### REQUIREMENTS

18 credits in dance (DNCE). 9 credits must be at the 100-level or above.

3 credits in dance history:		
DNCE 050	Dance History & Legends	3
5 - 6 credits in dance technique. Choose two of the following:		5-6
DNCE 012	Contemporary Dance II	
DNCE 111	Contemporary Dance III	
DNCE 112	Contemporary Dance IV	
3 credits in dance composition:		
DNCE 060	Movement & Improvisation	3
or DNCE 160	Dance Composition	
6 - 7 additional credits from remaining DNCE courses		6-7

## MUSICAL THEATRE MINOR

### REQUIREMENTS

20 credits including:

THE 010	Acting I: Intro to Acting	3
THE 119	Performing Musical Theatre	3
DNCE 021	Ballet I (substitute Ballet II or III with Instructor permission)	2
DNCE 116	Musical Theatre Dance	3
THE 050	Dramatic Analysis	3

MU 009	Music Theory Fundamentals (can substitute MU 103 or MU 109 with Instructor permission)	3
THE 190	Theatre Practicum (non-performance/no Teaching Assistant)	1
2 of the following:		2
MUE 122	University Concert Choir	
MUE 124	University Jazz Ensemble	
MUL 133	Private Lessons: Music Minors (Students should register for Voice)	

## RESTRICTIONS

Ineligible major: Music, Theatre

## OTHER INFORMATION

THE 010 is the prerequisite for THE 119 ; DNCE 021 or DNCE 022 or DNCE 121 are prerequisites for DNCE 116.

## SPEECH AND DEBATE MINOR

### REQUIREMENTS

18 credits to include:

Choose 9 credits from:		9
SPCH 011	Effective Speaking	
SPCH 031	Argument & Advocacy	
SPCH 071	Fundamentals of Debate	
SPCH 072	Citizen Advocacy & Debate	
9 credits at or above the 100-level		9

## THEATRE MINOR

### REQUIREMENTS

THE 050	Dramatic Analysis	3
THE 150	Hist I:Class/Med/Ren Thtr	3
Choose 2 of the following:		7-8
THE 010	Acting I: Intro to Acting	
THE 020	Fundamentals of Lighting	
THE 030	Fundamentals of Scenery	
THE 040	Fundamentals of Costuming	
One 3 credit course at the 100-level or above		3
3 credits of practicum, usually completed as three 1-credit projects. Students may not complete more than 2 credits in any one area of production (acting, production crew, front of house, marketing, and design)		
THE 190	Theatre Practicum	1-3

## RESTRICTIONS

Ineligible Major: Theatre

## THE GROSSMAN SCHOOL OF BUSINESS

<http://www.uvm.edu/business/>

The Grossman School of Business (GSB) cultivates the ability to create and manage sustainable businesses that address ethical, social, and environmental challenges and opportunities in the complex and dynamic global environment. We develop graduates who are professional, technically competent, and entrepreneurial. The School's faculty create impact through teaching, research, and scholarship.

The School contributes to the mission of the University through its Strategic Plan and Learning Outcomes.

## LEARNING GOALS AND OBJECTIVES

The faculty, staff, and alumni are committed to developing leaders prepared for a dynamic, global workplace. The GSB curriculum is designed to support the following learning goals, objectives, and outcomes.

1. Learning Goal: Awareness of Sustainable Business Practices
  - a. Understanding of how businesses maximize shareholder value over the long run with leaders who are innovative, and who manage interactions across the economic, social, environmental and political spheres.
  - b. Understanding of the role of innovation in creating better products, services, or processes.
2. Learning Goal: Global and Civic Awareness
  - a. Understanding of global issues in a business context.
  - b. Understanding of the non-market environment of business.
3. Learning Goal: Critical Thinking and Problem Solving
  - a. Ability to solve business problems by acquiring, interpreting, and synthesizing data.
4. Learning Goal: Business Communication Skills
  - a. Ability to demonstrate effective written communication skills.
  - b. Ability to demonstrate effective oral communication skills.
5. Learning Goal: Business Fundamentals
  - a. Demonstrate command of business fundamentals.

During the first two years, students build the conceptual and analytical base for studying the art and science of management. Students complete general education requirements, university wide requirements and learn required skills for upper level business courses by the end of their second year. At the end of the second year, students will declare their interdisciplinary theme and concentration.

In addition, students may add a minor or certificate outside of business, though this is optional. These choices determine their remaining curriculum sequence. Students will complete a culminating theme capstone in their senior year.

The Grossman School of Business collaborates with the College of Engineering and Mathematical Sciences to offer a B.S. in Engineering Management. The School offers two minors for students pursuing a

major outside of the Grossman School of Business: a minor in Accounting, and a minor in Business Administration. In addition, a minor in Sports Management is offered as a cross-college minor and is open to all majors.

The undergraduate and graduate programs offered by the School are accredited by AACSB International: the International Association to Advance Collegiate Schools of Business.

The Dean's, Faculty, and Advising offices of the Grossman School of Business are located in Kalkin Hall and the newly opened Ifshin Hall.

## STUDY ABROAD

Students in the Grossman School of Business are strongly encouraged to participate in a study abroad experience. UVM partners with a number of exchange and external programs around the world to provide a rigorous academic experience while also exploring new cultures, cuisine and geographic locations. Students interested in the study abroad experience begin the process early in their career. It's advantageous to meet with the GSB study abroad academic advisor to discuss curriculum sequence and program options.

## MAJORS

Business Administration B.S.BA. (p. 330)

## MINORS

Accounting (p. 334)

Business Administration (p. 334)

Sports Management (p. 335)

## GRADUATE

Master of Accountancy (M.Acc.)

Sustainable Innovation MBA (SI-MBA)

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## REQUIREMENTS

### THE GROSSMAN SCHOOL OF BUSINESS ACADEMIC 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 re-entry.

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 40 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.

Students must complete the Basic Business Core course requirements with a grade-point average of 2.25 or higher and no single course grade lower than a C-.

Students must complete the Business Field course requirements with a grade-point average of 2.00 or higher. At least two of the four Business Field courses must be completed at UVM. Courses completed outside of UVM do not factor into the GPA calculation.

Students must complete one Interdisciplinary Theme with a grade-point average of 2.00 or higher. At least two of the four Business Theme courses must be completed at UVM (exceptions apply for students who select the Global Business Theme and participate in an approved study abroad program). The interdisciplinary 'capstone' BSAD 290 course must be completed at UVM and will not be considered as degree applicable through transfer or study abroad credit. Courses completed outside of UVM do not factor into the GPA calculation.

Students must complete one Business Concentration with a grade-point average of 2.00 or higher. At least three of the five (3-credit) Business Concentration courses must be completed at UVM. Courses completed outside of UVM do not factor into the GPA calculation.

## TRANSFER CREDIT - POLICIES & PROCEDURES

The Grossman School of Business (GSB) does not accept transfer credits for business courses from any institution outside of the United States, unless the student is completing these courses through a University of Vermont approved Study Abroad program.

This policy states that no business course(s) from any institution outside of the United States can be applied to a current Business student's Business Core, Business Field, Business Concentration or Theme section of the Business degree.

If students choose to take non-business courses at an international institution outside of the United States with the intention to transfer courses to UVM to fulfill their minor, general education, and/or elective requirements, students need to follow the University of Vermont's guidelines for transferring courses.

Steps for Transferring Credits to UVM from Institutions located in the United States

### Business Core Courses:

- Transfer credits will be reviewed upon completion of the course(s)
- All course materials, including, but not limited to syllabi, notes, books, projects, assessments, should be retained for evaluation by the GSB faculty if requested



- Students may transfer multiple courses to the Business Core area of the degree
- Courses that are considered Business Core requirements do not have to be taken at an Association to Advance Collegiate Schools of Business (AACSB) institution

#### **Business Field, Concentration, Theme Courses:**

- Transfer credit will be reviewed upon completion of the course(s)
- All course materials, including, but not limited to syllabi, notes, books, projects, assessments, should be retained for evaluation by the GSB faculty if requested
- Students may transfer up to two non-UVM courses into each of the following areas of the business degree: Business Field, Concentration and Theme
- The interdisciplinary 'capstone' BSAD 290 course must be completed at UVM and will not be considered as degree applicable through transfer or study abroad credit
- Grossman will only accept transfer credits for Business Field, Concentration and Theme courses from domestic institutions accredited by AACSB
- The responsibility is on the student to verify the institution is currently AACSB Accredited and to work with an advisor to understand the academic implications if the credits are not accepted by UVM as transferrable
- A list of AACSB schools can be found at [go.uvm.edu/aacsb](http://go.uvm.edu/aacsb)

### **MOBILE COMPUTING REQUIREMENT**

Students are asked to purchase a portable computer and the software suite that meets the requirements of the Grossman School of Business. Please consult with a member of the Grossman School of Business IT staff for specifics. Majors and Minors in the Grossman School of Business will be charged a \$75.00 per semester fee for enrollment in the Microsoft Campus Agreement.

### **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.

### **INTERNAL TRANSFER/DOUBLE DEGREE CANDIDATES**

Students planning to transfer or apply to double degree from another college or school on campus must meet the prerequisite requirements. Internal transfer and double degree candidates into the Grossman School of Business must complete one semester of Calculus, MATH 019 or MATH 021 and one semester of Economics, EC 011 or EC 012 each with a grade of C- or higher and an overall Business Core GPA of 2.25 or higher. All completed

Business Core classes will be assessed during the application review process. All Business Core classes must meet the C- or higher grade requirement and overall 2.25 GPA or higher. In addition, a cumulative GPA of 2.75 or higher is required for transfer admission and students must be in good academic standing (not on trial/academic probation). Students may apply through the on-line request to transfer through their myUVM portal. Applications are generally evaluated twice per year, in January and June. Questions regarding the internal transfer or double degree process should be directed to an advisor in the Grossman School of Business.

## **REGULATIONS**

### **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 or transfer to a new major. 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 Grossman School of Business and the University of Vermont 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 (UGSC) 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 Grossman Center for Student Success (100 Kalkin Hall, [GSBCSS@bsad.uvm.edu](mailto:GSBCSS@bsad.uvm.edu)).

### **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.

#### **1. TRIAL**

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. A student who is on trial may not complete a course on a pass/no pass grading mode option. First-year students and a select group of upper-class students who are placed on trial will be required to participate in the Learning @ UVM seminar series.

#### **2. DISMISSAL**

A student who does not satisfy the conditions of trial, or first-time, first-year students who earn a semester grade-point average of 1.00 or lower and who earns failing grades in one-

half of the semester credits attempted, or returning students who earn a semester grade-point average of 2.00 or lower and who earns failing grades in one-half of the semester credits attempted will be dismissed for low scholarship. For first dismissal, the period of dismissal is one year. For second dismissal, the period of dismissal is two years. For third dismissal, the period of dismissal is three years. Dismissed students must receive approval from the Grossman Center for Student Success (100 Kalkin Hall, GSBCSS@bsad.uvm.edu) before enrolling in any university course.

### 3. RE-ENTRY FOLLOWING DISMISSAL

A dismissed student who presents evidence of his/her ability to perform satisfactorily may be considered for re-entry on trial. A student who has been dismissed for a second time will not be considered for re-entry on trial until at least two years have elapsed. Further information regarding re-entry may be obtained from the Grossman Center for Student Success (100 Kalkin Hall, GSBCSS@bsad.uvm.edu).

## BUSINESS ADMINISTRATION B.S.BA.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 328)

### MAJOR REQUIREMENTS

Bachelor of Science in Business Administration with Interdisciplinary Themes of:

- Entrepreneurship
- Global Business
- Sustainable Business

And, Concentrations of:

- Accounting
- Business Analytics
- Finance
- Marketing

### BASIC BUSINESS CORE REQUIREMENTS

Thirty-six to thirty-seven credits (twelve courses). The Basic Business Core classes should be completed by the end of the sophomore year as they serve as the prerequisite requirements for upper-level Business Field, Theme, and Concentration requirements. All Basic Business Core classes must be completed with a grade-point average of at least 2.25 and no single course grade lower than C-.

BSAD 010	SU: The Business Enterprise I	3
BSAD 015	Business Communications	3
BSAD 020	The Business Enterprise II	3
BSAD 025	Sustainable Bus Strategies	3
BSAD 030	Decision Analysis	3

BSAD 040	Information Technology	3
BSAD 060	Financial Accounting	3
BSAD 061	Managerial Accounting	3
EC 011	Principles of Macroeconomics	3
EC 012	Principles of Microeconomics	3
MATH 019	QR: Fundamentals of Calculus I	3-4
or MATH 021	QR: Calculus I	
STAT 141	QR: Basic Statistical Methods 1	3

### BUSINESS FIELD REQUIREMENTS

Twelve credits (four courses). In general, students must successfully complete the Basic Business Core before enrolling in Business Field courses. The Business Field Courses must be completed with an overall grade-point average of at least a 2.00. At least two of the four Business Field courses must be completed at UVM.

BSAD 120	Leadership & Org Behavior	3
BSAD 150	Marketing Management	3
BSAD 173	Operations Management	3
BSAD 180	Managerial Finance	3

### BUSINESS INTERDISCIPLINARY THEME REQUIREMENTS

All students must complete twelve credits (four courses) within their chosen theme, including one interdisciplinary "capstone" BSAD 290 course in their senior year (students with a declared Global Business or Sustainable Business theme who are graduating at the end of the summer or fall semesters should plan to complete the capstone course in the preceding spring semester due to the course generally only being offered in the spring semester; for students with a declared Entrepreneurship theme, the capstone course is generally offered both fall and spring semesters). Students are required to earn an overall grade-point average of at least 2.00 in these four courses. One course can double-dip between the interdisciplinary theme and the concentration. Students who select a second interdisciplinary theme can double-dip one applicable course between the two themes. Students enrolled in BSAD 299 Honors Thesis can petition the Undergraduate Studies Committee to apply three thesis credits to their interdisciplinary theme. At least two of the four interdisciplinary theme courses must be completed at UVM (some exceptions may apply to the Global Business Theme with respect to the applicability of study abroad credits). The interdisciplinary 'capstone' BSAD 290 course must be completed at UVM and will not be considered as degree applicable through transfer or study abroad credit. Students must select one of the following interdisciplinary themes by the end of their sophomore year:

**Entrepreneurship Interdisciplinary Theme**

Required Senior Capstone:		
BSAD 290	Strategic Theme Capstone <sup>1</sup>	3
Select three courses from the following list:		9
BSAD 117	Business Law I	
BSAD 118	Business Law II	
BSAD 119	Real Estate Law	
BSAD 137	Entrepreneurial Leadership	
BSAD 144	Database Management	
BSAD 148	Bus. Driven Decision Making	
BSAD 156	Product Management	
BSAD 181	Intermediate Financial Mgmt	
BSAD 192	Business Process Improvement	
BSAD 195	Special Topics (As Approved)	
BSAD 196	Special Topics (As Approved)	
BSAD 222	Human Resource Management	
BSAD 230	Tech, Entr & Commercialization	
BSAD 235	Entrepreneurial Family Firms	
BSAD 246	Taxation of Social Enterprises	
BSAD 251	Marketing Research	
BSAD 255	Digital Marketing	
BSAD 256	Retail Management	
BSAD 260	Financial Statement Analysis	
BSAD 265	Accounting Information Systems	
BSAD 268	Adv Topics in Management Acctg	
BSAD 270	Quant Anyl for Managerial Dec	
BSAD 271	Current Topics Fin Reporting	
BSAD 295	Special Topics (As Approved)	

**Global Business Interdisciplinary Theme**

Required Senior Capstone:		
BSAD 290	Strategic Theme Capstone <sup>1</sup>	3
Select three courses from the following list:		9
BSAD 127	D2: International Management	
BSAD 153	Consumer Behavior	
BSAD 155	Marketing Communications	
BSAD 161	Corporate Financial Reporting <sup>1</sup>	

BSAD 162	Corporate Financial Reporting <sup>2</sup>	
BSAD 183	International Finance Mgmt	
BSAD 184	Free Markets & Free Enterprise	
BSAD 195	Special Topics (As Approved)	
BSAD 196	Special Topics (As Approved)	
BSAD 258	D2: Intn'l Market Analysis	
BSAD 264	Corporation Taxation	
BSAD 273	Supply Chain Management	
BSAD 281	Fixed Income Security Analysis	
BSAD 282	Security Val & Portfolio Mgmt	
BSAD 295	Special Topics (As Approved)	

**Sustainable Business Interdisciplinary Theme**

Required Senior Capstone:		
BSAD 290	Strategic Theme Capstone <sup>1</sup>	3
Select three courses from the following list:		9
BSAD 125	Collaborate for Sustainability	
BSAD 129	Ethics & Social Resp in Mgt	
BSAD 137	Entrepreneurial Leadership	
BSAD 147	Green IT & Virtualization	
BSAD 169	Individual Taxation	
BSAD 192	Business Process Improvement	
BSAD 195	Special Topics (As Approved)	
BSAD 196	Special Topics (As Approved)	
BSAD 235	Entrepreneurial Family Firms	
BSAD 246	Taxation of Social Enterprises	
BSAD 263	SU:Environmntl & Social Rprtn	
BSAD 266	Advanced Accounting	
BSAD 267	Auditing	
BSAD 269	Gov't and NFP Accounting	
BSAD 285	Options and Futures	
BSAD 289	Real Estate Finance	
BSAD 295	Special Topics (As Approved)	

<sup>1</sup> Select applicable BSAD 290 Strategic Theme Capstone section:  
 Strategic Theme Capstone: ENT (Entrepreneurship)  
 Strategic Theme Capstone: GB (Global Business)  
 Strategic Theme Capstone: SB (Sustainable Business)

## BUSINESS CONCENTRATION REQUIREMENTS

Fifteen credits (five courses) for Accounting, Business Analytics, and Marketing concentrations. The Finance concentration is sixteen credits which includes completion of BSAD 280, one credit Green Mountain Investment Fund. Students are required to earn an overall grade-point average of at least a 2.00 in their concentration courses. One course can double-dip between the interdisciplinary theme and the concentration. Students who select a second concentration can double-dip one applicable course between the two concentrations. At least three of the five (3-credit) concentration courses must be completed at UVM. Students must select one of the following concentrations by the end of their sophomore year:

### Accounting Concentration

Required:		
BSAD 161	Corporate Financial Reporting1	3
BSAD 162	Corporate Financial Reporting2	3
Select three courses from the following list:		9
BSAD 169	Individual Taxation	
BSAD 195	Special Topics (As Approved)	
BSAD 196	Special Topics (As Approved)	
BSAD 246	Taxation of Social Enterprises	
BSAD 263	SU:Environmntl & Social Rprtnng	
BSAD 264	Corporation Taxation	
BSAD 265	Accounting Information Systems	
BSAD 266	Advanced Accounting	
BSAD 267	Auditing	
BSAD 268	Adv Topics in Management Acctg	
BSAD 269	Gov't and NFP Accounting	
BSAD 271	Current Topics Fin Reporting	
BSAD 295	Special Topics (As Approved)	

Students who plan to become a Certified Public Accountant (CPA) may complete the Bachelor of Science degree in Business with an Accounting concentration plus the Master of Accountancy (MAcc). The MAcc curriculum 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.

### Business Analytics Concentration

Required:		
CS 021	QR: Computer Programming I	3

Select one Information Systems course: BSAD 144, BSAD 147, BSAD 148	3
Select one Quantitative Tools course: BSAD 270, BSAD 273	3
Select one Areas of Applications course: BSAD 148, BSAD 192, BSAD 251, BSAD 273	3
Select one other course from any of the three categories of Information Systems, Quantitative Tools, Areas of Applications. BSAD 195/BSAD 196/BSAD 295 Special Topics As Approved.	3
Besides CS 021, only one other non-BSAD course (by approval) may be applied to the BA concentration.	

### Finance Concentration

Required:		
BSAD 181	Intermediate Financial Mgmt	3
BSAD 280	Green Mountain Investment Fund	1
BSAD 282	Security Val & Portfolio Mgmt	3
Select three courses from the following list:		9
BSAD 183	International Finance Mgmt	
BSAD 184	Free Markets & Free Enterprise	
BSAD 195	Special Topics (As Approved)	
BSAD 196	Special Topics (As Approved)	
BSAD 260	Financial Statement Analysis	
or BSAD 161	Corporate Financial Reporting1	
BSAD 281	Fixed Income Security Analysis	
BSAD 285	Options and Futures	
BSAD 288	Wall Street Seminar (by invitation only)	
BSAD 289	Real Estate Finance	
BSAD 295	Special Topics (As Approved)	

### Marketing Concentration

Required:		
BSAD 251	Marketing Research	3
Select four courses from the following list:		12
BSAD 153	Consumer Behavior	
BSAD 155	Marketing Communications	
BSAD 156	Product Management	
BSAD 195	Special Topics (As Approved)	
BSAD 196	Special Topics (As Approved)	
BSAD 255	Digital Marketing	
BSAD 256	Retail Management	



BSAD 258	D2: Intn'l Market Analysis	
BSAD 290	Strategic Theme Capstone (Strategic Theme Capstone: SB)	
BSAD 295	Special Topics (As Approved)	

## PROFESSIONAL DEVELOPMENT SERIES

Students are required to complete three credits of Professional Development Series:

- Professional Development Series I, generally completed in the first year (BSAD 002)
- Professional Development Series II, generally completed in the second year (BSAD 102)
- Professional Development Series III, generally completed in the third year (BSAD 202)

## GROSSMAN SCHOOL OF BUSINESS BASIC GENERAL EDUCATION CORE

At least twelve credits (four courses). A course cannot count for more than one General Education Core requirement. Each requirement must be filled with a course worth at least three credits. One from each of the following:

English course that emphasizes practice in writing from:		3
ENGS 001	FW: Written Expression	
or ENGS 002	FW: Written Expression: Theme	
or HCOL 085	FW: Honors Coll First Year Sem	
Social Science: select from Anthropology, Economics, Environmental Studies, Geography, Political Science, Psychological Science, Sociology, and Gender, Sexuality, & Women's Studies; COMU 001, EDSS 055		3-4
Natural Science (lab optional): select from Anatomy & Physiology, Astronomy, Biochemistry, BioCore, Biology, Chemistry, Environmental Science, Geology, Microbiology & Molecular Genetics, Plant Biology, Physics, Plant & Soil Science		3-5
Humanities: select from Art History, Art Studio, American Sign Language, Classics, Critical Race & Ethnic Studies, Dance, English Literature, Foreign Language, Film & Television Studies, Global & Regional Studies, Holocaust Studies, History, Humanities, Music, Philosophy, Religion, Theatre, World Literature; ESOL 095, ESOL 096		3-4

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 (for example: EC 011 or EC 012 do not satisfy the Social Science Core).

## CREDIT HOURS OUTSIDE OF THE GROSSMAN SCHOOL OF BUSINESS

Students need to take at least 40 credits outside of the Grossman School of Business.

## OPTIONAL UNDERGRADUATE MINOR OR UNDERGRADUATE CERTIFICATE

A student may complete an undergraduate minor in a discipline outside the Grossman School of Business, or an undergraduate certificate outside the Grossman School of Business to help fulfill the required 40 outside credits. The requirements for each undergraduate minor or undergraduate certificate are specified by the department or program supervising those programs. Up to two minor courses or two certificate courses may apply to Business Core/Field/Theme/Concentration requirements. Please consult with an advisor in the Grossman School of Business to select an appropriate undergraduate minor or undergraduate certificate.

The student must contact the appropriate department to obtain more specific information. To declare a minor, students submit a major-minor request online through their myUVM portal. Some minors are not available to declare as they require an application and permission from the supervising department. The minors in Business Administration and Accounting are only open to majors outside of the Grossman School of Business. However, Business majors are permitted to minor in Sports Management. The following minors through Community Development and Applied Economics (CDAE) are restricted: Consumer and Advertising, Consumer Affairs, Community Entrepreneurship, and Public Communications.

## UNIVERSITY OF VERMONT DEGREE REQUIREMENTS FOR UNDERGRADUATES

In addition to the requirements for the Major, all undergraduate students must successfully complete the University of Vermont Requirements for Undergraduates.

All students must meet the University Requirements. (p. 436)

## ELECTIVES

Students often need elective credits to bridge the gap between the required courses and the 120 total credit hours needed to graduate with a Bachelor of Science in Business Administration.

### Restrictions on Electives

1. Up to three credits of PEAC (physical education activity courses) can apply as elective credit towards the Bachelor of Science Business degree. This includes PEAC courses, and credit granted for intramural, club and varsity sports.
2. No more than six credits of internship can apply to the degree. This includes all internship related course offerings from any UVM School or College.
3. No credit will be granted for a course that substantially duplicates material in courses offered in the Grossman School of Business or in other previously completed courses.
  - 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 courses offered by the Grossman School of Business.

- Students cannot earn credit for both EC 170 and STAT 141.
- Students cannot earn credit for both CDAE 168 and BSAD 150.
- Students cannot earn credit for both CDAE 127 and BSAD 155.
- Students cannot earn credit for both CDAE 167 and BSAD 180.
- Students cannot earn credit for CDAE 266.

## ACCOUNTING MINOR REQUIREMENTS

BSAD 060	Financial Accounting <sup>1</sup>	3
BSAD 061	Managerial Accounting <sup>1</sup>	3
BSAD 161	Corporate Financial Reporting1	3
Select two courses from the following list:		6
BSAD 162	Corporate Financial Reporting2 <sup>2</sup>	
BSAD 169	Individual Taxation	
BSAD 195	Special Topics (As Approved)	
BSAD 196	Special Topics (As Approved)	
BSAD 246	Taxation of Social Enterprises	
BSAD 263	SU:Environmntl & Social Rprtnng	
BSAD 264	Corporation Taxation	
BSAD 265	Accounting Information Systems	
BSAD 267	Auditing	
BSAD 268	Adv Topics in Management Acctg	
BSAD 269	Gov't and NFP Accounting	
BSAD 271	Current Topics Fin Reporting	
BSAD 295	Special Topics (As Approved)	
Students are approved to overlap one course between two minors. At least three of the five minor courses must be completed at UVM or from an approved study abroad program.		
To be awarded a Minor in Accounting, a student must earn at least a 2.00 cumulative GPA in the Accounting Minor courses.		

## RESTRICTIONS

Ineligible Major: Business Administration

## PRE/CO-REQUISITES

EC 011	Principles of Macroeconomics <sup>3</sup>	3
or EC 012	Principles of Microeconomics	
MATH 019	QR: Fundamentals of Calculus I <sup>3</sup>	3-4
or MATH 021	QR: Calculus I	

- <sup>1</sup> BSAD 060 and BSAD 061 must each be completed with a grade of C- or higher.
- <sup>2</sup> Students interested in pursuing their CPA and enrollment in the Masters of Accountancy degree (MAcc) are required to complete BSAD 162, as one of the 100/200-level Accounting minor courses.
- <sup>3</sup> EC 011 or EC 012 AND MATH 019 or MATH 021, must be completed with an overall 2.00 GPA or higher and no grade lower than a C-.

## OTHER INFORMATION

### Mobile Computing Requirement

Students are asked to purchase a portable computer and the software suite that meets the requirements of the Grossman School of Business. Please consult with a member of the Grossman School of Business IT staff for specifics. Accounting minors will be charged a \$75.00 per semester fee for enrollment in the Microsoft Campus Agreement.

### 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.

## BUSINESS ADMINISTRATION MINOR REQUIREMENTS

BSAD 060	Financial Accounting	3
Students must complete four additional Business courses (three credits each). At least three of the four must be business courses numbered 100 or above. Students may complete one course from the following: BSAD 025, BSAD 030, BSAD 061, or approved special topics, BSAD 095 and BSAD 096. Please note that some upper-level business courses may have additional pre-requisite requirements.		12
Students are approved to overlap one course between two minors. At least three of the five total minor courses must be completed at UVM. Upper-level transfer credit must be approved from an AACSB institution or from an approved study abroad program.		
To be awarded a Minor in Business Administration, a student must earn at least a 2.00 cumulative GPA in the Business Minor courses.		

## RESTRICTIONS

Ineligible Major: Business Administration

## PRE/CO-REQUISITES

EC 011	Principles of Macroeconomics <sup>1</sup>	3
EC 012	Principles of Microeconomics <sup>1</sup>	3
MATH 019	QR: Fundamentals of Calculus I <sup>1</sup>	3-4
or MATH 021	QR: Calculus I	
STAT 141	QR: Basic Statistical Methods 1 <sup>1,2</sup>	3

- <sup>1</sup> EC 011, EC 012, MATH 019 or MATH 021, and STAT 141 (or an approved equivalent) must be passed with a cumulative GPA of at least 2.00 and no single course grade lower than C-.
- <sup>2</sup> EC 170, NR 140, STAT 143, or completion of both PSYS 053 and PSYS 054 may be substituted for STAT 141 if required by the student's major.

## OTHER INFORMATION

### Mobile Computing Requirement

Students are asked to purchase a portable computer and the software suite that meets the requirements of the Grossman School of Business. Please consult with a member of the Grossman School of Business IT staff for specifics. Business Administration minors will be charged a \$75.00 per semester fee for enrollment in the Microsoft Campus Agreement.

### 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.

## SPORTS MANAGEMENT MINOR REQUIREMENTS

A total of 18 credits is required for the minor.

EDPE 220	Sport in Society	3
EDPE 101	Intro to Sports Management	3
or EDPE 241 at 3 credits may be substituted for EDPE 101; EDPE 241 is a fee-based spring recess travel course		
PRT 235	Outdoor Recreation Planning	3
One of the following Management courses:		3
BSAD 120	Leadership & Org Behavior	
EDPE 119	Careers in College Athletics	
EDPE 230	Philosophy of Coaching	
PRT 157	Ski Area Management	
One of the following Marketing/Communications courses:		3
BSAD 150	Marketing Management	
CDAE 168	SU:Marketing:Com Entrepreneurs	
CDAE 119	Event Planning for Athletics	
CDAE 024	Fund of Public Communication	
PRT 158	Resort Mgmt & Marketing	
One of the following Entrepreneurship courses:		3
BSAD 137	Entrepreneurial Leadership	
CDAE 166	Intro to Comm Entrepreneurship	

CDAE 267	Strat Plan:Comm Entrepreneurs	
PRT 258	Entrepreneurship Rec&Tourism	

## OTHER INFORMATION

Consult your major advisor for any applicable course/major restrictions and information regarding the use of one course to meet multiple degree requirements. Majors in Parks, Recreation and Tourism, or Business Administration may double count at most two courses from the Sports Management minor towards the major.

At least half the courses must be taken at UVM. Students must earn at least a 2.0 cumulative GPA in their Sports Management minor courses to earn a minor in Sports Management.

## THE COLLEGE OF EDUCATION AND SOCIAL SERVICES

<http://www.uvm.edu/cess/> (<http://www.uvm.edu/~cess/>)

The College of Education and Social Services (CESS) offers undergraduate programs in Human Development and Family Studies, Individually Designed, 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 to be Undeclared/Undecided while exploring the above options within the college. All programs require coursework in the liberal arts and sciences along with professional preparation through courses and internships in school or community settings.

CESS offers minors in American Sign Language, Coaching, Computer Science Education, Education for Cultural and Linguistic Diversity (both endorsement and non-endorsement), Human Development and Family Studies, Special Education (both endorsement and non-endorsement), and Sports Management.

UVM students who want to transfer into CESS must complete the online transfer form available on the UVM Registrar's Office website. Students will only be considered eligible for transfer into CESS or dual degrees within teacher education programs if they currently have an overall grade-point average of 2.50 or above; 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. Human Development and Family Studies and the Individually Designed major require an overall grade-point average of 2.00, and Social Work requires an overall grade-point average of 2.3 or above to be considered eligible for transfer.

## MAJORS

- Human Development and Family Studies B.S. (p. 363)
- Individually Designed B.S.Ed. (p. 338)
- Social Work B.S.W. (p. 366)
- Teacher Education: Art Education (PreK-Grade 12) B.S.AE. (p. 339)
- Teacher Education: Early Childhood Education (Birth-Grade 3) B.S.Ed. (p. 340)

- Teacher Education: Early Childhood Special Education (Birth-Age 6) B.S.Ed. (p. 342)
- Teacher Education: Elementary Education (K-Grade 6) B.S.Ed. (p. 344)
- Teacher Education: Middle Level Education (Grades 5-9) B.S.Ed. (p. 346)
- Teacher Education: Music Education (Pre-K- Grade 12) B.S.MS. (p. 348)
- Teacher Education: Physical Education (Pre-K- Grade 12) B.S.Ed. (p. 349)
- Teacher Education: Secondary Education (Grades 7-12) B.S.Ed. (p. 350)

## MINORS AND CERTIFICATES

- American Sign Language (p. 365)
- Coaching (p. 359)
- Computer Science Education (p. 359)
- Education for Cultural and Linguistic Diversity (p. 360)
- Education for Cultural and Linguistic Diversity: Endorsement (p. 360)
- Human Development and Family Studies (p. 365)
- Special Education (p. 361)
- Sports Management (p. 362)
- Teaching English to Speakers of Other Languages (p. 363) - Undergraduate Certificate

## REQUIREMENTS

Students must meet all requirements for each program set forth by the CESS Academic Affairs committee, the CESS Student Affairs committee, CESS faculty, the CESS dean, and the University Academic Affairs committee. Nine of the CESS undergraduate majors are nationally accredited and meet the standards of their professional group as follows:

- Social Work: The Council on Social Work Education (CSWE)
- Teacher Education: The Council for the Accreditation of Educator Preparation (CAEP), and the Vermont Standards Board for Professional Educators.

## CRIMINAL RECORD CHECK (CRC) REQUIREMENT

Students enrolled in the College of Education and Social Services majors 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.

Students enrolled in the Teacher Education programs are required to complete the CRC to be eligible for the public school teaching internship that occurs during the Senior year. Depending on the program students may be asked to complete the CRC during the first-year, sophomore and junior years. The cost for fingerprints and FBI processing is covered by each individual student and is subject to

change. More information about this process is available in the CESS Department of Education, Waterman 533.

Human Development and Family Studies majors are encouraged to complete the CRC upon enrollment at the University, as it may be needed in the first semester of coursework. Also most individual agencies require a completed CRC to be eligible for a placement. It is important to note that membership in professional associations upon graduation, typically requires a criminal background check as does employment in an ever-increasing number of human service agencies.

Students enrolled in the Social Work major may be required to complete a CRC for the required service learning or field placement components of their coursework. While not all agencies / organizations require this, almost all do. Faculty will work closely with students who believe they have an active record that might be exposed by a CRC. As a result, it is important to note that there is no guarantee that a student will be accepted for required academic work in a community agency / organization and therefore may not be able to fulfill the requirements of this major.

## TECHNOLOGY REQUIREMENT

The College of Education and Social Services prepares students for impactful careers in education, social work, and human services. In these fields, professionals regularly leverage technology to strengthen schools, families, and communities. All CESS undergraduate programs therefore require students to have a laptop computer. The laptop specifications, available on the CESS website, are intended to ensure students have laptops that provide ample power and meet students' needs throughout the duration of their studies in CESS.

## ASSESSMENT PLATFORM REQUIREMENT

The College of Education and Social Services is committed to regular assessment of student learning and growth to ensure student progress, enhance continuous improvement in program and course delivery, and meet accreditation requirements. To support these efforts, CESS has invested in an assessment platform that allows students and faculty to collaborate in robust assessment practices. Students will be charged a one-time-only fee when they matriculate into the college, which will allow access to the platform both during their enrollment at UVM and for seven years following payment of the fee.

## REGULATIONS

### ACADEMIC PERFORMANCE DISCIPLINARY ACTION

Any CESS student, regardless of class standing, is subject to academic disciplinary action, including separation/dismissal from the university, if (a) the semester or cumulative grade-point average falls below 2.00; or (b) the student has failed six or more credits of coursework in a given semester.

Students who do not meet program-specific requirements or who have not earned the required grade-point-average for their program of study are also subject to academic disciplinary action.



If a student remains on academic disciplinary action for two (2) successive semesters, a student will be reviewed for removal from their program of study, or separation/dismissal from the College of Education and Social Services.

Students on academic disciplinary action will not be allowed to participate in their senior internship/field placement and their degree conferment status may be jeopardized.

## DEPARTMENTS/PROGRAMS

- Education (p. 337)
- Leadership and Developmental Sciences (p. 363)
- Social Work (p. 365)

## DEPARTMENT OF EDUCATION

<http://www.uvm.edu/~doe/>

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 and performance criteria for admittance into the professional portion of their enrolled program, for a teaching internship placement, as well as for licensure recommendation.

The Department of Education also offers an Individually Designed Major. The Individually Designed Major is an interdisciplinary program of study that provides the opportunity to explore and develop students' interests in children, families and communities, and the programs, policies, and processes that shape communal and individual experiences.

## 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 portion of the 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 any Teacher Education program 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. NOTE: Some programs require specific grade-point averages for candidates to enter the Professional portion of the Education sequence.

### Academic Concentration

All students enrolled in a teacher preparation program are required to complete an academic concentration in the liberal arts and sciences. The academic concentration must consist of thirty or more credits.

Students are encouraged to meet with their academic advisor prior to the selection of an academic concentration and throughout their program of study.

## Portfolio Development and Professional Licensure

In accordance with the Vermont Core Teaching Standards, 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 Tk20 account which includes all materials from courses completed so that selected items can be included in the portfolio. Portfolio preparation will be reviewed with students at various points in each program. The portfolio will be scored by two faculty members from the program in which the student is enrolled.

## 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 Core (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 CESS; and students in other colleges on campus who plan to maintain their primary affiliation with their home college while completing the Vermont Agency of Education approved requirements in the CESS.

## 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 the 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.

Once admitted to student teaching, students may be required to successfully complete an 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.

Note: Students who are not admitted to student teaching may submit an appeal to the program faculty and Director of Teacher Education.

### Application for Licensure

Candidates must meet specific requirements to be recommended for licensure. These requirements are available in each program office as well as the CESS Student Services office, 528 Waterman. Students who successfully complete a teacher preparation program are eligible to apply for licensure. Applications for VT licensure are only available from the Vermont Agency of Education.

### Teacher Assessment–PRAXIS Core Academic Skills Test for Educators (PRAXIS Core) and Praxis II

Students are required to submit passing scores for PRAXIS Core 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 before the student is considered eligible for a teaching internship placement. If the student does not meet these conditions, the student may submit an appeal to the program faculty and Director of Teacher Education. The appropriate Praxis II exam must be passed in order to be eligible for an endorsement for teaching.

### Approved Alternatives to PRAXIS Core Academic Skills Test for Educators (PRAXIS Core)

The CESS will accept PRAXIS I, SAT, GRE, or ACT scores as approved by the Vermont Agency of Education. If the student has one of the aforementioned test scores, the student may submit those scores to the CESS Student Services office for review in accordance with Vermont Agency of Education standards.

Post-Baccalaureate Teacher Preparation programs and Graduate Teacher Preparation programs: Applicants will provide passing scores on PRAXIS Core (or approved alternatives) before being admitted to the program. Students who receive conditional acceptance must provide passing scores for PRAXIS Core before being eligible for a teaching internship placement.

## MAJORS

### EDUCATION MAJORS

Individually Designed B.S. Ed. (p. 338)

Teacher Education: Art Education (PreK-12) B.S.AE. (p. 339)

Teacher Education: Early Childhood Education (Birth-Grade 3) B.S.Ed. (p. 340)

Teacher Education: Early Childhood Special Education (Birth-Age 6) B.S.Ed. (p. 342)

Teacher Education: Elementary Education (K- Grade 6) B.S.Ed. (p. 344)

Teacher Education: Middle Level Education (Grades 5-9) B.S.Ed. (p. 346)

Teacher Education: Music Education (Pre-K-Grade 12) B.S.MS. (p. 348)

Teacher Education: Physical Education (Pre-K-Grade 12) B.S.Ed. (p. 349)

Teacher Education: Secondary Education (Grades 7-12) B.S.Ed. (p. 350)

## MINORS AND CERTIFICATES

### EDUCATION MINORS

Coaching (p. 359)

Computer Science Education (p. 359)

Education for Cultural and Linguistic Diversity (p. 360)

Education for Cultural and Linguistic Diversity: Endorsement (p. 360)

Special Education (p. 361)

Sports Management (p. 362)

Teaching English to Speakers of Other Languages (p. 363) - Undergraduate Certificate

## GRADUATE

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Curriculum and Instruction AMP

Curriculum and Instruction M.A.T.

Curriculum and Instruction M.Ed.

Educational Leadership Post-Master's Certificate

Educational Leadership M.Ed.

Educational Leadership and Policy Studies Ed.D.

Educational Leadership and Policy Studies Ph.D.

Integrated Studies Post-Master's Certificate

Special Education Post-Master's Certificate

Special Education AMP

Special Education M.Ed.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## INDIVIDUALLY DESIGNED B.S.ED.

The Individually Designed Major (IDM) B.S. Ed., is for self-motivated students interested in studying the fields prioritized in the College of Education and Social Services: education, social work, and human development and family studies. The Individually Designed Major is an interdisciplinary program of studies that gives students the opportunity to explore and develop their interests in children, families and communities, and the programs, policies, and processes that shape our communal and individual experiences. Students connect CESS courses with university-wide courses to

create a major unique to their needs and interests that are not met through our existing programs. Students may, with permission, include graduate level courses as part of their program. Proposals for the IDM should be developed during the student's Sophomore year; however, exceptions may be made given extenuating circumstances. The program leads to a Bachelor of Science in Education (non-licensure). All students who participate in an individually designed major must complete a minor or certificate. No more than 6 credits may overlap between the major, minor or certificate.

120 total credits are required to complete the B.S.Ed.

## REQUIREMENTS

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 336)

UNIVERSITY GENERAL EDUCATION REQUIREMENTS	
Diversity	6
D1 - Race and Racism in the U.S.	
D2 - Diversity of Human Experience	
Writing and Information Literacy	3
ENGS 001, ENGS 002, HCOL 085 or TAP course	
Sustainability	3
Any course with an 'SU' designation	
Quantitative Reasoning	3
Any course with a 'QR' designation	
CESS GENERAL EDUCATION REQUIREMENTS	
Fine Arts	3
ARTH, ARTS, DNCE, FTS, MU, SPCH, THE	
Literature	3
CLAS, ENGS, WLIT	
Foreign Language	3
ASL, Any foreign language	
Humanities	3
ARTH, CLAS, PHIL, REL	
Mathematical Sciences	3
CS, MATH, PHIL 013 or STAT	
Natural or Environmental Science	3
ASTR, BCOR, BIOL, CHEM, ENSC, ENVS, GEOL, PBIO, PHYS	
Social Studies	3
ANTH, CRES, EC, GEOG, HST, LING, POLS, PSYS, SOC, VS	
INDIVIDUALLY DESIGNED CORE COURSES	

SWSS 002	Foundations of Social Work	3
HDFS 005	Human Development	3
or HDFS 060	Family Context of Development	
ECLD 056	D1:Lang Policy Issues,Race&Sch	3
EDFS 002	School and Society	3
EDFS 197	Undergraduate Research	3
EDSS 201	Individually Designed Capstone	3-6
SELF-SELECTED INDIVIDUALLY DESIGNED MAJOR COURSES <sup>1</sup>		30

<sup>1</sup> At least 12 of the 30 credits must be at the 100 level or above. At least 3 credits must come from an applied experience, such as travel courses, service learning or a practicum.

## TEACHER EDUCATION / ART EDUCATION (GRADES PREK-12) B.S.AE.

The College works cooperatively with the Department of Art and Art History 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, 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.

Students must meet with their advisor and receive approval prior to registration for the student teaching placement and accompanying courses.

A minimum of 120 approved credits is required for the degree. The number of electives depends on the degree of course overlap in the university, general education, professional, and content requirements. It is possible to have one course fulfill two requirements but the credits only count once.

Students are responsible for obtaining information regarding teacher licensure and degree requirements from the CESS Student Services office, 528 Waterman, or the CESS website.

## REQUIREMENTS ART EDUCATION MAJOR REQUIREMENTS

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 336)

UNIVERSITY GENERAL EDUCATION REQUIREMENTS		
Diversity		6
D1 - Race and Racism in the U.S.		
D2 (EDSP 005) - Diversity of Human Experience		
Writing and Information Literacy		3
ENGS 001, HCOL 085 or TAP course		
Sustainability		3
Any course with 'SU' designation		
Quantitative Reasoning		3
Any course with 'QR' designation		
CESS GENERAL EDUCATION REQUIREMENTS		
Arts and Letters		3
English Literature Elective		
Humanities		3
ASL 001, Foreign Language, PHIL, REL		
Math		3
MATH 009 or higher		
Science		3-4
Any course beginning with the subject prefix: BIOL, CHEM, ENSC, ENVS, GEOL, PBIO, PHYS, or PSS 028		
Social Science		
HST 011	US History to 1865	3
or HST 012	US History since 1865	
POLS 021	American Political System	3
PSYS 001	Intro to Psychological Science	3
PROFESSIONAL REQUIREMENTS		
HDFS 005	Human Development	3
EDSP 005	D2:Iss Aff Persons W/Disabil	3
Praxis Core Requirement		
EDAR 177	Curriculum & Pract in Elem Art	4
EDAR 178	Curriculum&Pract Middle/HS Art	4
EDAR 283	Current Issues in Art & Ed	3
EDAR 284	Current Issues in Art & Ed	3
EDFS 002	School and Society	3
EDSC 226	Teaching Internship	12
EDSC 230	Teaching for Results	3
Praxis II Requirement		

ART CONTENT COURSEWORK		
ARTH 005	Western Art:Ancient - Medieval	3
ARTH 006	Western Art:Renaissance-Modern	3
Two Art History Courses		6
ARTS 001	Drawing	3
ARTS 012	Perspectives on Art Making	3
One course in 3-D Art		3
One course in Digital Media (100-level)		3
21 credits of Studio Art Electives at 095 level or higher		21

Students are required to complete a minimum of 120 credits to complete the program in Art Education.

## TEACHER EDUCATION / EARLY CHILDHOOD EDUCATION (BIRTH-GRADE 3) B.S.ED.

### EARLY CHILDHOOD EDUCATION

The Early Childhood Education (EDEC) program provides students with a supportive yet rigorous environment, in which they develop the perspectives, knowledge, and skills, necessary to work effectively with families, co-professionals, and children from birth to grade 3, in a variety of classroom and community-based settings.

The program involves substantial field-based experiences and makes significant use of the UVM Campus Children's School and diverse community-based practicum sites. Graduates of the program, who successfully complete all requirements, are eligible for recommendation for initial teacher licensure and an endorsement to work with children Birth - Grade 3. Coursework is designed to promote students' abilities to:

- Support children's learning and development within natural environments and 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, and linked to developmentally and/or individually appropriate curricula; and
- Foster collaborative relationships with family members, peers of the same discipline, and individuals across disciplines.

### MAJOR REQUIREMENTS

EDEC students complete both a sequence of professional courses related to early childhood as well as a content concentration focusing on the disciplines of English language arts, mathematics, science, social studies, and art/movement.

The EDEC 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. EDEC 001 provides an introduction to the field of inclusive early childhood education as well as considerable opportunity to practice techniques for observing young children's development. Observational skills are an essential component of the EDEC program since an awareness of children's interests and unique styles of learning form the basis for the design and provision of meaningful educational experiences for young children. HDFS 060 examines the context of development and, in so doing, establishes the foundation for recognizing that development is an interdependent and intertwined process. ECSP 105 explores individualized practices for diverse learners in inclusive early childhood settings. During EDEC 122, students explore multiple models of early education, learning theory, cultural/linguistic diversity, early childhood policy and issues of power and privilege. 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.

Next students fulfill their first practicum. EDEC 105 and EDEC 109 focus on content and methods in working with infants and toddlers from a social-constructivist perspective. EDEC 109 provides students with a practicum experience at the UVM Campus Children's School. EDEC 145 and EDEC 149 focus on content and methods in working with pre-school aged children from a social-constructivist perspective. EDEC 149 provides students with a practicum experience at the Campus Children's School and/or other diverse community based settings with preschool-aged children. Over the course of these practica, students, under the supervision and mentorship of classroom teachers, gradually assume more responsibility for all aspects of the curriculum and environment, as well as contact with families. The 'K - 3 block' consists of EDEC 156, EDEC 181, EDEC 182, and EDEC 179. Through this integrated, hands-on learning experience, students pursue coursework in kindergarten - grade 3 content and methods and complete an interdisciplinary practicum in a K-3 classroom in an inclusive, community public school context.

The EDEC Professional Preparation sequence is completed with EDEC 187, a full-time student teaching experience working with children Birth - Grade 3, based upon student career goals. EDEC 188 is a seminar that accompanies and provides students further support as they complete their student teaching experience and portfolio.

The course of study consists of a minimum of 120 credits.

## REQUIREMENTS

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 336)

UNIVERSITY GENERAL EDUCATION REQUIREMENTS	
Diversity Courses	6
D1 - Race and Racism in the U.S. (ECLD 056)	
D2 - The Diversity of Human Experience (EDSP 005)	

Writing and Information Literacy		3
ENG 001, HCOL 085 or TAP course		
Sustainability		3
Any course with 'SU' designation		
Quantitative Reasoning		3
Any course with 'QR' designation		
CESS GENERAL EDUCATION REQUIREMENTS		
Arts and Letters		3
ENG elective		
Humanities		3
A course beginning with the subject prefix: ARTH, ARTS, ASL 001, CLAS, FOREIGN LANG., HST, Literature, MU, PHIL, REL, or THE		
Math		6
MATH 015	QR: Elementary School Math	
MATH 016	QR: Fund Cncpts Elm School Math	
Any math above MATH 015, or STAT		
Physical and Biological Sciences - a course beginning with a subject prefix:		3
ANPS, BIOL, CHEM, ENSC, ENVS, GEOL, NFS 043, PBIO, or PHYS		
PROFESSIONAL REQUIREMENTS		
EDEC 001	Intro Early Care & Education	4
EDSP 005	D2: Iss Aff Persons W/Disabil	3
HDFS 060	Family Context of Development	3
ECLD 056	D1: Lang Policy Issues, Race & Sch	3
ECSP 105	Individlzd Prac for Inclusion	3
EDEC 122	Culturally Responsive Educatn	3
EDEC 063	Child Development	3
or EDEL 024	Learners and Learning Process	
or HDFS 005	Human Development	
or PSYS 150	Developmental Psych: Childhood	
Praxis Core Requirement <sup>1</sup>		
EDEC 105	Inf/Todd Curriculum Develop	3
EDEC 109	Infant Toddler Practicum	4
EDEC 145	Preschool Curriculum Devel	3
EDEC 149	Preschool Practicum	4
EDEC 151	The Science of Everyday Life	3

EDEC 156	K-3 STEM: Math for Meaning	3
EDEC 181	K-3 Inquiry	3
EDEC 182	K-3 Literacy	3
EDEC 179	K-3 Interdisciplinary Practicum	6
EDEC 187	Early Childhood Student Teaching	12
EDEC 188	Student Teaching Seminar	3
Praxis II Requirement		
CONCENTRATION		
Students must complete 9 credits in each of the following requirements: <sup>2</sup>		
English Language Arts - courses beginning with the subject prefixes:		9
ASL, CSD, ENGS, LING, or WLIT		
Math		9
MATH 015 or higher, STAT, CS		
Social Studies - courses beginning with the subject prefixes:		9
ANTH, EC, GEOG, HST, POLS, or SOC		
Science - courses beginning with the subject prefixes:		6
EDEC 151, EDTE 074, ANPS, BCOR, BIOL, CHEM, ENSC, ENVS, FOR, GEOL, NFS, PBIO, PHYS, PSS, or WFB		
Arts and Movement		3
EDEC 113	Creative Arts and Movement	

<sup>1</sup> The Praxis Core Academic Skills for Educators exam (or equivalent) must be completed for a student to progress into the courses below.

<sup>2</sup> These courses often double-dip with general education requirements

## TEACHER EDUCATION / EARLY CHILDHOOD SPECIAL EDUCATION (BIRTH-AGE 6) B.S.ED.\*

### BIRTH-AGE 6 SPECIAL EDUCATION

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 age six 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 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 School and Trinity Children's Center) as well as throughout the local community and region.

### MAJOR REQUIREMENTS

ECSP students complete both a sequence of professional courses related to early childhood and early childhood special education as well as a content concentration focusing on the disciplines of English language arts, mathematics, science and social studies.

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. EDEC 001 provides an introduction to the field of inclusive early childhood 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 unique styles of learning form the basis for the development and provision of appropriate educational experiences for young children. HDFS 060 examines the context of development and in so doing establishes the foundation for recognizing that development is an interdependent and intertwined process. ECSP 105 explores individualized practices for diverse learners in inclusive early childhood settings. During EDEC 122, students explore multiple models of early education, family-centered practices and the Vermont Learning Standards. 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.

Next students fulfill their first practicum. EDEC 105 and EDEC 109 focus on content and methods in working with infants and toddlers from a social-constructivist perspective. EDEC 109 provides students with a practicum experience at the Campus Children's School and/or other diverse community based settings with infants and toddlers. EDEC 145 and EDEC 149 focus on content and methods in working with pre-school aged children from a social-constructivist perspective. EDEC 145 provides students with a practicum experience in diverse community based settings with preschools. Over the course of these practica, students, under the supervision and mentorship of classroom teachers, gradually assume more responsibility for all aspects of the curriculum and environment, as well as contact with families.

As the program progresses professional course work becomes increasingly focused on learning to design services and supports for young children with diverse abilities and their families. ECSP 202 focuses on the characteristics of and interventions for infants and toddlers 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, concerns of the family, and strengths and areas of growth for the child; 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 preschool aged children with disabilities and their families.

The ECSP Professional Preparation sequence is completed with a student teaching experience in special education. ECSP 187 is a student teaching experience working with young children with diverse abilities (ages 0-6) and their families. ECSP 220 is a seminar that accompanies ECSP 187 and provides students further support as they complete their student teaching experience in early childhood special education and portfolio.

The course of study consists of a minimum of 120 credits.

## REQUIREMENTS

### EARLY CHILDHOOD SPECIAL EDUCATION

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 336)

UNIVERSITY GENERAL EDUCATION REQUIREMENTS		
Diversity		6
D1 - Race and Racism in the U.S. (ECLD 056)		
D2 - The Diversity of Human Experience (EDSP 005)		
Writing and Information Literacy		3
ENGS 001, HCOL 085 or TAP course		
Sustainability		3
Any course with a 'SU' designation		
Quantitative Reasoning		3
Any course with a 'QR' designation		
CESS GENERAL EDUCATION REQUIREMENTS		
Arts and Letters		3
ENGS elective		
Humanities - a course beginning with the subject prefix:		3
ARTH, ARTS, ASL 001, CLAS, FOREIGN LANGUAGE, HST, Literature, MU, PHIL, REL, or THE		
MATH		6
MATH 015	QR: Elementary School Math	
MATH 016	QR: Fund Cncpts Elm School Math	
MATH 015 or higher, STAT		
Physical and Biological Sciences - a course beginning with the subject prefix:		3

ANPS, BIOL, CHEM, ENSC, ENVS 001, GEOL, NFS 043, 063, PBIO, or PHYS		
PROFESSIONAL REQUIREMENTS		
EDEC 001	Intro Early Care & Education	4
EDSP 005	D2:Iss Aff Persons W/Disabil	3
HDFS 060	Family Context of Development	3
ECLD 056	D1:Lang Policy Issues,Race&Sch	3
ECSP 105	Individldz Prac for Inclusion	3
EDEC 063	Child Development	3
or EDEL 024	Learners and Learning Process	
or HDFS 005	Human Development	
or PSYS 150	Developmental Psych: Childhood	
ECSP 202	D2:EI for Infants and Toddlers	3
ECSP 211	Assessment in EI/ECSE	3
EDEC 122	Culturally Responsive Educatn	3
ECSP 210	Curriculum in ECSP	3
Praxis Core Requirement <sup>1</sup>		
EDEC 105	Inf/Todd Curriculum Develop	3
EDEC 109	Infant Toddler Practicum	4
EDEC 145	Preschool Curriculum Devel	3
EDEC 149	Preschool Practicum	4
ECSP 187	Student Teaching Practicum	12
ECSP 220	Seminar in EI/ECSE	3
CONCENTRATION REQUIREMENTS <sup>2</sup>		
English Language Arts - courses with the subject prefixes:		9
ASL, CSD, ENGS, LING, or WLIT		
Math		9
MATH 015 or higher, STAT, CS		
Science - courses with the subject prefixes:		9
EDTE 074, ANPS, BCOR, BIOL, CHEM, EDHE 046, ENSC, ENVS, FOR, GEOL, NFS, PBIO, PHYS, PSS, or WFB		
Social Studies - courses with the subject prefixes:		9
ANTH, EC, GEOG, HST, POLS, or SOC		
Art and Movement		3
EDEL 159	Integrating the Arts	
EDEC 113	Creative Arts and Movement	
Any ARTS course		

- <sup>1</sup> The Praxis Core Academic Skills for Educators (or equivalent test) must be passed for a student to progress into the courses below
- <sup>2</sup> These courses often double-dip with general education requirements

## TEACHER EDUCATION / ELEMENTARY EDUCATION (GRADES K-6) B.S.ED.

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 focuses on a central theme of “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 diverse populations of children, beginning in the second year of their professional program.

Several features distinguish the program:

### INTEGRATED CLASSROOM AND FIELD EXPERIENCES

Using a research-to-practice model, the Elementary Education program integrates theoretical constructs with authentic experiences. Students in the program have multiple opportunities to connect their on-campus learning to authentic classroom experiences. The program pairs these field-based experiences with pedagogy courses focusing on literacy, mathematics, and inquiry-based science and social studies.

The final professional internship (student teaching) is accompanied by a seminar emphasizing behavior management, reflective teaching, and portfolio development. Students are thus placed in learning opportunities where theory and practice intersect.

### AUTHENTIC ASSESSMENT

The State of Vermont requires a results-oriented demonstration of teaching competence to qualify for the teaching license. The Elementary Education program incorporates portfolio-driven, authentic assessments at every step of the professional program. Interns learn the portfolio as a method of documenting and assessing their own learning, while also learning to apply it within their elementary classrooms.

### EDUCATING ALL LEARNERS

The State of Vermont has a high rate of inclusion of learners with challenges in the regular classroom setting. Elementary Education majors learn about and practice the application of instructional adaptations for learners with diverse needs. Students in the Elementary Education program may choose to minor in Special Education or seek a Dual Certification that makes them

eligible for both a K-6 general education and a Special Education (K-8) endorsement. They may also choose a minor in Education for Cultural and Linguistic Diversity (ECLD), which can lead to endorsement for teaching English Learners (ELs).

### CONTENT AREA COURSE WORK

The content area course work for Elementary Education students is comprised of four disciplines: English/Language Arts, Mathematics, Science and Social Studies. This coursework prepares students to teach all content areas in elementary classrooms. Students work with their advisors to develop a plan to complete course work in all four disciplines and meet a minimum GPA of 3.0 in content area courses.

The overall course of study consists of a minimum of 120 credits which are divided into the following categories:

- University Course Requirements
- General Education Courses
- Professional Preparation Sequence
- Content Area Course work

### REQUIREMENTS

#### ELEMENTARY EDUCATION REQUIREMENTS

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 336)

UNIVERSITY GENERAL EDUCATION REQUIREMENTS		
Diversity		6
D1 (ECLD 056)		
D2 (EDSP 005)		
Writing and Information Literacy		3
ENGS 001, HCOL 085 or TAP course		
Sustainability		3
Any course with a 'SU' designation		
Quantitative Reasoning		3
Any course with a 'QR' designation (MATH 015)		
CESS GENERAL EDUCATION REQUIREMENTS		
Fine Arts		3
Any course with a subject prefix of: ARTH, CDAE 015, FTS, MU, ARTS, DNCE, THE, EDEL 159		
Humanities		
Any course with the subject prefix of: ASL, CLAS, CRES, PHIL, REL or any foreign language		
Math <sup>1</sup>		
MATH 015	QR: Elementary School Math	3
MATH 016	QR: Fund Cncpts Elm School Math	3



Science		
EDTE 074, or any course with a subject prefix of: ANPS, ASTR, BIOL, CHEM, ENSC, ENVS, FOR, GEOL, NFS, PBIO, PHYS, WFB		
Social Science		
HST 011	US History to 1865	3
or HST 012	US History since 1865	
POLS 021	American Political System	3
PRE-PROFESSIONAL REQUIREMENTS		
EDSP 005	D2:Iss Aff Persons W/Disabil	3
EDEL 024	Learners and Learning Process	3
or EDEC 063	Child Development	
or HDFS 005	Human Development	
or PSYS 150	Developmental Psych: Childhood	
ECLD 056	D1:Lang Policy Issues,Race&Sch	3
EDFS 002	School and Society	3
or EDFS 203	Soc, Hst & Phil Found of Educ	
EDEL 056	Teachers&the Teaching Process	3
EDEL 178	Mtg Needs of Diverse Learners	3
Praxis Core Requirement		
PROFESSIONAL REQUIREMENTS		
EDEL 175	Lab Experience in Literacy	3
EDEL 156	Teaching Math for Meaning	3
EDEL 176	Language Arts&Literacy Skills	3
EDEL 177	Children's Lit & Literacy	3
EDEL 155	Lab Experience in Inquiry	3
EDEL 157	SU:Social Educ & Social Studies	3
EDEL 158	Teaching Science for Meaning	3
EDEL 287	Plng, Adptg, Dlvring Lit Instr <sup>2</sup>	3
EDEL 285	Student Teaching Internship <sup>3</sup>	12
EDEL 288	Principles-Classroom Mgmt	3
Praxis II Requirement		
CONTENT CONCENTRATION COURSES <sup>4,5</sup>		
Students must compete 12 credits in each area, with 6 additional credits in one of the content areas		
English Language Arts		12
ASL, CSD (except CSD 274), ENGS, LING, WLIT, EDEL 177, EDLT 236		

Math	12
MATH 015 or higher, STAT, CS	
Science	12
ANPS, ASTR, BCOR, BIOL, CHEM, COMU 001, COMU 131, EDHE 146, EDTE 074, ENSC, ENVS, FOR, GEOL, NFS, PBIO, PHYS, PSS, PSYS 115, WFB	
Social Studies	12
HST 11 or 12, and POLS 021 required	
ANTH, CDAE 002, ECON, EDFS 001, GEOG, HST, HSCI 021, NR 009, POLS, SOC, or SWSS 004	
Additional 6 credits in one content area	6

## PERFORMANCE IN PRE-PROFESSIONAL AND PROFESSIONAL COURSES

Students must achieve a grade of B- or better in all pre-professional and professional courses. If students receive a grade below B- in one of these courses, they will be placed on program probation for the following semester. They will need to submit a formal request to continue in the program, and they will attend a Student Support Team (SST) meeting to develop a plan for successfully moving forward in the program. Two consecutive semesters with a grade below B- in any pre-professional or professional course may result in dismissal from the program.

## PROGRESSION INTO THE PROFESSIONAL COURSES

Students must complete an Application to Teacher Education form which is distributed in EDEL 178, and is also available in 533 Waterman Building. Students will follow the requirements specified in this application. Students will not be permitted to enroll in Professional courses until they have been accepted to Teacher Education, have a minimum GPA of 2.75, have a professional GPA of 3.0, and have passed the PRAXIS Core exam.

## PROGRESSION INTO STUDENT TEACHING

Students are required to complete an Application to Student Teaching before being assigned a placement. Students will be notified by the Elementary Education program 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. Students need minimum cumulative GPA of 3.0, Professional GPA of 3.0 and Content GPA of 3.0.

- <sup>1</sup> Math 015 or above, or STATS. Minimum grade of 'C' required
- <sup>2</sup> Must be taken after EDEL 176 & prior to Student Teaching
- <sup>3</sup> Grade of 'B' or better required for licensure
- <sup>4</sup> Must maintain an overall GPA of 3.0 in all content area coursework
- <sup>5</sup> Credits can overlap with general education requirements

## TEACHER EDUCATION / MIDDLE LEVEL EDUCATION (GRADES 5-9) B.S.ED.

The organizing theme of the Middle Level Education 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 120 credits of study across four areas: General Education, Content Concentration, 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, faculty guide them in devising an eight-semester plan that is balanced across four areas of study. Those four 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. Courses on young adolescent learning and development, learning theory, special education, and teaching culturally and linguistic students 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.

### DUAL CONTENT CONCENTRATION AREAS

Students in Middle Level Education complete two Highly Qualified Teacher (HQT) content areas (English, mathematics, social studies, science). The students must work closely with their advisor to determine the two content areas and sequence of courses.

### FIELDWORK

The faculty is committed to providing students as many field experience as possible and deemed practical during a four-year course of study. Five courses (EDML 024, EDML 056, EDML 261, EDML 171, EDML 285) are primarily field-based and, while taking these courses, students will enjoy working with teachers on up to 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.

The Middle Level Education program is designed to prepare teachers to create curriculum and learning environments that are responsive to the needs of students in grades 5-9. As such, all of our classes center on teaching that is specific to young adolescents. In keeping with the middle school model, great emphasis is placed on concepts such as collaborative teaming, interdisciplinary teaching, challenging and relevant curriculum, student voice, and teaching for equity.

Finally, like all teacher education students at UVM, participants in this program use authentic assessment to demonstrate their growth over time in relation to specific teaching skills. Over the course of their program of study, students will curate samples of their professional work, reflect on their learning, and ultimately create an evidence-based portfolio in their senior year. Students will refine this portfolio of work in conjunction with their student teaching experience and ultimately submit it for review as part of the licensure process. This evidence-based portfolio in turn becomes a valuable resource for seniors as they begin their job search.

## REQUIREMENTS

### MIDDLE LEVEL EDUCATION

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 336)

UNIVERSITY GENERAL EDUCATION REQUIREMENTS	
Diversity	6
D1 - Race and Racism in the U.S. (ECLD 056)	
D2 - Diversity of the Human Experience (EDSP 005)	
Writing and Information Literacy	3
ENGS 001, HCOL 085 or TAP course	
Sustainability	3
Any course with a 'SU' designation	
Quantitative Reasoning	3
Any course with a 'QR' designation	
CESS GENERAL EDUCATION REQUIREMENTS	
Fine Arts	3
ARTH, ARTS, CDAE 015, CDAE 016, CDAE 091, DNCE, EDEL 159, FTS, MU, THE	
Humanities	3
ARTH, ASL, CLAS, EDLT 236, Foreign Language, PHIL, REL, WLIT	
Science	3
ANPS, ASTR, BIOL, CHEM, ENSC, ENVS, FOR, GEOL, NR, PBIO, PHYS	

Social Studies		6
ANTH, CDAE 002, CDAE 003, CDAE 004, GEOG, GRS, GSWS 001, HST, POLS, PSYS, REL 164, REL 165, SOC		
PRE-PROFESSIONAL REQUIREMENTS		
EDSP 005	D2:Iss Aff Persons W/Disabil	3
EDML 056	Teachers & Teaching Process	3
EDML 024	Foundations of Middle Level Ed	3
EDFS 002	School and Society	3
or EDFS 203	Soc, Hst & Phil Found of Educ	
ECLD 056	D1:Lang Policy Issues,Race&Sch	3
Praxis Core Requirement		
PROFESSIONAL COURSEWORK		
EDML 171	Mid Level Teaching Practicum I	3
EDML 177	Young Adolescent ELA Methods	3
EDSC 157	QR:Intro to Teaching Math	3
EDML 260	Teaching Young Adolescents	6
EDML 261	Mid Lev Teaching Practicum II	3
EDML 270	Middle School Org & Pedagogy	6
EDML 287	Content Literacy in Mid Grades	3
or EDSS 200	Contemporary Issues	
EDML 286	Internship Support Seminar	3
EDML 285	Middle Level Student Teaching	12
Praxis II Requirement		

## CONCENTRATION AREAS

Students must complete two of the following four areas of concentration.

### ENGLISH LANGUAGE ARTS CONCENTRATION

Select 2 courses from the following options		6
ENG 001	FW: Written Expression	
ENG 002	FW: Written Expression: Theme	
ENG 050	The Art of the Essay	
ENG 051	Topics in Composition	
ENG 053	Intro to Creative Writing	
ENG 114	Topics in Writing	
ENG 117	Advanced Creative Nonfiction	
ENG 119	Advanced Writing: Poetry	
Choose 1 course from each of the following sets		

Multicultural Literature		3
EDLT 236	Multicultural Children's Lit	
ENG 057	D1:Race&Ethnic Lit Stds:Intro	
ENG 111	D1:Race & Ethnic in Lit Stds	
ENG 177	D1:Topics 20C Afr Am Lit & Cul	
ENG 182	D2:Colonial/Post-Col World Lit	
Survey Literature Courses		3
ENG 022	Seminar in British Lit II	
ENG 023	Seminar in American Lit I	
ENG 024	Seminar in American Lit II	
Structure of the English Language Courses		3
LING 080	Introduction to Linguistics	
LING 081	Structure of English Language	
ENG 081	Structure of English Language	
An elective from ENG, LING or WLIT		3

## MATH CONCENTRATION

MATH 015	QR: Elementary School Math	3
MATH 030	QR: Algebra for Educators	3
MATH 040	Geometry for Educators	3
MATH 019	QR: Fundamentals of Calculus I	3
MATH 161	Development of Mathematics	3
STAT 141	QR:Basic Statistical Methods 1	3
EDSC 257	QR:Tchg Math in Sec Schls	3

## SCIENCE CONCENTRATION

BIOL 001	Principles of Biology	4
or BCOR 011	Exploring Biology	
BIOL 002	Principles of Biology	4
or BCOR 012	Exploring Biology	
CHEM 023	Outline of General Chemistry	4
or CHEM 031	General Chemistry 1	
GEOL 001	Earth System Science	4
PHYS 011	Elementary Physics	4
ASTR 005	Exploring the Cosmos	3

## SOCIAL STUDIES CONCENTRATION

POLS 021	American Political System	3
GEOG 050	D2:SU:Global Envmts& Cultures	3

HST 009	D2: Global History to 1500	3
or HST 010	D2: Global History since 1500	
HST 011	US History to 1865	3
HST 012	US History since 1865	3
EC 011	Principles of Macroeconomics	3
or EC 012	Principles of Microeconomics	

## TEACHER EDUCATION / MUSIC EDUCATION (GRADES PREK-12) B.S.MS.

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. Graduates are qualified for positions as instructors of music in public and private schools.

A minimum of 125 approved semester credits is required for the degree. Students must pass the piano proficiency and PRAXIS Core examinations before the semester prior to student teaching. Students are responsible for obtaining information regarding teaching licensure and degree requirements from the CESS Student Services office, 528 Waterman, or the Student Services Office website.

Techniques courses (brass, percussion, string, woodwind, vocal), and Methods and Practicum courses (choral, general, instrumental) are offered on a rotating schedule. Consult your advisor for available courses per semester.

## REQUIREMENTS MUSIC EDUCATION

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 336)

UNIVERSITY GENERAL EDUCATION REQUIREMENTS		
Diversity		6
D1 - Race and Racism in the US		
D2 - Diversity of Human Experience (EDSP 005)		
Writing and Information Literacy		3
ENGS 001, HCOL 085 or TAP course		
Sustainability		3
Any course with a 'SU' designation		
Quantitative Reasoning		3

Any course with a 'QR' designation		
CESS GENERAL EDUCATION REQUIREMENTS		
Humanities		3
ASL 001, Foreign Language, PHIL, REL		
Math		3
CS, MATH or STAT		
Science		3-4
Any course beginning with the subject prefixes: ASTR, BIOL, CHEM, ENSC, ENVS, GEOL, NFS 043, PBIO, PHYS		
Social Science		3
Any course beginning with the subject prefix: ANTH, EC, GEOG, HST, POLS, PSYS, SOC		
PROFESSIONAL REQUIREMENTS		
EDFS 203	Soc, Hst & Phil Found of Educ	3
EDSP 005	D2:Iss Aff Persons W/Disabil	3
HDFS 005	Human Development	3
Praxis Core Requirement		
MU 076	Brass Techniques	2
MU 077	String Techniques	2
MU 078	Woodwind Techniques	2
MU 079	Percussion Techniques	2
MU 080	Vocal Techniques	2
MU 085	Intro to Music Education	3
MU 181	Conducting	3
MU 270	General Music Methods	3
MU 271	General Music Practicum	1
MU 272	Choral Music Methods	2
MU 273	Choral Music Practicum	1
MU 274	Instrumental Music Methods	2
MU 275	Instrumental Music Practicum	1
MU 281	Advanced Conducting	3
MU 289	Teaching Internship Seminar	1
MU 290	Teaching Internship	11
Praxis II Requirement		
CONTENT COURSES		
Musicianship		
MU 060	Intro to Music Technology	3



MU 111	Music History & Literature I	3
MU 112	Music History & Literature II	3
MU 109	Harmony and Form I	3
MU 101	Harmony and Form Lab I	1
MU 110	Harmony and Form II	3
MU 102	Harmony and Form Lab II	1
MU 209	Harmony and Form III	3
MU 154	Harmony and Form Lab III	1
MU 210	Harmony and Form IV	3
MU 156	Harmony and Form Lab IV	1
MU 159	Theory/Prac Jazz Improv I	3
Performance		
Piano Proficiency Exam		
MUL 118	Piano Proficiency I	1
MUL 119	Piano Proficiency II	1
MUL 120	Piano Proficiency III	1
Level II Exam		
MUL 134	Private Lessons: Music Majors	8
Level III exam		
MUL 234	Private Lessons: Music Majors	5
MUL 250	Senior Recital	1
MUL 034	Required Secondary Lessons	4
Ensemble <sup>1</sup>		
MUE 122	University Concert Choir	2
Large Ensemble (5 credits). Choose from:		5
MUE 112	Jazz Vocal Ensemble	
MUE 121	University Concert Band	
MUE 123	University Symphony Orchestra	
MUE 124	University Jazz Ensemble	
MUE 213	Vermont Wind Ensemble	
Small Ensemble. Choose one from:		1
MUE 101	Small Ensembles (B: Jazz Guitar Ensemble)	
MUE 101	Small Ensembles (C: Latin Jazz Ensemble)	
MUE 101	Small Ensembles (D : Percussion Ensemble)	
MUE 101	Small Ensembles (E: Nonet)	
MUE 101	Small Ensembles (F: Jazz Combo)	

MUL 126	Accompanying	
MUE 211	Catamount Singers	
MUE 201	Advanced Small Ensembles (A: Post Bop Ensemble)	
MUE 201	Advanced Small Ensembles (B: Chamber Music)	

## TEACHER EDUCATION: PHYSICAL EDUCATION (GRADES PREK-12) B.S.ED.

The Sports Leadership and Physical Education program contains the Physical Education licensure major, the Exercise and Sport Science concentration, the Coaching minor and elements of the Sport Management minor. The Physical Education major qualifies candidates for licensure to teach in grades PreK-12. Course work around the 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 major content and teaching skills important in providing developmentally appropriate aspects of physical education to children and youth in today’s schools. Laboratory experiences in schools throughout the course of study 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 and sport science is available. The Sports Leadership and Physical Education program also boasts of a Coaching minor (non-licensure) that is available to all University students. 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 major. It is possible to have one course fulfill two requirements but the credits only count once.

The course of study requires a minimum of 120 credits that are divided into the following categories.

- University Requirements
- General Education Courses
- Professional Preparation Sequence
- Major Concentration (student must consult advisor for options)
- Electives<sup>1</sup>

<sup>1</sup> The number of electives depends on the degree of course overlap in the university, general education, major, and concentration requirements. It is possible to have one course fulfill two requirements but the credits only count once.

## REQUIREMENTS PHYSICAL EDUCATION

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 336)

UNIVERSITY GENERAL EDUCATION REQUIREMENTS		
Diversity		6
D1 - Race and Racism in the U.S.		
D2 - The Diversity of Human Experience (EDSP 005)		
Writing and Information Literacy		3
ENGS 001, HCOL 085 or TAP course		
Sustainability		3
Any course with a 'SU' designation		
Quantitative Reasoning		3
Any course with a 'QR' designation		
CESS GENERAL EDUCATION REQUIREMENTS		
Humanities - a course with the subject prefix:		3
ASL 001, Foreign Language, PHIL, or REL		
Science		
ANPS 019	Ugr Hum Anatomy & Physiology	4
ANPS 020	Ugr Hum Anatomy & Physiology	4
Social Studies		
HDFS 005	Human Development	3
HST 011	US History to 1865	3
or HST 012	US History since 1865	
or POLS 021	American Political System	
PSYS 001	Intro to Psychological Science	3
PROFESSIONAL REQUIREMENTS		
EDSP 005	D2:Iss Aff Persons W/Disabil	3
EDFS 002	School and Society	3
ECLD 056	D1:Lang Policy Issues,Race&Sch	3
Praxis Core Requirement		
EDPE 023	Amer Red Cross Emergency Resp (or American Red Cross Emergency Response certification)	3
EDPE 055	Special Topics I (when the topics are Games Education, Dance and Gymnastics, and Fitness Education)	9
EDPE 104	Phys Educ Teaching Experience	4
EDPE 105	Phys Educ Teaching Experience	4
EDHE 146	Personal Health	3
EDPE 155	Phys Educ in Secondary Schl	4
EDPE 166	Kinesiology <sup>1</sup>	3
EDPE 167	Exercise Physiology <sup>2</sup>	4

EDPE 220	Sport in Society	3
EXSC 240	Motor Skill Learning & Control	3
EXSC 260	Adapted Physical Activity	3
RMS 157	Prevention & Care Athletic Inj	3
EDPE 181	Student Teaching <sup>3</sup>	12
EDPE 182	Student Teaching Seminar	2
Praxis II Requirement		

<sup>1</sup> Fall only, even years

<sup>2</sup> Fall only, odd years

<sup>3</sup> Grade of 'B' or higher required for licensure

### Exercise and sport science concentration

ANPS 019	Ugr Hum Anatomy & Physiology	4
ANPS 020	Ugr Hum Anatomy & Physiology	4
EDPE 166	Kinesiology	3
EDPE 167	Exercise Physiology	4
EDPE 191	Independent Study (Coaching Practicum)	3
EDPE 220	Sport in Society	3
EDPE 265	Exercise & Sport Science	3
EXSC 240	Motor Skill Learning & Control	3
MATH 009 or higher		3
EDPE 230	Philosophy of Coaching	3
EDPE 267	Sci Strength Training&Condtnng	3

## TEACHER EDUCATION / SECONDARY EDUCATION (GRADES 7-12) B.S.ED.

### Overview

This major leads to a Bachelor of Science in Secondary Education. 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 content area concentration (ranging from thirty credits to fifty-seven 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 Vermont Agency of Education, may be obtained from the CESS Student Services Office, 528 Waterman. Program information is also available from the Secondary Education program, 411 Waterman.

Professional coursework is offered throughout the program, alongside general education and concentration and minor requirements. This

allows our candidates to build their understanding of teaching over time.

### General Education Component

In addition to the University requirements, the general education courses must include the following:

- 3 credits of Humanities
- 3 credits of Natural Science
- 3 credits of Social Studies

### Academic Concentration and Minor Components

Students who successfully complete their teacher education program are recommended for licensure with a first endorsement in their content area concentration. Students must consult their faculty advisor in the selection of an academic concentration. It is recommended that Secondary Education students pursue an academic minor; however, an academic minor is not required for program completion.

### Professional Education Component

Students begin the professional education component of their Secondary Education program when they enter UVM. During the first two years, course work focuses on general education and academic concentration or minor requirements. In addition students take several education courses that build the foundation for further study in Secondary Education.

PHASE 1: Exploring learners' needs and the school context: EDTE 001, ECLD 056, EDFS 002, EDSP 005, EDSC 011, EDSC 207. ECLD 056 fulfills D1 requirement and EDSP 005 fulfills D2 requirement. At the end of this sequence, if a student has:

- a 2.75 overall GPA
- a 2.50 GPA or higher in the content area concentration
- a grade of B or better in all courses with an EDXX prefix
- passing scores on the PRAXIS Core Test or meet state-approved waiver requirements
- favorable reviews from faculty teaching EDSC 011 and EDSC 207
- resolved all Student Support Team concerns (if applicable)

then a student will be able to continue in the Secondary Education program. Should a student fail to meet one or more program benchmarks, a student has the option of submitting a formal request to continue in the program.

Following the introductory phase, students begin the next series of professional courses. During this phase, students will continue taking course work in their academic concentration, with the goal of having courses completed prior to Phase 3.

PHASE 2: Exploring school context and curriculum, instruction and assessment: EDSC 209, EDSC 215, and EDSC 216. Subject methods may be taken in Phase 2 or 3, depending on the student's academic plan. At the end of this sequence, if a student has:

- a 3.00 overall GPA
- a 2.75 GPA or higher in the content area concentration

- a grade of B or better in all courses with an EDXX prefix
- meet speech competence requirement (described below)
- favorable reviews from faculty teaching in EDSC 209, EDSC 215, and EDSC 216
- resolved all Student Support Team concerns (if applicable)

Then a student will be eligible to apply formally for a student teaching placement in the Secondary Education program. Should a student fail to meet one or more of these program benchmarks, a student has the option of submitting a formal request to continue in the program.

### PHASE 3: Full Semester Student Teaching

Experience: EDSC 226, EDSC 230 (Subject specific methods course may be taken during this semester if not taken previously). Students must:

- complete a full-time, semester-long internship
- complete and submit a portfolio that documents competence with program and state licensure requirements.

### Licensure Recommendation

Students must meet all of the standards below to be recommended for licensure:

- Passing score on Praxis II exam and OPI for World Languages
- a minimum overall GPA of 3.00
- a minimum GPA of 3.00 in both their content area concentration and professional course work
- a 'meets standard' rating on each entry in the Licensure Portfolio
- a grade of B or better in student teaching
- completion of all other degree requirements.

### Student's Responsibility

Information about application procedures for the Secondary Education program may be obtained from 411 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 one of the followings:

- Successfully complete a speech course for university credit
- Successfully complete a theatre course for university credit

- Earn a letter of support regarding speech competence in EDSC 215

Contact the Secondary Education office in 411 Waterman or call (802) 656-1411 for more information.

## REQUIREMENTS

### SECONDARY EDUCATION REQUIREMENTS

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 336)

UNIVERSITY GENERAL EDUCATION REQUIREMENTS		
Diversity		6
D1 - Race and Racism in the US (ECLD 056)		
D2 - Diversity of Human Experience (EDSP 005)		
Writing and Information Literacy		3
ENGS 001, HCOL 85, or TAP course		
Sustainability		3
Any course with the 'SU' designation		
Quantitative Reasoning		3
Any course with the 'QR' designation		
CESS GENERAL EDUCATION REQUIREMENTS		
Humanities		3
ASL, ENGS Lit, Foreign Language, or any course with the subject prefix of ASL, PHIL, REL		
Natural Science		3
Any course with the subject prefix of BIOL, PHYS, CHEM, ENVS, ENSC, GEOL or GEOG 040, NFS 043		
Social Science		3
Any course with the subject prefix POLS, PSYS, GEOG, HST, ANTH, SOC, or SWSS 002, HDFS 005		
PROFESSIONAL REQUIREMENTS		
Phase 1		
EDTE 001	Teaching to Make a Difference	3
EDSP 005	D2:Iss Aff Persons W/Disabil	3
EDFS 002	School and Society	3
ECLD 056	D1:Lang Policy Issues,Race&Sch	3
EDSC 011	Ed Tech in Sec Ed Classroom	3
EDSC 207	Development:Theory & Applctn	4
Praxis Core Requirement		
Phase 2		

EDSC 209	Practicum in Teaching	4
EDSC 216	Curr,Instr&Assmt Sec Schl Tch	3
EDSC 215	Reading in Secondary Schools <sup>1</sup>	4
Phase 3		
Special Methods (Choose one of the options below) <sup>2</sup>		
EDSC 225	Tchg Soc Studies in Sec Schls	
or EDSC 227	Tchn Science in Sec Schls	
or EDSC 237	Tching Computer Science in Sec	
or EDSC 240	Teach English:Secondary School	
or EDSC 259	Tchg Foreign Lang in Sec Schls	
Math concentrators take the following 2 methods courses		
EDSC 157	QR:Intro to Teaching Math	
EDSC 257	QR:Tchg Math in Sec Schls	
EDSC 226	Teaching Internship	12
EDSC 230	Teaching for Results	3
Praxis II Requirement		

<sup>1</sup> Public speaking: Students are required to demonstrate competence prior to student teaching. Completed in EDSC 215.

<sup>2</sup> Official scores needs to be sent to UVM

### CONCENTRATION REQUIREMENTS

Animal Science Concentration (p. )  
 Biology Concentration (p. )  
 Chemistry Concentration (p. )  
 Computer Science Concentration (p. 355)  
 Earth Science Concentration (p. )  
 Economics Concentration (p. )  
 English Concentration (p. )  
 French Concentration (p. )  
 German Concentration (p. )  
 History Concentration (p. )  
 Latin Concentration (p. )  
 Math Concentration (p. )  
 Physics Concentration (p. )  
 Political Science Concentration (p. )  
 Spanish Concentration (p. )

### ANIMAL SCIENCE CONCENTRATION

ASCI 001	Introductory Animal Sciences	3
ASCI 110	Animal Nutrit, Metab & Feeding	4
ASCI 122	Animals in Soc/Animal Welfare	3
ASCI 141	Anat&Physiol Domestic Animals	4
Select one course from each of the following categories <sup>1</sup>		



Biology		4
BIOL 001	Principles of Biology	
Plant Science		3-4
PSS 021	SU: Intro to Agroecology	
PSS 143	Forage and Pasture Mgmt	
PSS 154	Composting Ecology & Mgmt	
PSS 156	Permaculture	
PSS 161	SU:Fundmntls of Soil Science	
Genetics		3
BCOR 101	Genetics	
ASCI 168	Animal Genetics	
Inorganic Chemistry with lab		4
CHEM 023	Outline of General Chemistry	
CHEM 031	General Chemistry 1	
Organic Chemistry with lab		4
CHEM 026	Outline of Organic & Biochem	
CHEM 042	Intro Organic Chemistry	
CHEM 141	Organic Chemistry 1	
Select four courses from the following categories		12-16
Advanced Physiology		
ASCI 215	Physiology of Reproduction	
ASCI 216	Endocrinology	
ASCI 220	Lactation Physiology	
Animal Welfare		
ASCI 171	Zoos, Exotics & Endang Species	
ASCI 297	Advanced Special Topics (when the topic is : Humane Education Practicum)	
ASCI 298	Advanced Special Topics (when the topic is : Humane Education Practicum)	
Animal Health		
ASCI 118	Appl Animal Health	
ASCI 263	Clin Top:Companion Animal Med	
ASCI 264	Clin Topics:Livestock Medicine	
<b>Supplemental Science Courses <sup>2</sup></b>		<b>12</b>
Choose one course in each of these three subjects		
Chemistry		
Earth Science		

Physics	
Additional course in Chemistry, Earth Science or Physics if necessary to make 12 credits	
Total Credits	56-61

- <sup>1</sup> Coursework equivalent to Precalculus (MATH 010) or higher must be completed.
- <sup>2</sup> Praxis Statement: Students completing Secondary Education Science concentrations must meet the passing scores set for the General Science Praxis II exam and the specific science exam (Biology, Chemistry, Earth Science or Physics.)

### BIOLOGY CONCENTRATION

Students may not use more the 14 credits at the 'less than 100 level' toward the biology concentration. Since BIOL 001 and BIOL 002 total 8 credits, this means that 6 credits remain.

BIOL 001	Principles of Biology	4
or BCOR 011	Exploring Biology	
BIOL 002	Principles of Biology	4
or BCOR 012	Exploring Biology	
BCOR 101	Genetics	3
BCOR 102	SU:Ecology and Evolution	4
Select at least 20 credits from 4 of the following 8 areas. One area must be Evolution. <sup>1</sup>		20
1. Zoology		
BIOL 209	Field Zoology of Arthropods	
BIOL 217	Mammalogy	
BIOL 219	Compar/Func Vertebrate Anatomy	
WFB 131	Field Ornithology	
WFB 161	Fisheries Biology & Techniques	
2. Botany		
PBIO 108	Morph & Evo of Vascular Plants *	
PBIO 109	Plant Systematics	
PBIO 232	Plant Systematics in CostaRica	
3. Physiology		
BIOL 003	Human Biology	
BIOL 004	The Human Body	
BIOL 255	Comparative Physiology	
PBIO 104	Plant Physiology **	
4. Ecology		
BIOL 195	Special Topics (when the topic is Intro to Marine Science)	

BIOL 264	Community Ecology	
BIOL 269	Plant-Animal Interactions	
BIOL 276	Behavioral Ecology	
5. Genetics		
BIOL 204	Adv Genetics Laboratory	
BIOL 205	Adv Genetics & Proteomics Lab	
BIOL 254	Population Genetics	
BIOL 265	Developmental Molecular Genetics	
BIOL 275	Human Genetics	
6. Microbiology		
MMG 065	Microbiology & Pathogenesis	
MMG 101	Microbiol & Infectious Disease	
MMG 220	Environmental Microbiology	
7. Cell Biology		
BCOR 103	Molecular and Cell Biology	
BIOL 212	Comparative Histology	
BIOL 223	Developmental Biology	
BIOL 261	Neurobiology	
CHEM 205	Biochemistry I	
8. Evolution		
BIOL 006	Evolutionary Biology	
BIOL 271	Evolution	
BIOL 277	Sociobiology	
Choose one Biology Research course		3
BIOL 098	Undergraduate Research	
BIOL 198	Undergraduate Research	
BIOL 298	Undergraduate Research	
<b>Supplemental Science Courses <sup>2</sup></b>		<b>12</b>
Choose one course in each of these three subjects:		
Chemistry		
Earth Science		
Physics		
Additional course in Chemistry, Earth Science or Physics if needed to reach 12 credits		
Total Credits		50

\* This course can count toward the Evolution category

\*\* This course can also count toward the Botany category

<sup>1</sup> Mathematics prerequisites are required in addition to the courses below, and must include precalculus. This requirement can be fulfilled by taking one of the following courses; MATH 010 - Precalculus Mathematics, or MATH 019 - Fundamental of Calc. I, or MATH 021 - Calculus I

<sup>2</sup> Praxis II Statement: Students completing the Secondary Education Science concentrations must currently meet the passing scores for the General Science Praxis II exam, and the Specific Science Exam (Biology, Chemistry, Earth Science or Physics.) Scores must be sent to UVM.

## CHEMISTRY CONCENTRATION

Introductory Chemistry		
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
Organic Chemistry		
CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4
Inorganic Chemistry		
CHEM 131	Inorganic Chemistry	3
Analytical Chemistry		
CHEM 121	Quantitative Analysis	4
Physical Chemistry		
CHEM 165	Intro Physical Chemistry	3
Biochemistry		
CHEM 205	Biochemistry I	3
Upper Level Elective Course (choose one)		3
CHEM 114	Advanced Synthesis Techniques	
CHEM 295	Advanced Special Topics	
CHEM 296	Advanced Special Topics	
<b>Supplemental Science Courses.</b>		<b>12</b>
Choose one course in each subject.		
Biology		
Earth Science		
Physics		
Additional course in Biology, Earth Science or Physics if needed to reach 12 credits		
Total Credits		44

Mathematics prerequisites are as follows: MATH 019/023 or MATH 021/022.

Careful curriculum planning with the Chair of the Chemistry Department is strongly urged.

Praxis II statement: Students completing secondary education science concentrations currently need to meet the passing Praxis II scores for the General Science Praxis II exam and the science specific exam (Biology, Chemistry, Earth Science or Physics).

### COMPUTER SCIENCE concentration

CS 008	QR: Intro to Web Site Dev	3
CS 021	QR: Computer Programming I	3
CS 064	QR: Discrete Structures	3
CS 087	QR: Intro to Data Science	3
CS 110	QR: Intermediate Programming	4
CS 121	QR: Computer Organization	3
CS 124	QR: Data Struc & Algorithms	3
CS 166	QR: Cybersecurity Principles	3
CS 292	Senior Seminar	1
MATH 021	QR: Calculus I	4
CS 091	Instructing in Computer Sci	3

### EARTH SCIENCE CONCENTRATION

GEOL 001	Earth System Science	4
GEOL 062	Earth Env & Life Through Time	4
GEOL 101	Field Geology	4
GEOL 110	SU: Earth Materials	4
GEOL 151	Geomorphology	4
Select one course from each of the following categories: <sup>1</sup>		
Astronomy		3
ASTR 005	Exploring the Cosmos	
Meterology / Climatology		3
GEOG 040	Weather, Climate & Landscapes	
GEOG 143	Climatology: Concepts & Tools	
Earth Science Techniques		3
CE 010	Geomatics	
GEOG 081	Geospatial Cncpt&Visualization *	
NR 143	Intro to Geog Info Systems	
GEOG 184	Geog Info:Cncpts & Applic	
FOR 146	Remote Sensing of Natural Res	
or NR 146	Remote Sensing of Natural Res	
GEOG 185	Remote Sensing	
GEOG 281	Adv Topic:GIS & Remote Sensing	

Choose one additional elective from any of the categories above or below:		3
Soils		
PSS 161	SU:Fundmntls of Soil Science	
Water		
NR 102	SU:Water as a Natural Resource	
GEOG 145	SU: Geography of Water	
Oceans		
WFB 279	Marine Ecology & Conservation	
Environmental Engineering		
CE 253	Transportation & Air Quality	
CE 254	Environmental Quantitive Anyl	
Geology		
GEOL 055	Environmental Geology	
GEOL 231	Petrology	
GEOL 234	Global Biogeochemical Cycles	
<b>Supplemental Science Courses <sup>2</sup></b>		<b>12</b>
Choose one course in each subject		
Biology		
Chemistry		
Physics		
Additional course in Biology, Chemistry or Physics if needed to reach 12 credits		
Total Credits		44

<sup>1</sup> Mathematics prerequisites are in addition to the courses listed above and must include precalculus. It can be fulfilled by taking one of the following courses: MATH 010: Precalculus Math or MATH 019: Fundamentals of Calculus I, or MATH 021 - Calculus I.

<sup>2</sup> Praxis II Statement: Students completing the Secondary Education Science concentrations must currently meet the passing scores for the General Science Praxis II exam, and the Specific Science Exam (Biology, Chemistry, Earth Science or Physics.) Scores must be sent to UVM.

\* Recommended

### ECONOMICS CONCENTRATION

EC 011	Principles of Macroeconomics	3
EC 012	Principles of Microeconomics	3
EC 171	Macroeconomic Theory	3
EC 172	Microeconomic Theory	3

Select six courses at the 100 level or above in cooperation with an economics advisor and your CESS advisor. It may be recommended that STAT 141 fulfill one of these courses		18
<b>Supplemental Social Studies Courses</b>		
History		9
HST 011	US History to 1865	
or HST 012	US History since 1865	
Two additional HST electives		
Cultural Geography (Choose one)		3
GEOG 050	D2:SU:Global Envmnts& Cultures	
GEOG 060	D1:Geography/Race&Ethnic in US	
GEOG 173	Political Ecology	
GEOG 174	Rural Geography	
GEOG 175	Urban Geography	
GEOG 178	Gender, Space & Environment	
GEOG 179	Cultural Ecology	
Citizenship		3
POLS 021	American Political System	
Total Credits		45

**ENGLISH CONCENTRATION**

ENG 001	FW: Written Expression	3
or ENG 050	The Art of the Essay	
Complete three of the following four courses		9
ENG 021	Seminar in British Lit I	
ENG 022	Seminar in British Lit II	
ENG 023	Seminar in American Lit I	
ENG 024	Seminar in American Lit II	
ENG 100	Literary Theory	3
Complete one of the following diversity courses		3
ENG 057	D1:Race&Ethnic Lit Stds:Intro	
ENG 111	D1:Race & Ethnic in Lit Stds	
Complete one of the following		3
ENG 081	Structure of English Language	
LING 080	Introduction to Linguistics	
LING 081	Structure of English Language	
Complete one of the following British literature courses		3
ENG 133	Chaucer	

ENG 134	Topics in Medieval Literature	
ENG 135	Shakespeare	
ENG 136	Topics in Shakespeare	
ENG 137	Topics in Ren Lit & Culture	
ENG 138	Milton	
ENG 140	Survey Brit Lit to 1700	
ENG 141	Restoration & 18thC Literature	
ENG 143	Topics:18C,19C Brit Lit & Cul	
ENG 144	Topics in Romanticism	
ENG 145	Topics in Victorian Literature	
Complete one of the following American literature courses		3
ENG 150	Topics: Early American Studies	
ENG 152	19th Century American Fiction	
ENG 156	Topics:19C American Studies	
Complete one of the following modern & contemporary literature courses		3
ENG 163	Topics:20C American Studies	
ENG 164	Modern Poetry	
ENG 167	Topics in Modernism	
ENG 168	Topics in Post-Modernism	
ENG 171	Contemporary American Poetry	
ENG 182	D2:Colonial/Post-Col World Lit	
ENG 188	Topics in 20C Comparative Lit	
Complete one of the following women's or African-American literature courses		3
ENG 158	Topics:19C Women's Writing	
ENG 176	D1:Afr Am Lit Since Harlem Ren	
ENG 177	D1:Topics 20C Afr Am Lit & Cul	
ENG 189	Topics in 20C Women's Writing	
Complete one English elective course numbered 201-282		3
Total Credits		36

**FRENCH CONCENTRATION**

Select six of the following seven courses		18
FREN 101	Writing Workshop	
FREN 107	Focus on Oral Expression	
FREN 109	French Grammar in Review	
FREN 131	French Civilization	



FREN 132	Contemporary France	
FREN 141	French Lit in Context I	
FREN 142	French Lit in Context II	
Select one of the following:		3
FREN 201	Adv Composition & Conversation	
FREN 209	Advanced Grammar	
Complete three additional FREN electives at the 200 level		9
Total Credits		30

### GERMAN CONCENTRATION

Choose 24 credits of German at the 100 Level <sup>1</sup>	24
Choose 3 credits of German at 200 level	3
Choose 3 credits of World Literature with Significant German Content	3
Total Credits	30

<sup>1</sup> Students should work with an advisor to select a mixture of culture, composition, literature and language courses.

### HISTORY CONCENTRATION

US History		
HST 011	US History to 1865	3
HST 012	US History since 1865	3
European History		
HST 015	Early Europe	3
or HST 016	Modern Europe	
Global History		
HST 009	D2: Global History to 1500	3
HST 010	D2: Global History since 1500	3
Select one Regional History course from the following:		3
HST 041	D2: Africa C-1870 to Present	
HST 045	D2: Hst Islam&Middle E to 1258	
HST 046	D2: Hst Islam&Mid E since 1258	
HST 055	D2: History of China and Japan	
HST 063	D2: Modern Latin Amer History	
HST 065	History of Canada	
Select three HST electives at the 100 level or above. HST 101 is recommended		9
Select one HST seminar at the 200 level (209-296)		3
<b>Supplemental Social Studies Courses</b>		
Citizenship		

POLS 021	American Political System	3
Choose one additional POLS from the options below:		3
POLS 041	Intro to Political Theory	
POLS 051	Intro International Relations	
POLS 071	Comparative World Politics	
ECLD 057	US Citizenship and Education	
ECLD 102	Bilingual Education & Policy	
Cultural Geography		3
GEOG 050	D2:SU:Global Envmnts& Cultures	
Diversity, Unity, Identity and Interdependence (Choose one)		3
SOC 001	SU: Introduction to Sociology	
ANTH 021	D2:SU: Cultural Anthropology	
GEOG 060	D1:Geography/Race&Ethnic in US	
Economics (Choose one)		
ECON or CDAE 061		
Physical Geography		3
GEOG 040	Weather, Climate & Landscapes	
Psychology (Choose one)		3
PSYS 001	Intro to Psychological Science	
HDFS 005	Human Development	
Total Credits		48

### LATIN CONCENTRATION

LAT 101	Survey Latin Literature	3
LAT 102	Survey Latin Literature	3
LAT 211	Latin Prose Style	3
LAT 212	Latin Prose Style	3
LAT 204	Roman Epic Poetry	3
Choose an additional 15 credits from the following courses:		15
HST 122	Roman History and Civilization	
LAT 227	Roman Lyric Poets	
LAT 251	Roman Letters	
LAT 253	Roman Oratory	
GRK 001	Elementary Ancient Greek	
GRK 002	Elementary Ancient Greek	
GRK 051	Intermediate Ancient Greek	
GRK 052	Intermediate Ancient Greek	

ARTH 148	Greek Art	
CLAS 042	Mythology	
Total Credits		30

\* Exceptions can and should be made in the recommended courses in cases where individual experience and preparation in the language indicate the advisability of such changes. CESS students should work with the Classics Department for advising so that appropriate modifications can be made.

## MATH CONCENTRATION

MATH CONCENTRATION		
CS 021	QR: Computer Programming I	3
MATH 021	QR: Calculus I <sup>1</sup>	4
MATH 022	QR: Calculus II	4
MATH 040	Geometry for Educators	3
MATH 052	QR: Fundamentals of Mathematics	3
MATH 124	QR: Linear Algebra	3
MATH 151	QR: Groups and Rings	3
MATH 161	Development of Mathematics	3
MATH 173	QR: Basic Combinatorial Theory	3
STAT 141	QR: Basic Statistical Methods 1	3
or STAT 211	QR: Statistical Methods I	
Total Credits		32

<sup>1</sup> MATH 019 and 023 may be used as a substitute for MATH 021 and MATH 023 by those students who took MATH 019 before entering the program.

Recommended Electives: MATH 121: Calculus III and MATH 255: Elementary Number Theory

## PHYSICS CONCENTRATION

PHYS 051	Fundamentals of Physics I	4
PHYS 152	Fundamentals of Physics II	4
PHYS 128	Waves and Quanta	4
PHYS 202	Experimental Physics II	3
PHYS 211	Classical Mechanics	3
PHYS 213	Electricity & Magnetism	3
PHYS 265	Thermal & Statistical Physics	3
PHYS 273	Quantum Mechanics I	3
Select one elective:		3
PHYS 214	Electromagnetism	

PHYS 274	Applctns of Quantum Mechanics	
<b>Supplemental Science Courses <sup>1</sup></b>		<b>12</b>
Biology		
Chemistry		
Earth Science		
Additional Bio, Chem or Earth science course if needed to reach 12 credits		
Total Credits		42

<sup>1</sup> Mathematics prerequisites are as follows: MATH 021: Calculus I, MATH 022: Calculus II, MATH 121: Calculus III.

- Recommended Courses: CHEM 031 and 032: General Chemistry I and II, EE 100: Electrical Engineering Concepts I, MATH 230: Ordinary Differential Equations, MATH 271: Advanced Engineering Mathematics
- Praxis II statement: Students completing Secondary Education Science concentrations must currently meet the passing scores set for the General Science Praxis II exam and the Specific Science exam (Biology, Chemistry, Earth Science or Physics). Scores must be sent to UVM.

## POLITICAL SCIENCE CONCENTRATION

POLS 021	American Political System	3
POLS 041	Intro to Political Theory	3
POLS 051	Intro International Relations	3
POLS 071	Comparative World Politics	3
Complete five POLS courses at the 100 level or above.		15
Select one POLS course at the 200 level		3
<b>Supplemental Social Studies Courses</b>		
History (Complete all four)		12
HST 011	US History to 1865	3
HST 012	US History since 1865	3
HST 009	D2: Global History to 1500	3
HST 010	D2: Global History since 1500	3
Cultural Geography (Choose one)		3
GEOG 050	D2: SU: Global Envmnts & Cultures	
GEOG 070	SU: Society, Place, and Power	
Diversity, Unity, Identity and Interdependence (Choose one)		3
SOC 001	SU: Introduction to Sociology	
ANTH 021	D2: SU: Cultural Anthropology	
GEOG 060	D1: Geography/Race & Ethnic in US	
Economics (Choose one)		3

EC 011	Principles of Macroeconomics	
Any ECON course or CDAE 061		
Physical Geography		3
GEOG 040	Weather, Climate & Landscapes	
Psychology (Choose one)		3
PSYS 001	Intro to Psychological Science	
HDFS 005	Human Development	
Total Credits		69

### SPANISH CONCENTRATION

SPAN 101	Topics in Composition & Convsrs	3
SPAN 140	Analyzing Hispanic Literatures	3
Complete three of the following Introduction to Literature and Culture Courses		9
SPAN 143	Spain: Diversity & Expansion	
SPAN 144	Spain: Monarchy to Democracy	
SPAN 145	D2:LatAm:Colonialism&Resistnce	
SPAN 146	D2:LatAm:Revolutn&Globalizatn	
Complete one Advanced Literature course from SPAN 236 - 287		3
Complete one of the following Hispanic Linguistics Courses		3
SPAN 212	Intro to Hispanic Linguistics	
SPAN 217	Spanish Dialectology	
Special Topics		
Complete one of the following Culture and Civilization Courses		3
SPAN 264	D1: Border Literatures	
SPAN 269	D2:Latin Amer City in Lit/Film	
SPAN 290	Hispanic Films in Context	
SPAN 291	Early Cultures of Spain	
SPAN 294	D2:Modern Latin Amer Cultures	
Complete two SPAN electives at the 100 level		6
Compete one SPAN elective at the 200 level		3
Total Credits		33

- At least 9 credits must be taken at the 200 level.
- Course substitutions can and should be made in cases where individual experience and preparation in the language indicated the advisability of such changes. The Chair of the Romance Language department is able to provide such waivers. CESS students should go to the Romance Languages Department for advising in their choice of coursework.

## COACHING MINOR

The minor in Coaching consists of a series of courses in preparation for coaching sports activities at any age or skill level. It provides knowledge and skills regarding age-appropriate exercise, coaching methods and ethics, instructional techniques, and practical coaching experiences.

### REQUIREMENTS

Completion of 15 (or up to 16) credits from the following tracks is required for the Coaching minor:

EDPE 191	Independent Study (Coaching Practicum)	3
EDPE 200	Contemporary Issues (Coaching Issues & Legal Ethics)	3
EDPE 230	Philosophy of Coaching	3
Choose one Anatomy and Fitness course (credits vary depending on course):		3-4
EDPE 055	Special Topics I (Fitness Education)	
EDPE 166	Kinesiology	
EDPE 167	Exercise Physiology	
Choose one Coaching and Training course:		3
EDPE 055	Special Topics I (Games Education)	
EDPE 265	Exercise & Sport Science (Sports Performance Seminar)	
EDPE 267	Sci Strength Training&Condtng	

### PRE/CO-REQUISITES

HDFS 005	Human Development	3
EDPE 220	Sport in Society	3

### OTHER INFORMATION

The Coaching minor is open to any student at UVM.

## COMPUTER SCIENCE EDUCATION MINOR

### REQUIREMENTS

The Computer Science Education (CSE) minor is designed for undergraduate students interested in teaching computer science education in formal school settings and is open to other students who are interested in computer science education in other non-school settings. The minor includes 5 required courses (16 credits) in Computer Science and 1 required course (3 credits) in the Department of Education: EDSC 237 - Methods of Teaching Computer Science in Secondary School, for a total of 19 credits for the CSE minor. Only teacher education students eligible for licensure in grades 7-12 will be eligible for a teaching endorsement in Computer Science Education.

CS 008	QR: Intro to Web Site Dev	3
CS 021	QR: Computer Programming I	3
CS 087	QR: Intro to Data Science	3
CS 110	QR: Intermediate Programming	4
CS 121	QR: Computer Organization	3
EDSC 237	Tching Computer Science in Sec	3

## EDUCATION FOR CULTURAL AND LINGUISTIC DIVERSITY MINORS

The purpose of these minors are to enhance student understanding, cultural competency, and agency related to the impact of multiculturalism, language learning issues, and diversity in PreK-12 schools and other community and professional settings. To understand the full scope of the cultural and linguistic impact that a multicultural classroom has on its citizenry, this program will include courses highlighting U.S. immigration, migration, transnationalism, culture, family school partnerships, education policy, and cultural and language learning considerations.

The Education for Cultural and Linguistic Diversity minor consists of a general track for both Education and non-Education majors who want to develop more culturally responsive skills in a variety of professional and community settings, including schools, communities, nonprofit organizations, businesses and environmentally-focused organizations. Students will select courses that will provide a range of topics from immigration policy in the U.S. to food and culture, and community work involving refugees.

Two different Education for Cultural and Linguistic Diversity minors are available. One is for Education majors pursuing endorsement in their licensure program to work with English language learners (EL). The other is for students, regardless of major, who want to develop skills in working with culturally and linguistically diverse communities but are not seeking endorsement in a licensure program. Both minors require the same three core courses (a total of 9 credits); the remaining requirements differ.

The Education for Cultural and Linguistic Diversity minor for endorsement consists of a sequence of courses specifically for Education majors who are pursuing an additional teaching endorsement in their licensure program to work with English language learner students in the PreK-12 grades. Courses mostly focus on education topics pertaining to EL program planning and instructional strategies, as well as linguistics-related topics and English language acquisition. A practicum course is also offered to provide pre-service teachers experience in an EL classroom.

## EDUCATION FOR CULTURAL AND LINGUISTIC DIVERSITY MINOR

ECLD 056	D1:Lang Policy Issues,Race&Sch	3
ECLD 102	Bilingual Education & Policy	3
ECLD 205	Fmly Schl & Cmty Collaboration	3

Select three courses from the following (one course must be at the 100-level or above):		9
ANTH 021	D2:SU: Cultural Anthropology	
ANTH 040	Parenting and Childhood	
ANTH 174	D2:Culture, Health and Healing	
CDAE 295	Special Topics (when the topic is Multicultural Leadership)	
CSD 020	Intro to Disordered Comm	
CSD 025	D2:Comm Diff & Dis in Media	
CSD 094	Dev of Spoken Language	
ECLD 057	US Citizenship and Education	
ECLD 190	Internship	
EDHE 050	D2: Bullying & Discrimination	
EDSP 224	Meeting Inst Needs/All Stdnts	
EDSP 299	Global Resilience Fam-Schl-Com	
HDFS 005	Human Development	
HDFS 060	Family Context of Development	
LING 080	Introduction to Linguistics	
LING 095	Introductory Special Topics (when the topic is Linguistic Diversity in the U.S.)	
LING 170	TESOL and Applied Linguistics	
LING 176	D1: African American English	
LING 177	Second Language Acquisition	
SOC 019	D1: Race Relations in the US	
SWSS 004	Working with Refugees	
Total Credits		18

## EDUCATION FOR CULTURAL AND LINGUISTIC DIVERSITY MINOR: ENDORSEMENT

ECLD 056	D1:Lang Policy Issues,Race&Sch	3
ECLD 102	Bilingual Education & Policy	3
ECLD 205	Fmly Schl & Cmty Collaboration	3
ECLD 201	Developing Curriculum for ELs	3
LING 080	Introduction to Linguistics	3
ECLD 189	Teach Reading & Writing to ELs	3
or LING 170	TESOL and Applied Linguistics	
or LING 177	Second Language Acquisition	



ECLD 295	ELL Practicum	2-3
Total Credits		20-21

## POST-BACCALAUREATE TEACHER PREPARATION

The Post Baccalaureate Teacher Preparation (PBTP) 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. Spaces are limited and acceptance is based on availability. The foundation of the PBTP is to fulfill 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 (currently not accepting applications)

Applicants to the Post Baccalaureate Teacher Preparation (PBTP) 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. Possess a minimum undergraduate coursework GPA of 3.00 as specified on program specific applications.
5. For Art candidates: Previous coursework must include thirty-six credits of appropriate studio art and twelve credits of art history.
6. For Elementary candidates: Previous coursework must include thirty semester credits in a single liberal arts discipline.

The Post Baccalaureate Teacher Preparation curriculum includes both undergraduate and graduate courses. Specific course sequences are determined by each PBTP based on an applicant's earned undergraduate degree and other course work. Nine graduate credits may apply toward the M.Ed. degree at UVM, contingent on acceptance into the Graduate College.

Middle Level and Secondary Education have a Master of Arts in Teaching degree option offered jointly by the College of Education and Social Services and the Graduate College.

Requests for further information about the Art PBTP program and application forms may be obtained by contacting the Department of Art and Art History, 304 Williams Hall, (802) 656-2014.

Requests for further information about other PBTP programs may be obtained by contacting the CESS Student Services Office, 528 Waterman Building, (802) 656-3468.

## SPECIAL EDUCATION MINOR

The minors in Special Education offer courses in foundations of special education, assessment practices, and methods for supporting students with disabilities in general education classrooms and community contexts. Students apply to the minor by completing an application available through the Special Education program (spedmin@uvm.edu). Fall applications are due by October 15; Spring applications are due March 15. Accepted students must meet with an advisor to develop an approved program plan outlining a course of study in one of two minors:

### Special Education Minor

The 18-hour Special Education Minor is most often accessed by UVM students who wish to learn more about supporting persons with disabilities in inclusive classrooms and community settings. Students have the option of completing the 18-hour requirement through a range of options drawing from the fields of: Special Education and Behavioral Mental Health, Special Education and Communication Sciences, and Special Education and Psychology.

### Special Education Minor: Endorsement (Teacher Licensure students only)

The 21-24 credit hour minor with endorsement allows future prek-12 teachers to complete teacher licensure in their chosen area of general education along with dual certification as a Special Educator. Students complete designated core courses as well a full year of student teaching in both special education and general education in one school. Students must complete an additional application during the fall of Junior year to be approved for special education student teaching. Acceptance into special education student teaching requires an overall grade point average of 3.0 or better, a grade point average of 3.5 or better in all special education courses, as well as meeting additional application criteria.

Students in CESS Teacher Licensure programs who are interested in learning more about dual certification and/or accelerated master's degree options should contact the Special Education program.

## REQUIREMENTS

### SPECIAL EDUCATION MINOR

Required prior to admission into minor:		
EDSP 005	D2:Iss Aff Persons W/Disabil	3
Required Course		
EDSP 117	Behavior Management	3
Select at least 6 credits from the following EDSP Core Courses/200-level courses:		6
EDSP 224	Meeting Inst Needs/All Stdnts	
EDSP 274	D2:Culture of Disability	
EDSP 280	Assessment in Special Ed	
EDSP 290	Early Lit and Math Curriculum	
EDSP 295	Laboratory Exp in Education	

Select at least 6 additional credits from the list above or from the following options:		6
ASL 001	American Sign Language I	
ASL 002	American Sign Language II	
ASL 051	American Sign Language III	
ASL 052	American Sign Language IV	
ASL 120	D2: Understanding Deaf Culture	
CSD 020	Intro to Disordered Comm	
CSD 022	Introduction to Phonetics	
CSD 023	Linguistics for Clinicians	
CSD 094	Dev of Spoken Language	
CSD 101	Speech & Hearing Science	
CSD 208	Cognition & Language	
CSD 299	Autism Spect Dis:Assess&Interv	
CSD 313	Augmentative Communication	
ECLD 201	Developing Curriculum for ELs	
ECLD 205	Fmly Schl & Cmty Collaboration	
ECSP 105	Individldz Prac for Inclusion	
EDHE 050	D2: Bullying & Discrimination	
EDHE 146	Personal Health	
EDSP 193	Special Topics	
EDSP 200	Contemporary Issues	
EDSP 332	Resilnce&Trauma-Inform Practic	
EXSC 260	Adapted Physical Activity	
HDFS 101	The Helping Relationship	
HDFS 195	Special Topics (Promoting Mental Health in Schools)	
LING 080	Introduction to Linguistics	
LING 081	Structure of English Language	
LING 162	American English Dialects	
LING 165	Phonetic Theory and Practice	
LING 166	Introduction to Syntax	
LING 168	Introduction to Pragmatics	
PSYS 232	Self and Social Cognition	
PSYS 252	Emotional Devlmt & Temperament	
PSYS 254	Social Development	
PSYS 257	Adolescence	

PSYS 268	Fit Kids Applied Research	
PSYS 269	Fit Kids: Special Populations	
PSYS 270	Behav Disorders of Childhood	

### SPECIAL EDUCATION: ENDORSEMENT (Teacher Licensure students only)

EDSP 005	D2:Iss Aff Persons W/Disabil	3
EDSP 117	Behavior Management	3
EDSP 224	Meeting Inst Needs/All Stdnts	3
EDSP 280	Assessment in Special Ed	3
EDSP 290	Early Lit and Math Curriculum	3
EDSP 296	Laboratory Exp in Education <sup>1</sup>	6

<sup>1</sup> The Special Education Internship occurs during the final year, preferably in the spring semester. Ideally, the Special Education Internship occurs in the same setting as the student's general education student teaching creating a year-long experience.

### SPORTS MANAGEMENT MINOR REQUIREMENTS

A total of 18 credits is required for the minor.

EDPE 220	Sport in Society	3
EDPE 101	Intro to Sports Management	3
or EDPE 241 at 3 credits may be substituted for EDPE 101; EDPE 241 is a fee-based spring recess travel course		
PRT 235	Outdoor Recreation Planning	3
One of the following Management courses:		3
BSAD 120	Leadership & Org Behavior	
EDPE 119	Careers in College Athletics	
EDPE 230	Philosophy of Coaching	
PRT 157	Ski Area Management	
One of the following Marketing/Communications courses:		3
BSAD 150	Marketing Management	
CDAE 168	SU:Marketing:Com Entrepreneurs	
CDAE 119	Event Planning for Athletics	
CDAE 024	Fund of Public Communication	
PRT 158	Resort Mgmt & Marketing	
One of the following Entrepreneurship courses:		3
BSAD 137	Entrepreneurial Leadership	
CDAE 166	Intro to Comm Entrepreneurship	

CDAE 267	Strat Plan:Comm Entrepreneurs	
PRT 258	Entrepreneurship Rec&Tourism	

## OTHER INFORMATION

Consult your major advisor for any applicable course/major restrictions and information regarding the use of one course to meet multiple degree requirements. Majors in Parks, Recreation and Tourism, or Business Administration may double count at most two courses from the Sports Management minor towards the major.

At least half the courses must be taken at UVM. Students must earn at least a 2.0 cumulative GPA in their Sports Management minor courses to earn a minor in Sports Management.

## TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES UNDERGRADUATE CERTIFICATE

### REQUIREMENTS

16 credits, including:

LING 080	Introduction to Linguistics	3
LING 081	Structure of English Language	3
LING 170	TESOL and Applied Linguistics	3
LING 177	Second Language Acquisition	3
LING 270	Techniques & Procedures in ESL	4
No more than 2 classes may overlap between the TESOL certificate and the ELL endorsement (CESS)		
No more than 2 classes may overlap between the TESOL certificate and the Linguistics major or the Linguistics minor.		

## DEPARTMENT OF LEADERSHIP AND DEVELOPMENTAL SCIENCES

<http://www.uvm.edu/~dllds/>

The academic programs within the Department of Leadership and Developmental Sciences (DLDS) share a commitment to promote the wellbeing of individuals, families and organizations. Throughout the undergraduate major, Human Development and Family Studies (HDFS), students learn how human development happens, how that process of development proceeds over the course of a lifetime, and how the social contexts of relationships and communities shape development. Using innovative teaching methods, the DLDS faculty support student learning and prepare them for careers in social services, education, counseling, and health sciences while helping them understand families, social problems, and advocacy.

The department's minor in American Sign Language (ASL) is open to all students across the university. Students in the American Sign Language minor will develop ASL and cultural competencies,

interdisciplinary perspectives, and understanding of Deaf experiences through historical, social, and cultural lenses.

## MAJORS

### LEADERSHIP AND DEVELOPMENTAL SCIENCES MAJOR

Human Development and Family Studies B.S. (p. 363)

## MINORS

### LEADERSHIP AND DEVELOPMENTAL STUDIES MINORS

American Sign Language (p. 365)

Human Development and Family Studies (p. 365)

## GRADUATE

Counseling Post-Master's Certificate

Counseling M.S.

Higher Education and Student Affairs Administration M.Ed.

Integrated Studies Post-Master's Certificate

Interdisciplinary M.Ed.

Special Education Post-Master's Certificate

Special Education M.Ed.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## HUMAN DEVELOPMENT AND FAMILY STUDIES B.S.

This program examines the ways people grow and develop, form relationships and families, and learn to cope with the common and uncommon events of life. The program integrates developmental and ecological systems perspectives. 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 a minor available to students across the university.

## MAJOR REQUIREMENTS

Students in the Human Development and Family Studies program are required to complete a minimum of 120 credits including University and CESS General Education requirements in diversity, writing and information literacy, sustainability, quantitative reasoning, behavioral and social sciences, communication skills, humanities, physical and biological sciences, and research methods. They also enroll in a sequence of professional courses 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 4 core courses in Human Development and Family Studies (HDFS). Of these courses, 3 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). These courses also introduce students to experiences, changes and challenges typical at different points in the life course and to factors that influence individual development, such as gender, race and social class. The fourth course, “Introduction to Human Development and Family Studies and Academic Service-Learning” (HDFS 001), is a skills focused course that provides HDFS majors with an introduction the discipline and practice of HDFS, with special emphasis on preparing students for more advanced course work and professional practice. Together, these 4 introductory courses are designed to examine how questions are pursued from a human development perspective, how these questions relate to everyday life, how knowledge in the discipline is constructed, and the types of skills necessary to both acquire and appropriately 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 affect human development. HDFS 141 focuses in depth on White identity and the context of privileging whiteness. The remaining two courses in this intermediate block introduce students to major theories of development used to help us understand individual development (HDFS 189) and to the HDFS profession through the study and practice of essential helping relationship skills and ethical practice (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 2-semester, 6-credit internship. All majors take at least 3 advanced seminar courses selected in consultation with an advisor. The internship is the final professional requirement, consisting of a 2-semester intentionally sequenced capstone experience in the fall and spring of senior year. For the internship, students engage in direct field work (for a minimum of 6 hours per week) and related academic work (approximately 4 hours per week) focusing on deepening students’ knowledge, understanding, and ability to apply human development and ecological perspectives to direct practice. Students choose a placement from a variety of local agencies. Internship placement sites have included after-school youth programs, rape crisis and intimate partner violence prevention and intervention programs, social justice advocacy groups, 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 centers, and other human service agencies and social justice organizations.

## REQUIREMENTS

### HUMAN DEVELOPMENT AND FAMILY STUDIES

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 336)

UNIVERSITY GENERAL EDUCATION REQUIREMENTS		
Diversity <sup>1</sup>		6
D1 - Race and Racism in the U.S.		
D2 - The Diversity of Human Experience		
Writing and Information Literacy		3
ENGS 001, HCOL 085 or TAP course		
Sustainability		3
Any course with an 'SU' designation		
Quantitative Reasoning		3
Any course with a 'QR' designation		
CESS GENERAL EDUCATION REQUIREMENTS		
Behavioral and Social Sciences		
PSYS 001	Intro to Psychological Science	3
Intro-level Anthropology		3
Intro-level Sociology		3
Communication Skills <sup>2</sup>		
SPCH 011	Effective Speaking	3
or CALS 183	Communication Methods	
Elective course beginning with the subject prefix ASL, CS, Writing Course, Foreign Language, or MATH		3
Humanities		
Choose two elective courses beginning with the subject prefixes: ARTH, ART, CLAS, HS, HST, Literature, MU, PHIL, REL, or THE.		6
Physical & Biological Sciences		
NFS 043	Fundamentals of Nutrition	3
BIOL 003	Human Biology	3
or BIOL 004	The Human Body	
Science Elective - a course beginning with the subject prefixes BIOL, CHEM, ENSC, ENVS, GEOL, PBIO, PSS, or PHYS.		3
Research Methods <sup>3</sup>		3
PSYS 053	Research Methods	
or EDFS 209	Intro to Research Methods	
or SOC 100	Fund of Social Research	



or SWSS 164	Intro Social Work Research	
PROFESSIONAL REQUIREMENTS		
HDFS 001	Int Hum Dev&Fam Std for Majors	4
HDFS 005	Human Development	3
HDFS 060	Family Context of Development	3
HDFS 065	Human Relationships&Sexuality	3
Intermediate Level Courses <sup>4</sup>		
HDFS 141	D1:Interrogatng White Identity	3
HDFS 161	Social Context of Development	3
HDFS 101	The Helping Relationship	3
HDFS 189	Theories of Human Development	3
Upper-level Courses <sup>4,5</sup>		
Select THREE approved upper (200) level seminars <sup>6</sup>		9
HDFS 290	Internship (3 credits in Fall, 3 credits in Spring)	6

- <sup>1</sup> HDFS 141 (D1) and HDFS 167 (D2) may not fulfill BOTH the diversity and professional requirements.
  - <sup>2</sup> Students may be required to fulfill this elective with a writing course and to take additional writing focused courses depending on their performance in HDFS 001.
  - <sup>3</sup> Complete prior to HDFS upper level courses/seminars
  - <sup>4</sup> Refer to specific prerequisites for all courses.
  - <sup>5</sup> HDFS 161, HDFS 189 and a Research Methods course are pre-requisites for all 200-level HDFS courses. HDFS 290 has additional pre-requisites of HDFS 101 and HDFS 141.
  - <sup>6</sup> Approved seminar courses will be identified by the Program Coordinator. HDFS 290, 291, and 292 may not count as advanced seminars. HDFS 167 may count under certain circumstances and permission of the Program Coordinator.
- Program completion in Human Development and Family Studies requires a minimum of 120 approved credit hours.

HDFS majors are encouraged [but not required] to complete a minor in a field of interest.

## AMERICAN SIGN LANGUAGE MINOR

Students in the American Sign Language (ASL) Minor will develop ASL and cultural competencies, interdisciplinary perspectives, and understanding of Deaf experiences through historical, social, and cultural lenses. A combination of ASL competency and cultural knowledge solidify students' candidacy for graduate studies or employment in deaf-related fields.

### REQUIREMENTS

ASL 051	American Sign Language III	4
ASL 052	American Sign Language IV	4

ASL 101	American Sign Language V	3
ASL 102	American Sign Language VI	3
Choose 2 of the following		6
ASL 120	D2: Understanding Deaf Culture	
ASL 220	ASL Literature	
ASL 280	Advanced Seminar	

## HUMAN DEVELOPMENT AND FAMILY STUDIES MINOR

### REQUIREMENTS

Eighteen credits that must include the following:

HDFS 005	Human Development	3
HDFS 060	Family Context of Development	3
HDFS 065	Human Relationships&Sexuality	3
Choose one of the following tracks:		9
TRACK A		
Complete either HDFS 161 or HDFS 189, and two other approved 100-level courses		
TRACK B		
HDFS 161	Social Context of Development	
HDFS 189	Theories of Human Development	
One approved 200-level HDFS seminar course (except HDFS 290, HDFS 291)		

### OTHER INFORMATION

This minor is available to students in all majors.

## DEPARTMENT OF SOCIAL WORK

<http://www.uvm.edu/~socwork/>

As a program fully accredited by the Council of Social Work Education (CSWE), the principal educational objective of the program is to prepare students for beginning, generalist social work practice with diverse individuals, families, small groups, organizations, and communities.

### MAJORS

#### SOCIAL WORK MAJOR

Social Work B.S.W. (p. 366)

### GRADUATE

Social Work M.S.W.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

## SOCIAL WORK B.S.W.

The principal educational objective of the program is to prepare students for entry level social work practice with individuals, families, and small groups within the context of organizations, and the larger community. This includes direct service practice as well as advocacy, policy, administrative, and community practice.

The program provides education for social worker practice based on a liberal arts education in the social sciences and humanities. Through their program of study, students develop the values, knowledge, and skills needed to emerge as an entry-level social work practitioner.

This work is grounded in the principles of human rights and social justice. Many program graduates go on to pursue a Master's degree in Social Work (M.S.W.), and are often qualified for 'advanced standing' which reduces the credit hours and time required to complete a M.S.W.

## REQUIREMENTS

### THE SOCIAL WORK PROGRAM

The Social Work curriculum is divided into two parts - the pre-professional curriculum and the professional curriculum (beginning in the junior year). Students must meet the pre-requisites for junior level courses in order to join their junior cohort of social work majors. 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 their 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.

In the senior year, students spend approximately sixteen hours per week (450 total hours over 9 months) interning in community agencies or organizations. In the fall semester, students must enroll concurrently in SWSS 168, SWSS 171 and SWSS 173. In the spring semester, students must enroll concurrently in SWSS 169, SWSS 172, and SWSS 174.

A committee of Social Work faculty review each Social Work major's progress at the end of each semester. The committee may identify specific areas within which they believe extra support would benefit an individual student. A plan for that support is developed, and the student reviews that plan with their academic advisor.

## REQUIREMENTS

### SOCIAL WORK MAJOR REQUIREMENTS

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 336)

UNIVERSITY GENERAL EDUCATION REQUIREMENTS		
Diversity		6
D1: Race and Racism in the U.S. (SWSS 060)		
D2: Diversity of Human Experience (SWSS 147)		
First Year Writing and Information Literacy (FWIL)		3
ENGS 001, ENGS 002, HCOL 085 or TAP course		
Sustainability		3
Any course with 'SU' designation		
Quantitative Reasoning		3
Any course with 'QR' designation		
CESS GENERAL EDUCATION COURSES <sup>1</sup>		
Communications		3
SPCH 011	Effective Speaking	
Humanities		3
ASL, ARTS, HST, PHIL, REL or any foreign language		
Foreign Language		3-4
ASL or any foreign language		
Social Sciences		9
Any PSYS course		
Any SOC course		
Any course with subject prefix of ANTH, GSWS, HDFS, PSYS, SOC or a non-required SWSS		
Economic Content		3
Any course with a CDAE or EC prefix		
Political Science Content		3
Any course with a POLS prefix		
Global Awareness Content		3
Any course with a non-Western focus		
STEM: Human Science		3
BIOL 003	Human Biology	
or BIOL 004	The Human Body	
or SWSS 005	Biosociopolitical Issues SW	
PROFESSIONAL COURSES <sup>2</sup>		
SWSS 002	Foundations of Social Work	3
SWSS 004	Working with Refugees	3
SWSS 060	D1: Racism & Contemporary Issue	3
SWSS 147	D2: Theories in Social Work I	3

SWSS 148	D2: Theories in Social Work II	3
SWSS 163	Theory & Integration Prep Sem	3
SWSS 164	Intro Social Work Research	3
SWSS 165	Iss & Pol in Social Welfare I	3
SWSS 166	Iss & Pol in Social Welfare II	3
SWSS 168	Social Work Practice I	3
SWSS 169	Social Work Practice II	3
SWSS 171	Field Experience Seminar I	3
SWSS 172	Field Experience Seminar II	3
SWSS 173	Field Experience I	6
SWSS 174	Field Experience II	6

<sup>1</sup> Complete all general education requirements with a grade of C- or higher. Courses may fulfill multiple requirements, but credit is only granted once.

<sup>2</sup> Complete all SWSS courses with no more than 2 grades below a 'B'. Neither of these grades can be below a 'C'. Students must complete the Social Work courses with a Professional GPA of 3.0 or higher.

## THE COLLEGE OF ENGINEERING AND MATHEMATICAL SCIENCES

<http://www.uvm.edu/~cems/>

The college offers stimulating, professionally-oriented programs for students interested in careers in engineering, computer science, mathematics, statistics and data science. 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. 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. Data science is a unique, interdisciplinary educational program that combines studies in computer science, mathematics and statistics to prepare students for careers in big data science and analytics, rapidly growing fields with huge unmet demand. Degrees in each of the CEMS disciplines provide distinctive recognition based on challenging course work, valuable field experience, and intensive student-faculty interaction.

## MAJORS

- Biomedical Engineering B.S.BME. (p. 373)
- Civil Engineering B.S.CE. (p. 370)
- Computer Science B.S.CS. (p. 382)
- Computer Science and Information Systems B.S. (p. 383)
- Data Science B.S. (p. 384)
- Electrical Engineering B.S.EE. (p. 375)
- Engineering B.S.E. (p. 378)
- Engineering Management B.S.EM. (p. 379)
- Environmental Engineering B.S.EV. (p. 371)
- Mathematics B.S.MSC. (p. 388)
- Mechanical Engineering B.S.ME. (p. 376)
- Statistics B.S.MSC. (p. 392)

## MINORS AND CERTIFICATES

- Computer-Aided Engineering Technology (p. 380) - Undergraduate Certificate
- Computer Science (p. 386)
- Electrical Engineering (p. 376)
- Geospatial Technologies (p. 381)
- Mathematics: Pure (p. 394)
- Statistics (p. 394)

## REQUIREMENTS

### LAPTOP REQUIREMENTS AND RECOMMENDATIONS

#### Engineering Programs

Engineering is a professional field that leverages mathematics and the sciences to design and implement solutions to societal problems. Along with the fundamentals of math and science, practicing engineers must utilize computational tools to accomplish their tasks. With this reality in mind, all UVM engineering programs require students to have a laptop computer. The engineering laptop is large enough to enable students to design complex CAD models and powerful enough to allow instructors to incorporate computational analysis and numerical examples in the classroom for immediate and powerful praxis of engineering theory.

#### Mathematics, Statistics, Computer Science and Data Science Programs

The computer is an essential tool for learning and professional work in all CEMS programs, and students utilize computing technologies throughout the CEMS curricula. The laptop requirement in the Mathematics, Statistics, Computer Science or Data Science programs specifies a laptop that is designed to provide ample power and meet a student's needs throughout the duration of their studies.

Laptop specifications are available on the CEMS website.

## REGULATIONS

### ACADEMIC STANDARDS

The required minimum semester and cumulative grade point average (GPA) for good academic standing in the College of Engineering & Mathematical Sciences (CEMS) is 2.00. Additional regulations for each CEMS degree are outlined in the individual department, program or degree sections of this catalogue.

Academic performance is reviewed at the end of each regular (fall and spring) semester. CEMS Student Services – a division of the CEMS Dean's Office – is responsible for reviewing academic performance and notifying students who are not in good academic standing. Notification of trial status and dismissal for low scholarship is sent to the student's UVM email account.

#### Criteria for Placement on Trial

A student earning less than a 2.00 semester or cumulative GPA will be placed on trial.

#### Criteria for Continuation on Trial

A student who has been on trial for one or more semesters but does not meet the criteria for removal from trial or dismissal for low scholarship (see below) will be continued on trial.

#### Criteria for Dismissal for Low Scholarship

A student earning less than a 2.00 semester GPA for two successive semesters, or less than 2.00 cumulative GPA for three successive semesters will be dismissed for low scholarship. A student will be dismissed for low scholarship only after the student has been on trial for the preceding graded term of attendance.

#### Appealing Dismissal for Low Scholarship

A student who has been dismissed for low scholarship normally has the opportunity to appeal the dismissal in writing to the CEMS Studies Committee within the timeframe stipulated in the dismissal letter. As a condition of a student's reinstatement following an initial dismissal, the CEMS Studies Committee may prohibit a future dismissal appeal as specified in the student's reinstatement letter.

#### Criteria for Removal from Academic Trial

A student who has been placed on trial or continued on trial is removed from trial when both the semester and cumulative GPA are 2.00 or higher.

### DISMISSAL FOR LOW SCHOLARSHIP

#### First Dismissal

A student who is dismissed for low scholarship for the first time is dismissed from CEMS and UVM for a full academic year. If dismissal occurs at the end of fall semester, the student will be suspended from continued enrollment through the end of the following fall semester. If dismissal occurs at the end of spring semester, the student will be suspended from continued enrollment through the end of the following spring semester. (Note: A student dismissed at the end of spring semester is eligible to return in the summer or fall term of the following year).

#### Second Dismissal

A student who is dismissed for low scholarship for the second time is dismissed from CEMS and UVM for two full academic years.

#### Third Dismissal

A student who is dismissed for low scholarship for the third time is dismissed from CEMS and UVM. The third dismissal for low scholarship is final.

### READMISSION AFTER DISMISSAL

A dismissed student who presents evidence of the ability to perform satisfactorily may be considered for readmission on trial. A student who has been dismissed for low scholarship for a second time will not be considered for readmission on trial until at least two years have elapsed. A student who has been dismissed for low scholarship for a third time will only be considered for readmission if the student is granted an Academic Reprieve. Further information regarding readmission may be obtained from CEMS Student Services.

A student must earn a minimum 2.00 semester GPA the first semester after readmission. A student must raise the cumulative GPA to at least 2.00 by the end of the second semester after readmission, or earn a minimum semester GPA of 2.50 during the second semester back and all subsequent semesters until the cumulative GPA is 2.00 or higher. A student who fails to meet these academic performance requirements will be dismissed for low scholarship.

For additional information on academic standing and the trial, dismissal and readmission processes, please contact CEMS Student Services.

### INTERNAL TRANSFER GUIDELINES

Students currently enrolled in another College or School at UVM who would like to transfer into or pursue a dual degree in CEMS should complete the appropriate form(s) available through the myUVM portal. In order to be admitted for transfer into CEMS, internal transfer applicants must be in good academic standing (not currently 'on trial') in their current program(s) of study and have no pending incompletes in current or previous coursework.

Internal transfer inquiries are welcome at any time of the year. Exceptions to the requirements and timeline outlined below may be considered for students with extraordinary circumstances. To discuss the internal transfer process and curriculum matters, please contact CEMS Student Services.



MAJOR(S)	MINIMUM GPA (cumulative & semester)	ADDITIONAL GPA RESTRICTIONS	PREREQUISITE COURSES/ GRADES
Engineering (All)	2.0	Minimum 2.0 in Engineering, Mathematics, Statistics, Physics, Chemistry and Computer Science coursework	MATH 021 w/ B- or higher OR MATH 019 w/ B or higher; lab science course w/ C or higher
Computer Science; Computer Science & Information Systems	2.0	Minimum 2.0 in all courses with CS prefix	One of CS 008, CS 020 or CS 021 w/ C or higher
Mathematics; Statistics	2.0	None	MATH 021 w/ C or higher OR MATH 019 w/ B or higher
Data Science	2.0	None	MATH 021 w/ C or higher OR MATH 019 w/ B or higher & one of CS 008, CS 020 or CS021 w/ C or higher

## TRANSFER APPLICATION TIMELINE

### Fall Transfers

Students who wish to begin a CEMS major at the start of the fall semester are strongly encouraged to complete the application process by July 1st. CEMS cannot guarantee consideration of applications submitted during the fall add/drop period until after the close of the fall semester. All internal transfer requests submitted after the fall add/drop period will be considered after the close of the fall semester.

### Spring Transfers

Students who wish to begin a CEMS major at the start of the spring semester are strongly encouraged to complete the application process by January 1st. CEMS cannot guarantee consideration of applications submitted during the spring add/drop period until after the close of the spring semester. All internal transfer requests submitted after the spring add/drop period will be considered after the close of the spring semester.

## UVM HONORS COLLEGE

CEMS students who are co-enrolled in the University's Honors College must follow the requirements outlined in the Honors College section of this catalogue. Specific HCOL coursework is required for first year students and sophomores. CEMS students writing an

Honors College thesis must follow the steps outlined on the HCOL website. Note that prescribed deadlines are based upon a standard eight semester path to graduation in which students enroll in thesis credits during the fall and spring semesters of a single academic year. Deadlines will be appropriately adjusted for students following an alternate path. Such students are expected to work closely with the Honors Thesis Advisor to designate deadlines.

### Thesis Prep

CEMS students writing an Honors College thesis must do the following during the junior year:

1. Identify an Honors Thesis Advisor, by the first few weeks of the spring semester of the junior year.
2. Enroll in CEMS 101 (generally in the spring semester). The course CEMS 101 (HCOL Research Experience) is an additional credit of research-related work, supervised by the CEMS HCOL Representatives.
3. Identify an Honors Thesis Committee. The Committee is comprised of two members, including the advisor. At least one Committee member must be in the student's major department.

### Thesis Proposal

In the fall of senior year, CEMS/HCOL students must prepare a five-page thesis proposal, which should include sections on background, related literature, a specific work plan, and the anticipated format of the final thesis. This proposal should be submitted to the student's Honors Thesis Committee by October 1; students will be notified of approved projects by November 1. The student's advisor will notify the appropriate CEMS HCOL Representative that a thesis project has been approved.

### Thesis

CEMS Honors College students must enroll in a two-semester, six-credit Honors Thesis Course sequence. Course sequences vary by department.

When thesis credits are spread across two semesters, students making satisfactory progress towards completion of the thesis during the first semester are awarded a grade of Satisfactory Progress (SP) for a semester of thesis research, and course credit is awarded. Students not making satisfactory progress toward the thesis earn a grade of Unsatisfactory Progress (UP), and no credit is awarded. When the student finishes the second semester and earns a final grade, the instructor assigns that grade for the second semester, and changes the grade of SP that had been entered for the previous semester to match the final grade. The temporary SP grade does not affect a student's GPA. Once the final grade is entered and the SP is converted to a standard letter grade, that letter grade is calculated as part of the GPA.

Timing of specific thesis progress reports is at the discretion of the student's Honors Thesis Advisor and the student's Honors Thesis Committee, and should be consistent with the approved thesis proposal, as described above. The thesis is due to the student's Honors Thesis Committee by April 1 of the senior year.

## Thesis Defense

Students must give some public oral presentation of the thesis, within two weeks following the initial thesis submission, and no later than April 15 of the senior year. The presentation should be about thirty minutes long, and must be attended by the Honors Thesis Committee and announced publicly at least one week prior to the presentation date. No formal evaluation is associated with the presentation, which should serve as a discussion of the thesis, with the goal of providing constructive suggestions towards improving the final manuscript. A final grade for the thesis is assigned by the thesis advisor, who also makes the determination as to whether or not the thesis work warrants honors designation. All revisions are due by April 30.

## DEPARTMENTS AND PROGRAMS

- Civil and Environmental Engineering (p. 370)
- Electrical and Biomedical Engineering (p. 373)
- Mechanical Engineering (p. 376)
- Interdisciplinary Engineering Programs (p. 378)
- Computer Science (p. 381)
- Mathematics and Statistics (p. 386)

## CIVIL AND ENVIRONMENTAL ENGINEERING

The Department of Civil & Environmental Engineering offers two ABET-accredited degrees: a Bachelor of Science in Civil Engineering and a Bachelor of Science in Environmental Engineering. Additional information is available in the individual program sections of this catalogue.

## REGULATIONS

Students pursuing the Bachelor of Science in Civil Engineering or the Bachelor of Science in Environmental Engineering are subject to the Academic Standards in CEMS outlined in this catalogue.

## ADDITIONAL REGULATIONS

Students may apply no more than three credits graded D, D+ or D- in any engineering (BME, CE, EE, ENGR or ME) course toward the degree.

In order to earn the Bachelor of Science in Civil Engineering or the Bachelor of Science in Environmental Engineering, students must achieve a minimum 2.00 GPA in all Engineering (BME, CE, EMGT, ENGR, EE, ME), Mathematics, Statistics, Physics, Chemistry and Computer Science coursework.

## MAJORS

### CIVIL AND ENVIRONMENTAL ENGINEERING MAJORS

Civil Engineering B.S.CE. (p. 370)

Environmental Engineering B.S.EV. (p. 371)

## GRADUATE

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## CIVIL ENGINEERING B.S.CE.

All students must meet the University Requirements. (p. 436)

The curriculum in civil engineering provides and builds upon a strong foundation in mathematics, and physical, natural and engineering sciences. Instruction in civil engineering disciplines includes structural, geotechnical, environmental, water resources, materials, and transportation engineering. The B.S. in Civil Engineering curriculum is embedded with several courses that meet the University's Sustainability (SU) requirement. The degree as a whole also meets the Sustainability requirement, as approved by the University's Sustainability Curriculum Review Committee.

A Civil Engineering degree is excellent preparation for immediate employment in consulting firms, government agencies, non-profits, and industry. Additionally, many graduates continue their education at the graduate-level.

A systems approach to engineering problem solving is central to the curriculum and involves integrating the short and long-term social, environmental, and economic aspects and impacts into sustainable engineering solutions. Hands-on and/or project-based learning are incorporated into each year of the curriculum. As part of this approach, service-learning projects with local communities and non-profit groups are featured in some 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 aspects of the program include opportunities for laboratory and research experience, development of communication and professional skills, and a sense of community between students and the faculty.

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.

## CIVIL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES

The educational objectives of the civil engineering program are to provide our graduates with disciplinary breadth and depth to fulfill complex professional and societal expectations by:

1. Pursuing careers as practicing engineers or using their program knowledge in a wide range of other professional, educational and service activities.
2. Assuming leadership roles and seeking continuous professional development.

3. Contributing to their profession and society while appreciating the importance of ethical and sustainable practices, diversity, and inclusion.

## REQUIREMENTS

### THE CURRICULUM FOR THE B.S. IN CIVIL ENGINEERING

Students must meet University requirements. Note that the University's Sustainability (SU) and Quantitative Reasoning (QR) requirements are built into the Civil Engineering curriculum. Minimum of 128 credits required.

UNIVERSITY & CEE GENERAL EDUCATION REQUIREMENTS <sup>1</sup>		18
Univ FWIL: Foundational Writing & Information Literacy		3
Univ D1: Diversity 1		3
Univ D1/D2: Diversity 1 or Diversity 2		3
CEE General Education Electives		9
MATHEMATICS & STATISTICS REQUIREMENTS		21
MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
MATH 121	QR: Calculus III	4
MATH 122	QR: Applied Linear Algebra	3
MATH 271	QR: Adv Engineering Mathematics	3
STAT 143	QR: Statistics for Engineering	3
COMPUTING & SCIENCE REQUIREMENTS		15-16
CS 021	QR: Computer Programming I	3
CHEM 031	General Chemistry 1	4
GEOL 001	Earth System Science	4
or BIOL 001	Principles of Biology	
or BIOL 002	Principles of Biology	
PHYS 030	Physics Problem Solving I (Optional)	1
PHYS 031	Physics for Engineers I	4
CIVIL & ENVIRONMENTAL ENGINEERING COURSE REQUIREMENTS		61
CE 001	Statics	3
CE 003	SU: Intro to Civil & Envir Engr <sup>2</sup>	2
CE 010	Geomatics	4
CE 100	Mechanics of Materials	3
CE 101	Materials and Structures Lab	3
CE 132	SU: Environmental Systems	3

CE 133	Transportation Systems	3
CE 151	SU: Water & Wastewater Engr	3
CE 160	Hydraulics	3
CE 162	Hydraulics Lab	2
CE 170	Structural Analysis	3
CE 180	Geotechnical Principles	3
CE 182	Geotechnical Principles Lab	2
CE 185	SU: Capstone Design I	3
CE 186	SU: Capstone Design II	3
Design Electives <sup>3</sup>		9
CE Electives <sup>4</sup>		9
ADDITIONAL ENGINEERING COURSE REQUIREMENTS		13
EE 075	Electrical Circuits & Sensors	4
ENGR 002	Graphical Communication	2
CEMS 050	CEMS First Year Seminar <sup>2</sup>	1
ME 012	Dynamics	3
Technical Elective <sup>5</sup>		3

- <sup>1</sup> University & CEE General Education Requirements include: (1) 3 credits of Foundational Writing & Information Literacy (FWIL). Students must take ENGS 001 or HCOL 085 (only for students enrolled in the Honors College). Students transferring from the College of Arts and Sciences can use a TAP class to fulfill this requirement; (2) 15 credits of approved General Education (GenEd) electives including one 3-credit D1 course, a second 3-credit D1 or D2 course, and 3 credits each of Humanities and Social Sciences. A single course can satisfy multiple requirements in this category.
- <sup>2</sup> CEMS 050 & CE 003 are degree requirements designed for first-year students. Internal and external transfer students may substitute 100-level or higher engineering (BME, CE, EE, EMGT, ENGR, ME) credits for these requirements.
- <sup>3</sup> Design Electives: CE 172, CE 173, CE 241, CE 247, CE 253, CE 255, CE 256, CE 262, CE 263, CE 265, CE 273, CE 286, some CE 295 (Special Topics) courses (consult advisor). At least one design elective must be from CE 172, CE 173, CE 241, and CE 286.
- <sup>4</sup> CE Electives: Any 200-level CE course, CE 172, CE 173, and EMGT 201.
- <sup>5</sup> Technical Elective: All 100 level or above courses in engineering (BME, CE, EE, EMGT, ENGR, ME).

## ENVIRONMENTAL ENGINEERING B.S.EV.

All students must meet the University Requirements. (p. 436)

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 geoenvironmental engineering. The B.S. in Environmental Engineering curriculum is embedded with several courses that meet the University's Sustainability (SU) requirement. The degree as a whole also meets the Sustainability requirement, as approved by the University's Sustainability Curriculum Review Committee.

An Environmental Engineering degree is excellent preparation for immediate employment in consulting firms, government agencies, non-profits, and industry. Additionally, many graduates continue their education at the graduate-level.

A systems approach to engineering problem solving is central to the curriculum and involves integrating the short and long-term social, environmental and economic aspects and impacts into sustainable engineering solutions. Hands-on laboratories and/or project-based learning are incorporated into each year of the Environmental Engineering curriculum. As part of this approach, service-learning projects with local communities and non-profit groups are featured in some 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 aspects of the program include opportunities for laboratory and research experience, development of communication and professional skills and a sense of community between students and the faculty.

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

The educational objectives of the environmental engineering program are to provide our graduates with disciplinary breadth and depth to fulfill complex professional and societal expectations by:

1. Pursuing careers as practicing engineers or using their program knowledge in a wide range of other professional, educational and service activities.
2. Assuming leadership roles and seeking continuous professional development.
3. Contributing to their profession and society while appreciating the importance of ethical and sustainable practices, diversity, and inclusion.

## REQUIREMENTS

### THE CURRICULUM FOR THE B.S. IN ENVIRONMENTAL ENGINEERING

Students must meet University requirements. Note that the University's Sustainability (SU) and Quantitative Reasoning (QR) requirements are built into the Environmental Engineering curriculum. Minimum of 128 credits required.

UNIVERSITY & CEE GENERAL EDUCATION REQUIREMENTS (18 CREDITS) <sup>1</sup>		
Univ FWIL: Foundational Writing & Information Literacy		3
Univ D1: Diversity 1		3
Univ D1/D2: Diversity 1 or Diversity 2		3
CEE General Education Electives		9
MATHEMATICS & STATISTICS REQUIREMENTS (21 CREDITS)		
MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
MATH 121	QR: Calculus III	4
MATH 122	QR: Applied Linear Algebra	3
MATH 271	QR: Adv Engineering Mathematics	3
STAT 143	QR: Statistics for Engineering	3
COMPUTING & SCIENCE REQUIREMENTS (23-24 CREDITS)		
CS 021	QR: Computer Programming I	3
BIOL 001	Principles of Biology	4
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
GEOL 055	Environmental Geology	4
PHYS 030	Physics Problem Solving I (Optional)	1
PHYS 031	Physics for Engineers I	4
CIVIL & ENVIRONMENTAL ENGINEERING COURSE REQUIREMENTS (53 CREDITS)		
CE 001	Statics	3
CE 003	SU: Intro to Civil & Envir Engr <sup>2</sup>	2
CE 010	Geomatics	4
CE 100	Mechanics of Materials	3
CE 132	SU: Environmental Systems	3
CE 133	Transportation Systems	3
CE 151	SU: Water & Wastewater Engr	3
CE 160	Hydraulics	3



CE 162	Hydraulics Lab	2
CE 180	Geotechnical Principles	3
CE 182	Geotechnical Principles Lab	2
CE 185	SU: Capstone Design I	3
CE 186	SU: Capstone Design II	3
CE 254	Environmental Quantitative Anyl	4
HydroGeoPhys Design Elective <sup>3</sup>		3
BioGeoChem Design Elective <sup>4</sup>		3
Environmental Engineering Electives <sup>5</sup>		6
ADDITIONAL ENGINEERING COURSE REQUIREMENTS (13 CREDITS)		
EE 075	Electrical Circuits & Sensors	4
ENGR 002	Graphical Communication	2
CEMS 050	CEMS First Year Seminar	1
ME 040	Thermodynamics	3
Science/Technical Elective <sup>6</sup>		3

<sup>1</sup> University & CEE General Education Requirements include: (1) 3 credits of Foundational Writing & Information Literacy (FIWL). Students must take ENGS 001 or HCOL 085 (only for students enrolled in the Honors College). Students transferring from the College of Arts and Sciences can use a TAP class to fulfill this requirement; (2) 15 credits of approved General Education (GenEd) electives including one 3-credit D1 course, a second 3-credit D1 or D2 course, and 3 credits each of Humanities and Social Sciences. A single course can satisfy multiple requirements in this category.

<sup>2</sup> CEMS 050 & CE 003 are degree requirements designed for first-year students. Internal and external transfer students may substitute 100-level or higher engineering (BME, CE, EE, EMGT, ENGR, ME) credits for these requirements.

<sup>3</sup> HydroGeoPhys Design Electives: CE 262, CE 263, CE 265, CE 285, CE 288, and some CE 295 (Special Topics) courses (consult advisor).

<sup>4</sup> BioGeoChem Design Electives: CE 247, CE 253, CE 255, CE 256, and some CE 295 (Special Topics) courses (consult advisor).

<sup>5</sup> Environmental Engineering Electives: CE 218, CE 250, CE 260, EMGT 201, all HydroGeoPhys and BioGeoChem Design Electives, and some CE 295 (Special Topics) courses (consult advisor).

<sup>6</sup> Science/Technical Elective: ME 042 or any 100-level or higher course in Engineering (BME, CE, EE, EMGT, ENGR, ME) or Science (BIOL, CHEM, GEOL, PHYS) or PSS 161, PSS 264, PSS 268, or PSS 269 or NR 288, NR 289.

## ELECTRICAL AND BIOMEDICAL ENGINEERING

The Department of Electrical & Biomedical Engineering offers an ABET-accredited Bachelor of Science in Electrical Engineering. The Bachelor of Science in Biomedical Engineering began in the Fall of 2016 with a curriculum that adheres to ABET guidelines. ABET accreditation for the BS in Biomedical Engineering is expected by Fall of 2020. Additional information on the EE and BME degrees is available in the individual program sections of this catalogue.

## REGULATIONS

Students pursuing the Bachelor of Science in Electrical Engineering or the Bachelor of Science in Biomedical Engineering are subject to the Academic Standards in CEMS outlined in this catalogue.

## ADDITIONAL REGULATIONS

In order to earn the Bachelor of Science in Electrical Engineering or the Bachelor of Science in Biomedical Engineering, students must achieve a minimum 2.00 GPA in all Engineering (BME, CE, EMGT, ENGR, EE, ME), Mathematics, Statistics, Physics, Chemistry and Computer Science coursework.

## MAJORS

### ELECTRICAL AND BIOMEDICAL ENGINEERING MAJORS

Biomedical Engineering B.S.BME. (p. 373)

Electrical Engineering B.S.EE. (p. 375)

## MINORS

### ELECTRICAL AND BIOMEDICAL ENGINEERING MINOR

Electrical Engineering Minor (p. 376)

## GRADUATE

Biomedical Engineering AMP

Biomedical Engineering M.S.

Electrical Engineering AMP

Electrical Engineering M.S.

Electrical Engineering Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## BIOMEDICAL ENGINEERING B.S.BME.

All students must meet the University Requirements. (<http://catalogue.uvm.edu/undergraduate/academicinfo/degree requirements/>)

The B.S. in Biomedical Engineering trains engineers to work at the interface between engineering and the biomedical sciences. The curriculum is structured into three phases: Foundational, Core, and Specialization.

In the Foundational Phase, students take courses in math and science to build a solid foundation in quantitative engineering methods and biomedical science, and to expose them to the opportunities in biomedical engineering. In the BME Core Phase, students develop the breadth of engineering skills need to address the multidisciplinary nature of biomedical engineering. This phase is complemented by a multi-semester design sequence. In the final three semesters, Specialization Phase, students pursue electives germane to their interests and have their Capstone Design Experience.

The B.S. in Biomedical Engineering leverages strong ties between UVM's College of Engineering & Mathematical Sciences and its Larner College of Medicine. This collaboration provides students unique biomedical opportunities in a professional setting.

## BIOMEDICAL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES

The educational objectives of the Biomedical Engineering program are to provide our graduates with disciplinary breadth and depth to fulfill complex professional and societal expectations by:

1. Pursuing careers as practicing engineers or using their program knowledge in a wide range of other professional, educational and service activities;
2. Assuming leadership roles and seeking continuous professional development;
3. Contributing to their profession and society while appreciating the importance of ethical and sustainable practices, diversity, and inclusion.

## REQUIREMENTS

### THE CURRICULUM FOR THE B.S. IN BIOMEDICAL ENGINEERING

Students must meet University requirements. Note that the University's Quantitative Reasoning (QR) requirement is built into the Biomedical Engineering curriculum. A minimum of 129 credits are required.

GENERAL EDUCATION REQUIREMENTS AND BIOMEDICAL ENGINEERING FREE ELECTIVES		24
University FWIL: Foundational Writing & Information Literacy		3
University D1 - Diversity 1		3
University D1/D2: Diversity 1 or Diversity 2		3
General Education (including the University Sustainability requirement) <sup>1</sup>		9
Free Electives		6
COMPUTING & MATHEMATICS REQUIREMENTS		22
CS 021	QR: Computer Programming I	3
MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
MATH 120	Eng Math Linear Algebra Lab	1

MATH 121	QR: Calculus III	4
MATH 271	QR: Adv Engineering Mathematics	3
STAT 143	QR: Statistics for Engineering	3
GENERAL ENGINEERING & SCIENCE REQUIREMENTS		23
ENGR 002	Graphical Communication	2
CEMS 050	CEMS First Year Seminar <sup>2</sup>	1
ANPS 019	Ugr Hum Anatomy & Physiology	4
ANPS 020	Ugr Hum Anatomy & Physiology	4
BHSC 034	Human Cell Biology	4
CHEM 031	General Chemistry 1	4
PHYS 031	Physics for Engineers I	4
BIOMEDICAL ENGINEERING COURSE REQUIREMENTS		30
BME 010	BME Design 0 <sup>2</sup>	2
BME 011	Core 1: Biomechanics & Sensing	6
BME 012	Core 2: Materials & Transport	6
BME 013	BME Design 1	1
BME 014	BME Design 2	1
BME 111	Core 3: Systems & Signals	6
BME 112	BME Design 3	2
BME 185	BME Capstone Design I	3
BME 186	BME Capstone Design II	3
BIOMEDICAL ENGINEERING AND SPECIALIZATION ELECTIVES		30
Math/Science Electives <sup>3</sup>		6
BME Engineering Electives <sup>4</sup>		12
BME Specialization Electives <sup>5</sup>		12
TOTAL		129
Optional/Recommended Courses		1
PHYS 030	Physics Problem Solving I	1

<sup>1</sup> BME General Education: At least 3 credits must be from the Humanities and at least 3 credits must be from the Social Sciences. Students who don't meet the University sustainability requirement (SU) by taking an engineering or technical course approved for SU should meet this requirement with an SU-approved Gen Ed Elective.

<sup>2</sup> BME 010 & CEMS 050 are degree requirements designed for first-year students. Internal and external transfer students may substitute 100-level or higher engineering (BME, CE, EE, EMGT, ENGR, ME) credits for these requirements.

<sup>3</sup> Any MATH, STAT, CHEM, PHYS, BIO, BHSC or other science course that has a prerequisite of one of the foundational math or science courses.

<sup>4</sup> Any engineering course at the 0XX or higher level. At least 9 credits must be BME courses at the 200-level or above.

<sup>5</sup> ENGR, MATH/STAT, CS, physical or life science courses at the 100-level or above. At least 9 credits must be at the 200-level or above.

## ELECTRICAL ENGINEERING B.S.EE.

All students must meet the University Requirements (p. 436).

The curriculum leading to the degree of Bachelor of Science in Electrical Engineering includes instruction in electrical and electronic circuits, energy systems, electromagnetics, semiconductor devices, signal processing, control systems, communications, digital systems, as well as in the physical sciences, humanities, and social sciences.

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 educational objectives of the Electrical Engineering program are to provide our graduates with disciplinary breadth and depth to fulfill complex professional and societal expectations by:

1. Pursuing careers as practicing engineers or using their program knowledge in a wide range of other professional, educational and service activities;
2. Assuming leadership roles and seeking continuous professional development;
3. Contributing to their profession and society while appreciating the importance of ethical and sustainable practices, diversity, and inclusion.

## REQUIREMENTS

### THE CURRICULUM FOR THE B.S. IN ELECTRICAL ENGINEERING

Students must meet University requirements. Note that the University's Quantitative Reasoning (QR) requirement is built into the Electrical Engineering curriculum. A minimum of 127 credits are required.

GENERAL EDUCATION & EE FREE ELECTIVE REQUIREMENTS (24 CREDITS)	
Univ FWIL: Foundational Writing & Information Literacy	3
Univ D1: Diversity 1	3
Univ D1/D2: Diversity 1 or Diversity 2	3
General Education <sup>3</sup>	9

Free Electives <sup>1</sup>		6
MATHEMATICS & STATISTICS REQUIREMENTS (19 CREDITS)		
MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
MATH 120	Eng Math Linear Algebra Lab	1
MATH 121	QR: Calculus III	4
MATH 271	QR: Adv Engineering Mathematics	3
STAT 151	QR: Applied Probability	3
COMPUTING & SCIENCE REQUIREMENTS (14 CREDITS)		
CS 021	QR: Computer Programming I	3
CHEM 031	General Chemistry I	4
PHYS 031	Physics for Engineers I	4
PHYS 125	Physics for Engineers II	3
ENGINEERING COURSE REQUIREMENTS (46 CREDITS)		
CEMS 050	CEMS First Year Seminar <sup>2</sup>	1
CE 001	Statics	3
EE 001	EE Principles and Design <sup>2</sup>	2
EE 020	Circuits I	4
EE 021	Circuits II	4
EE 084	Circuits Design Project	2
EE 120	Electronics I	4
EE 131	Fundamentals of Digital Design	3
EE 141	Electromagnetic Field Theory	4
EE 171	Signals & Systems	4
EE 180	Engineering Ethics/Leadership	1
EE 183	Electronics Laboratory	2
EE 184	Electronics Design Project	3
EE 187	Capstone Design I	3
EE 188	Capstone Design II	3
EMGT 170	Engineering Economics	3
JUNIOR ELECTIVES (CHOOSE AT LEAST THREE OF THE FOLLOWING) (12 CREDITS) <sup>4</sup>		
EE 110	Control Systems	
EE 113	Electric Energy Systems	
EE 121	Electronics II	
EE 134	Microcontroller Systems	

EE 174	Communication Systems	
EE ELECTIVES (12 CREDITS) <sup>5</sup>		
TOTAL CREDITS		127
OPTIONAL/RECOMMENDED COURSES		
PHYS 030	Physics Problem Solving I	
PHYS 123	Physics Problem Solving II	
ENGR 002	Graphical Communication	
CS 110	QR: Intermediate Programming	

- <sup>1</sup> Free Electives: Students may use free elective credits to pursue coursework germane to their interests. Students are encouraged to work with their advisor(s) to select courses that complement their curricula and support their academic and career goals. Students should select one course that meets the University Sustainability Requirement (SU) if they have not taken an SU engineering course.
- <sup>2</sup> CEMS 050 & EE 001 are degree requirements designed for first-year students. Internal and external transfer students may substitute additional 100-level or higher engineering (BME, CE, EE, ENGR, ME) credits for these requirements.
- <sup>3</sup> General Education Electives: At least 3 credits must be from the Humanities and at least 3 credits must be from the Social Sciences. Students who do not meet the SU requirement through engineering courses, should use GenEd credits to do so.
- <sup>4</sup> If a student takes more than three of these courses, one course may count as an EE Elective (see footnote 5).
- <sup>5</sup> EE Electives: EE 192, EE 193, EE 194, EE 195, EE 198 and all 200-level, 3-4 credit EE courses. At least 9 credits must be at the 200-level or above. Four distinct 3-4 credit EE electives are required. EE Elective requirement may not be met by taking three 4 credit courses.

## ELECTRICAL ENGINEERING MINOR REQUIREMENTS

A minimum of eighteen credits in Electrical Engineering.

CHOOSE ONE OF THE FOLLOWING:		4
EE 020	Circuits I	
EE 075	Electrical Circuits & Sensors	
EE 100	Electrical Engr Concepts	
CHOOSE OPTION 1 OR 2:		14
OPTION 1:		
EE 021	Circuits II	
10 Credits of EE numbered 101 or above		

OPTION 2: <sup>1</sup>	
14 Credits of EE numbered 101 or above	

- <sup>1</sup> Many EE 100-level (and above) courses require EE 020 as a prerequisite. Students who choose Option 2 must receive a B or better in EE 020, EE 075 or EE 100 to receive prerequisite waivers.

## OTHER INFORMATION

No credit for more than one of EE 020, EE 075 or EE 100. Students must obtain a co-advisor from the EE program.

## MECHANICAL ENGINEERING

At the undergraduate level, the Department of Mechanical Engineering offers an ABET-accredited Bachelor of Science in Mechanical Engineering. Additional information is available in that program's section of this catalogue.

## REGULATIONS

Students pursuing the Bachelor of Science in Mechanical Engineering are subject to the Academic Standards in CEMS outlined in this catalogue.

## ADDITIONAL REGULATIONS

Students may apply no more than three credits graded D, D+ or D- in any engineering (BME, CE, EE, ENGR or ME) course toward the degree.

In order to earn the Bachelor of Science in Mechanical Engineering, students must achieve a minimum 2.00 GPA in all Engineering (BME, CE, EMGT, ENGR, EE, ME), Mathematics, Statistics, Physics, Chemistry and Computer Science coursework.

## MAJORS

### MECHANICAL ENGINEERING MAJORS

Mechanical Engineering B.S.ME. (p. 376)

## GRADUATE

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## MECHANICAL ENGINEERING B.S.ME.

All students must meet the University Requirements. (p. 436)

The curriculum 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.

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.



## MECHANICAL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES

The educational objectives of the Mechanical Engineering program are to provide our graduates with disciplinary breadth and depth to fulfill complex professional and societal expectations by:

1. Pursuing careers as practicing engineers or using their program knowledge in a wide range of other professional, educational and service activities.
2. Assuming leadership roles and seeking continuous professional development.
3. Contributing to their profession and society while appreciating the importance of ethical and sustainable practices, diversity, and inclusion.

## REQUIREMENTS

### THE CURRICULUM FOR THE B.S. IN MECHANICAL ENGINEERING

Students must meet University requirements. Note that the University's Sustainability (SU) and Quantitative Reasoning (QR) requirements are built into the Mechanical Engineering curriculum. Minimum of 125 credits required.

UNIVERSITY/MECHANICAL ENGINEERING GENERAL EDUCATION REQUIREMENTS (18 CREDITS)		
Univ FWIL: Foundational Writing & Information Literacy		3
Univ D1: Diversity 1		3
Univ D1/D2: Diversity 1 or Diversity 2		3
ME General Education Electives <sup>1</sup>		9
MATHEMATICS & STATISTICS REQUIREMENTS (21 CREDITS)		
MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
MATH 121	QR: Calculus III	4
MATH 122	QR: Applied Linear Algebra	3
or MATH 124	QR: Linear Algebra	
MATH 271	QR: Adv Engineering Mathematics	3
STAT 143	QR: Statistics for Engineering	3
COMPUTING & SCIENCE REQUIREMENTS (14 CREDITS)		
CS 021	QR: Computer Programming I	3
CHEM 031	General Chemistry I	4
PHYS 031	Physics for Engineers I	4
PHYS 125	Physics for Engineers II	3
MECHANICAL ENGINEERING COURSE REQUIREMENTS (53 CREDITS)		

ME 001	First-Year Design Experience <sup>2</sup>	2
ME 012	Dynamics	3
ME 014	Mechanics of Solids	3
ME 040	Thermodynamics	3
ME 042	SU: Applied Thermodynamics	3
ME 081	Mech Engr Shop Experience	1
ME 083	Computational Mech Engr Lab	1
ME 101	Materials Engineering	3
ME 111	System Dynamics	3
ME 123	Thermo-Fluid Lab	2
ME 124	Materials and Mechanics Lab	2
ME 143	Fluid Mechanics	3
ME 144	Heat Transfer	3
ME 171	Design of Elements	3
ME 185	Capstone Design I	3
ME 186	Capstone Design II	3
ME Electives <sup>3</sup>		12
ADDITIONAL ENGINEERING/TECHNICAL COURSE REQUIREMENTS (19 CREDITS)		
CE 001	Statics	3
EE 100	Electrical Engr Concepts	4
EE 101	Digital Control w/Embedded Sys	4
ENGR 002	Graphical Communication	2
Technical Electives <sup>4</sup>		6
OPTIONAL/RECOMMENDED COURSES (4 CREDITS)		
ME 003	Introduction to Robotics	1
CEMS 050	CEMS First Year Seminar	1
PHYS 030	Physics Problem Solving I	1
PHYS 123	Physics Problem Solving II	1

<sup>1</sup> ME General Education Electives: 9 credits of approved general education electives.

<sup>2</sup> First Year Design Experience: ME 001 is a degree requirement designed for first-year students. Internal and external transfer students may substitute 100-level or higher engineering (BME, CE, EE, ENGR, ME) credits for this requirement.

<sup>3</sup> ME Electives: ME 161 and all 200-level (or above) ME courses.

<sup>4</sup> Technical Electives: All 100-level (or higher) courses in BME, CE, EE, ENGR, ME, CS, CSYS, MATH, ASTR, BIOC, BIOL, CHEM, GEOL, MMG & PHYS; STAT 151 or higher; CS 020.

## INTERDISCIPLINARY ENGINEERING PROGRAMS

CEMS offers two undergraduate Interdisciplinary Engineering Programs: a Bachelor of Science in Engineering and a Bachelor of Science in Engineering Management. These programs are not ABET-accredited, nor are they designed to be. They are flexible, cross-disciplinary degrees that allow students to study engineering alongside the liberal arts, sciences and/or business administration.

Additional Interdisciplinary Engineering offerings include an Undergraduate Certificate in Computer-Aided Engineering Technology and a Master of Science in Engineering Management. The MS is available as either a standalone degree or as part of the Accelerated Masters Program (AMP).

The Interdisciplinary Engineering Programs are collaboratively overseen by the Department of Civil & Environmental Engineering, the Department of Electrical & Biomedical Engineering and the Department of Mechanical Engineering. More information is available within the individual program sections of this catalogue.

## REGULATIONS

Students pursuing any of the undergraduate Interdisciplinary Engineering Programs (BS Engineering or BS Engineering Management) are subject to the Academic Standards in CEMS outlined in this catalogue.

## ADDITIONAL REGULATIONS

Students may apply no more than three credits graded D, D+ or D- in any engineering (BME, CE, EE, ENGR or ME) course toward the degree.

In order to earn the Bachelor of Science in Engineering, or the Bachelor of Science in Engineering Management, students must achieve a minimum 2.00 GPA in all Engineering (BME, CE, EMGT, ENGR, EE, ME), Mathematics, Statistics, Physics, Chemistry and Computer Science coursework.

## MAJORS

### INTERDISCIPLINARY ENGINEERING PROGRAM MAJORS

- Engineering B.S.E. (p. 378)
- Engineering Management B.S.EM. (p. 379)

## MINORS AND CERTIFICATES

### INTERDISCIPLINARY ENGINEERING PROGRAMS MINORS AND CERTIFICATES

- Computer-Aided Engineering Technology (p. 380) - Undergraduate Certificate
- Geospatial Technologies Minor (p. 381)

## GRADUATE

Engineering Management AMP

Engineering Management M.S.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## ENGINEERING B.S.E.

All students must meet the University Requirements (p. 436).

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(s) will plan an integrated series of courses directed towards the concentration. Possible concentrations include: aeronautical engineering, materials engineering, chemical engineering, computer engineering, power engineering, sustainable energy, geological engineering, mechatronics/robotics, etc.

## REQUIREMENTS

### THE CURRICULUM FOR THE B.S. IN ENGINEERING

Students must meet University requirements. Note that the University's Quantitative Reasoning (QR) requirement is built into the BS Engineering curriculum. Minimum of 122 credits required.

UNIVERSITY & BSE GENERAL EDUCATION AND FREE REQUIREMENTS (24 CREDITS)		
Univ FWIL: Foundational Writing & Information Literacy <sup>1</sup>		3
Univ D1: Diversity 1 <sup>1</sup>		3
Univ D1/D2: Diversity 1 or Diversity 2 <sup>1</sup>		3
BSE General Education Electives <sup>1</sup>		9
Free Electives <sup>2</sup>		6
MATHEMATICS & STATISTICS REQUIREMENTS (21 CREDITS)		
MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
MATH 121	QR: Calculus III	4
MATH 124	QR: Linear Algebra	3
MATH 271	QR: Adv Engineering Mathematics	3
STAT 143	QR: Statistics for Engineering	3
or STAT 151	QR: Applied Probability	
COMPUTING & SCIENCE REQUIREMENTS (14 CREDITS)		
CS 021	QR: Computer Programming I	3
CHEM 031	General Chemistry 1	4
PHYS 031	Physics for Engineers I	4

PHYS 125	Physics for Engineers II	3
ENGINEERING SCIENCE CORE REQUIREMENTS (13 CREDITS)		
CEMS 050	CEMS First Year Seminar <sup>3</sup>	1
CE 001	Statics	3
EE 020	Circuits I	4
or EE 075	Electrical Circuits & Sensors	
or EE 100	Electrical Engr Concepts	
ENGR 002	Graphical Communication	2
ME 040	Thermodynamics	3
ENGINEERING SCIENCE ELECTIVES (30 CREDITS) <sup>4</sup>		
ENGINEERING DESIGN REQUIREMENTS (8 CREDITS)		
BME 010	BME Design 0 <sup>3</sup>	2
or CE 003	SU: Intro to Civil & Envir Engr	
or EE 001	EE Principles and Design	
or ME 001	First-Year Design Experience	
BME 185	BME Capstone Design I <sup>5</sup>	3
or CE 185	SU: Capstone Design I	
or EE 187	Capstone Design I	
or ME 185	Capstone Design I	
BME 186	BME Capstone Design II <sup>5</sup>	3
or CE 186	SU: Capstone Design II	
or EE 188	Capstone Design II	
or ME 186	Capstone Design II	
TECHNICAL ELECTIVES (12 CREDITS) <sup>6</sup>		
RECOMMENDED/OPTIONAL COURSES (2 CREDITS)		
PHYS 030	Physics Problem Solving I	1
PHYS 123	Physics Problem Solving II	1
Total		122

<sup>1</sup> University General Education Requirements include: (1) 3 credits of Foundational Writing & Information Literacy (FWIL). Students must take ENGS 001 or HCOL 085 (only for students enrolled in the Honors College). Students transferring from the College of Arts and Sciences can use a TAP class to fulfill this requirement; (2) 15 credits of approved General Education (GenEd) electives including one 3-credit D1 course, a second 3-credit D1 or D2 course, and 3 credits each of Humanities and Social Sciences. A single course can satisfy multiple requirements in this category.

- <sup>2</sup> Free Electives: Students may use free elective credits to pursue coursework germane to their interests. Students are encouraged to work with their advisor(s) to select courses that complement their curricula and support their academic and career goals. Students should select one course that meets the University Sustainability Requirement (SU) if they have not taken an SU engineering course.
- <sup>3</sup> First Year Curriculum: These degree requirements are designed for first-year students. Internal and external transfer students may substitute additional 100-level or higher engineering (BME, CE, EE, ENGR, ME, EMGT) credits for this requirement.
- <sup>4</sup> Engineering Science Electives: All BME, CE, EE, ENGR, ME and EMGT courses (except ENGR 010). Must have a minimum of 9 credits at the 200-level.
- <sup>5</sup> Capstone Design I and II courses must have the same course prefix.
- <sup>6</sup> Technical Electives: Any 100-level or higher course in CEMS or BSAD; natural sciences courses with advisor approval. BSE students may not double count BSAD courses as both Tech Electives and Gen Ed.

## ENGINEERING MANAGEMENT B.S.EM.

All students must meet the University Requirements (p. 436).

The curriculum leading to the degree of Bachelor of Science in Engineering Management is offered in cooperation with the Grossman School of Business. Engineering management is a broad discipline concerned with the art and science of planning, organizing, directing, and controlling activities that have technical components. Designing, producing, selling, and servicing products in the marketplace require managers with both the ability to apply engineering principles and the skills to manage technical projects and people. The curriculum is designed to combine a basic education in the engineering disciplines with the study of economics, accounting & finance, operations, and management.

## REQUIREMENTS

Students must meet University requirements. Note that the University's Quantitative Reasoning (QR) requirement is built into the Engineering Management curriculum. Minimum of 124 credits required.

UNIVERSITY REQUIREMENTS (12 CREDITS)		
Univ FWIL: Foundational Writing & Information Literacy		3
Univ D1: Diversity 1		3
Univ D1/D2: Diversity 1 or Diversity 2		3
Univ SU: Sustainability <sup>1</sup>		3
MATHEMATICS & STATISTICS REQUIREMENTS (24 CREDITS)		
MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4

MATH 121	QR: Calculus III	4
MATH 122	QR: Applied Linear Algebra	3
or MATH 124	QR: Linear Algebra	
MATH 271	QR: Adv Engineering Mathematics	3
STAT 143	QR: Statistics for Engineering	3
STAT 224	QR: Stats for Quality&Productvty	3
COMPUTING & SCIENCE REQUIREMENTS (14 CREDITS)		
CS 021	QR: Computer Programming I	0 or 3
CHEM 031	General Chemistry I	4
PHYS 031	Physics for Engineers I	4
PHYS 125	Physics for Engineers II	3
ECONOMICS & BUSINESS REQUIREMENTS (30 CREDITS)		
EC 011	Principles of Macroeconomics	3
EC 012	Principles of Microeconomics	3
BSAD 030	Decision Analysis	3
BSAD 060	Financial Accounting	3
BSAD 061	Managerial Accounting	3
BSAD 120	Leadership & Org Behavior	3
BSAD 173	Operations Management	3
BSAD 180	Managerial Finance	3
BSAD Electives <sup>2</sup>		6
ENGINEERING SCIENCE REQUIREMENTS (36-37 CREDITS)		
CE 001	Statics	3
EE 003 & EE 081	Linear Circuit Analysis I and Linear Circuits Laboratory I	4-5
or EE 075	Electrical Circuits & Sensors	
or EE 100	Electrical Engr Concepts	
ENGR 002	Graphical Communication	2
ME 040	Thermodynamics	3
Engineering Science Electives <sup>3</sup>		24
ENGINEERING DESIGN REQUIREMENTS (8 CREDITS)		
BME 001	Intro to Biomedical Eng Design <sup>4</sup>	2
or CE 003	SU: Intro to Civil & Envir Engr	
or EE 001	EE Principles and Design	
or ME 001	First-Year Design Experience	
BME 187	Capstone Design I <sup>5</sup>	3
or CE 185	SU: Capstone Design I	

or EE 187	Capstone Design I	
or ME 185	Capstone Design I	
BME 188	Capstone Design II <sup>5</sup>	3
or CE 186	SU: Capstone Design II	
or EE 188	Capstone Design II	
or ME 186	Capstone Design II	
RECOMMENDED/OPTIONAL COURSES (0-3 CREDITS)		
CEMS 050	CEMS First Year Seminar	
PHYS 030	Physics Problem Solving I	
PHYS 123	Physics Problem Solving II	
TOTAL		124

- <sup>1</sup> Students who meet the Univ SU: Sustainability Requirement with an approved BSAD Elective<sup>2</sup>, Engineering Science Elective<sup>3</sup>, or a course that meets both D2 and SU, may replace these credits with free elective credits.
- <sup>2</sup> BSAD Electives: BSAD 144, BSAD 147, BSAD 148, BSAD 192, and all 200-level BSAD courses. BSAD 195 & BSAD 196 with approval of advisor and program head.
- <sup>3</sup> Engineering Science Electives: All BME, CE, EE, EMGT, ENGR & ME courses (except ENGR 010). Must include a minimum of 6 credits at the 200 level.
- <sup>4</sup> First Year Design: This degree requirement is designed for first-year students. Internal and external transfer students may substitute 100-level or higher engineering (BME, CE, EE, ENGR, ME) credits for this requirement.
- <sup>5</sup> Capstone Design I and II courses must have the same course prefix.

## COMPUTER-AIDED ENGINEERING TECHNOLOGY UNDERGRADUATE CERTIFICATE

Computer-Aided Engineering Technology (CAET) is the term for an evolving set of computer based tools used for the development, communication and evaluation of product and building designs. The Undergraduate Certificate in CAET will provide students with a critical skill set identified by industry and government at both the state and national levels. Core classes provide students with a solid foundation in computerized automation techniques, three dimensional form and location geometry. Elective courses facilitate a focus into specific sub-disciplines. Minimum of fifteen credits required.

### REQUIREMENTS

Required core courses:		
ENGR 002	Graphical Communication	2
ENGR 112	Building Information Modeling	3



ENGR 114	Advanced 3D Drafting	3
Choose 7 credits of elective coursework from the following:		
CE 010	Geomatics	
CDAE 101	Drafting & Design: SketchUp II	
CDAE 131	Appl Des Studio: Lt Frame Bldg	
ENGR 116	Virtual Instrument Engineering	
GEOG 081	Geospatial Cncpt&Visualization	
NR 143	Intro to Geog Info Systems	
Other electives may be approved by CAET program coordinator.		

## GEOSPATIAL TECHNOLOGIES MINOR REQUIREMENTS

A total of 15 credits with at least 9 credits at or above the 100-level.

1 or more course(s) on Geospatial Technologies in the Disciplines		3-6
ENSC 130	Global Environmental Assessmnt	
CE 010	Geomatics	
CDAE 101	Drafting & Design: SketchUp II	
ENGR 002	Graphical Communication	
GEOG 081	Geospatial Cncpt&Visualization	
GEOG 144	Geomorphology	
or GEOL 151	Geomorphology	
GEOL 185	Geocomputing	
Courses in 2 or more categories (Geographic Information Systems, Remote Sensing, and Data Science)		6-9
Geographic Information Systems - Choose 1:		3
NR 143	Intro to Geog Info Systems	
or GEOG 184	Geog Info:Cncpts & Applic	
Remote Sensing - Choose 1:		3
NR 146	Remote Sensing of Natural Res	
or FOR 146	Remote Sensing of Natural Res	
GEOG 185	Remote Sensing	
Data Science - Choose from:		3-6
CS 008	QR: Intro to Web Site Dev	
CS 021	QR: Computer Programming I	
CS 087	QR: Intro to Data Science	
or STAT 087	QR: Intro to Data Science	
CS 110	QR: Intermediate Programming	

CS 142	QR: Advanced Web Design	
CS 148	QR: Database Design for Web	
STAT 087	QR: Intro to Data Science	
or CS 087	QR: Intro to Data Science	
1 or more advanced or capstone experience(s)		3-6
NR 242	Adv Geospatial Techniques	
NR 243	GIS Practicum	
GEOG 281	Adv Topic:GIS & Remote Sensing (b, Advanced GIS Applications)	
GEOG 281	Adv Topic:GIS & Remote Sensing (a, Satellite Climatology/Land Surface Applications)	
GEOG 287	Spatial Analysis	
CS 204	QR: Database Systems	
MATH 266	QR:Chaos,Fractals&Dynmcal Syst	
STAT 201	QR:Stat Computing&Data Anlysis	

## PRE/CO-REQUISITES

Variable, depending on upper level courses chosen.

## OTHER INFORMATION

Geography majors who undertake the Geospatial Technologies minor are required to complete 33 credits in Geography and 15 credits towards the Geospatial Technologies minor. GEOG 081 may be used to count towards both the major and the minor. However, students are still required to complete 33 credits of geography courses.

## COMPUTER SCIENCE DEPARTMENT

<http://www.uvm.edu/~cems/cs/>

Computer Science (CS) is a vibrant subject with academic depth, enormous growth, and universal economic impact. Computers are now ubiquitous in society and influence the way we learn, the way we do science and business, and the way we interact with and understand our world.

Edsger Dijkstra (a renowned computer scientist, 1930-2002) is reputed to have said “Computer Science is no more about computers, than astronomy is about telescopes.” Rather, CS is aptly defined as the science of problem solving. CS requires a combination of logical thinking, creativity, problem decomposition, implementation, verification and validation, and teamwork. Computing Careers are extremely versatile, lucrative, and in tremendous and growing demand.

UVM CS courses provide a mixture of lecture-based and hands-on experiential learning exercises. The curricula provide a solid foundation in both applied and theoretical aspects of computing, preparing students for future careers and/or graduate study in

computing. Many students complete paid internships over the summer.

## CURRICULA

At the undergraduate level, UVM Computer Science offers bachelor's degrees, an accelerated M.S. degree, a minor, and a non-degree Certificate in Computer Software:

### **bachelor of science in computer science (bs cs)**

The Bachelor of Science in Computer Science provides the most depth in computer science, mathematics and statistics, and the most flexibility in the remaining electives. A minor is encouraged, but not required. The BS CS is offered through the College of Engineering & Mathematical Sciences.

### **Bachelor of science - computer science and information systems major (bs csis)**

The Bachelor of Science, major in Computer Science and Information Systems, is an interdisciplinary degree that combines computer science with business, offering a competitive combination of skills and knowledge. The BS CSIS is offered through the College of Engineering & Mathematical Sciences, in cooperation with the Grossman School of Business.

### **Bachelor of science - data science major (bs ds)**

The Bachelor of Science, major in Data Science, is a transdisciplinary program that provides students with a strong education at the intersection of computer science, mathematics, and statistics. A minor is encouraged, but not required. The BS DS is offered through the College of Engineering & Mathematical Sciences.

### **Bachelor of arts - computer science major (ba cs)**

The Bachelor of Arts, major in Computer Science, provides a computer science major in the context of a liberal education with breadth in social science, humanities, foreign language, literature, and fine art. A minor is required. The BA CS is offered through the College of Arts & Sciences. Information on this program can be found in the College of Arts & Sciences portion of the Undergraduate Catalogue.

### **accelerated masters programs**

The Accelerated Masters Programs in Computer Science and in Complex Systems & Data Science are open to academically strong juniors (GPA 3.2 or higher) from any major who have met the prerequisites. The AMP allows students to apply two upper division courses towards both bachelor's and master's degrees, enabling completion of the M.S. in Computer Science or M.S. in Complex Systems & Data Science in as little as one additional year beyond the Bachelor's degree. No GRE is required, and 30% tuition scholarships are available. Information on the AMP can be found on the CEMS website.

### **computer science minor**

The minor in Computer Science is a flexible 6-course program, which is a great complement to virtually any other UVM major and adds marketable skills.

## **CERTIFICATE IN Computer science**

A non-degree Certificate in Computer Software is a flexible 5-course program offered jointly with the Division of Continuing Education. It can be used to obtain career skills or to make up pre-requisites for the MS program in CS. Information about this program can be found on the Continuing Education Website.

## **REGULATIONS**

Students pursuing the Bachelor of Science in Computer Science, or the Bachelor of Science degree with majors in Computer Science & Information Systems or Data Science, are subject to the Academic Standards in CEMS outlined in this catalogue.

### **ADDITIONAL REGULATIONS**

In order to earn the Bachelor of Science in Computer Science or the Bachelor of Science degree with a major in Computer Science & Information Systems, students must achieve a minimum GPA of 2.0 in all courses with a CS prefix. The minimum 2.0 GPA also includes courses without a CS prefix that are substituted for a CS course requirement.

## **MAJORS**

### **COMPUTER SCIENCE MAJORS**

Computer Science B.S.CS. (p. 382)

Computer Science and Information Systems B.S. (p. 383)

Data Science B.S. (p. 384)

## **MINORS**

### **COMPUTER SCIENCE MINOR**

Computer Science (p. 386)

## **GRADUATE**

Complex Systems and Data Science AMP

Complex Systems and Data Science M.S.

Complex Systems and Data Science Ph.D.

Computer Science AMP

Computer Science M.S.

Computer Science Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## **COMPUTER SCIENCE B.S.CS.**

All students must meet the University Requirements (p. 436).

A minimum of 120 credits are required and must include the following:

COMPUTER SCIENCE (50-51 CREDITS)	
Recommended:	

CS 050	Seminar for New CS Majors	1
Core:		
CS 021	QR: Computer Programming I <sup>1</sup>	3
CS 064	QR: Discrete Structures	3
CS 110	QR: Intermediate Programming <sup>1</sup>	4
CS 120	QR: Advanced Programming	3
CS 121	QR: Computer Organization	3
CS 124	QR: Data Struc & Algorithms	3
CS 125	QR: Computability & Complexity	3
CS 201	QR: Operating Systems	3
CS 224	QR: Algorithm Design & Analysis	3
CS 292	Senior Seminar	1
CEMS 050	CEMS First Year Seminar <sup>3</sup>	1
Capstone Experience		3
A comprehensive, project-based experience, typically occurring during the Senior year, that draws from the full breadth of skills and knowledge developed throughout a student's undergraduate program. Students may choose from the following courses:		
CS 202	Compiler Construction	3
CS 205	QR: Software Engineering	3
CS 206	QR: Evolutionary Robotics	3
CS 211	Data Privacy	3
CS 225	QR: Programming Languages	3
CS 226	QR: Software Verification	3
CS 228	QR: Human-Computer Interaction	3
CS 254	QR: Machine Learning	3
CS 275	QR: Mobile App Development I	3
Eighteen additional credits in CS, including three at the 0XX-level (or above), six at the 1XX-level (or above), and nine credits at the 2XX-level (or above).		18
MATHEMATICS (14 CREDITS)		
MATH 021	QR: Calculus I <sup>2</sup>	4
MATH 022	QR: Calculus II <sup>2</sup>	4
Choose two of the following courses:		6-7
MATH 121	QR: Calculus III	
MATH 122	QR: Applied Linear Algebra	
or MATH 124 QR: Linear Algebra		
MATH 173	QR: Basic Combinatorial Theory	
MATH 271	QR: Adv Engineering Mathematics	

PROBABILITY & STATISTICS (6 CREDITS)		
STAT 143	QR: Statistics for Engineering	3
STAT 151	QR: Applied Probability	3
NATURAL SCIENCES (7 CREDITS):		
Two courses, one of which must be a lab adding up to four credits, chosen from:		
Astronomy (ASTR) - All courses		
Biology (BIOL) - All courses		
BioCore (BCOR) - All courses		
Chemistry (CHEM) - All courses		
Geology (GEOL) - All courses		
Physics (PHYS) - All courses		
Plant Biology (P BIO) - All courses		
GEOG 040	Weather, Climate & Landscapes	
GEOG 140	Biogeography	
GEOG 143	Climatology: Concepts & Tools	
GEOG 148	Global Environmental Change	
MMG 065	Microbiology & Pathogenesis	
PSYS 111	Learning, Cognition & Behavior	
PSYS 115	Biopsychology	
PSYS 211	Learning	
PSYS 215	Physiological Psychology	
PSYS 216	Psychopharmacology	
PSYS 218	Hormones and Behavior	

<sup>1</sup> C- or higher required in CS 021 and CS 110.

<sup>2</sup> MATH 019 and MATH 023 are acceptable substitutions for MATH 021 and MATH 022.

<sup>3</sup> CEMS degree requirement designed for first-year students.

## COMPUTER SCIENCE AND INFORMATION SYSTEMS B.S.

All students must meet the University Requirements (p. 436).

A minimum of 120 credits are required and must include the following:

COMPUTER SCIENCE (44-45 CREDITS)		
Recommended:		
CS 050	Seminar for New CS Majors	1
Core:		

CS 008	QR: Intro to Web Site Dev	3
CS 021	QR: Computer Programming I <sup>1</sup>	3
CS 064	QR: Discrete Structures	3
CS 110	QR: Intermediate Programming <sup>1</sup>	4
CS 120	QR: Advanced Programming	3
CS 121	QR: Computer Organization	3
CS 124	QR: Data Struc & Algorithms	3
CS 148	QR: Database Design for Web	3
CS 224	QR: Algorithm Design & Analysis	3
CS 292	Senior Seminar	1
CEMS 050	CEMS First Year Seminar <sup>3</sup>	1
Capstone Experience		3
A comprehensive, project-based experience, typically occurring during the Senior year, that draws from the full breadth of skills and knowledge developed throughout a student's undergraduate program. Students may choose from the following courses:		
CS 202	Compiler Construction	3
CS 205	QR: Software Engineering	3
CS 206	QR: Evolutionary Robotics	3
CS 211	Data Privacy	3
CS 225	QR: Programming Languages	3
CS 226	QR: Software Verification	3
CS 228	QR: Human-Computer Interaction	3
CS 254	QR: Machine Learning	3
CS 275	QR: Mobile App Development I	3
Twelve additional CS credits: Six credits at the 100-level or above (CS 125 recommended for students who wish to pursue graduate study in CS); six credits at the 200-level or above.		12
BUSINESS ADMINISTRATION (24 CREDITS)		
BSAD 030	Decision Analysis	3
BSAD 060	Financial Accounting	3
BSAD 061	Managerial Accounting	3
BSAD 120	Leadership & Org Behavior	3
BSAD 150	Marketing Management	3
BSAD 173	Operations Management	3
BSAD 180	Managerial Finance	3
BSAD Elective (100-level or above)		3
ECONOMICS (6 CREDITS)		
EC 011	Principles of Macroeconomics	3

EC 012	Principles of Microeconomics	3
MATHEMATICS (8 CREDITS)		
MATH 021	QR: Calculus I <sup>2</sup>	4
MATH 022	QR: Calculus II <sup>2</sup>	4
PROBABILITY & STATISTICS (6 CREDITS)		
STAT 143	QR: Statistics for Engineering	3
STAT 151	QR: Applied Probability	3
NATURAL SCIENCES (7 CREDITS)		
Two courses, one of which must be a lab course that totals 4 credits, chosen from:		
Astronomy (ASTR) - All courses		
Biology (BIOL) - All courses		
BioCore (BCOR) - All courses		
Chemistry (CHEM) - All courses		
Geology (GEOL) - All courses		
Physics (PHYS) - All courses		
Plant Biology (PBIO) - All courses		
GEOG 040	Weather, Climate & Landscapes	
GEOG 140	Biogeography	
GEOG 143	Climatology: Concepts & Tools	
GEOG 148	Global Environmental Change	
MMG 065	Microbiology & Pathogenesis	
PSYS 111	Learning, Cognition & Behavior	
PSYS 115	Biopsychology	
PSYS 211	Learning	
PSYS 215	Physiological Psychology	
PSYS 216	Psychopharmacology	
PSYS 218	Hormones and Behavior	

<sup>1</sup> C- or higher required in CS 021 and CS 110.

<sup>2</sup> MATH 019 and MATH 023 are acceptable substitutions for MATH 021 and MATH 022.

<sup>3</sup> CEMS degree requirement designed for first-year students.

## DATA SCIENCE B.S.

All students must meet the University Requirements.  
(<http://catalogue.uvm.edu/undergraduate/academicinfo/degree requirements/>)



## DATA SCIENCE MAJOR

The study and applications of Data Science impacts our lives in myriad ways every moment of every day. Often times we are unaware of the role this important field plays in our daily routines. We have data scientists to thank as we read the latest news on our social media feed of choice, or watch a movie suggested by our go-to streaming app. Even the food we eat has likely been guided by the study of big data. For example, researchers are working hand-in-hand with farms of all sizes to help analyze data which in turn can identify and reduce areas of inefficiency and waste, and bring food to your table in a faster, safer, and more cost-effective way.

The curriculum of the Bachelor of Science with a major in Data Science combines courses from the disciplines of Statistics, Mathematics, and Computer Science to prepare students for careers in Big Data Science & Analytics: rapidly growing fields with huge unmet demand. The unique interdisciplinary educational experience allows students the opportunity to acquire the broad base of knowledge and skills that employers are seeking.

## REGULATIONS

Students pursuing the Bachelor of Science degree with a major in Data Science are subject to the Academic Standards in CEMS outlined in this catalogue.

## REQUIREMENTS

### THE CURRICULUM FOR THE B.S. IN DATA SCIENCE

A minimum of 120 credits is required. Students must satisfy all University requirements.

CORE (6 CREDITS):		
CEMS 050	CEMS First Year Seminar	1
CS 064	QR: Discrete Structures	3
or MATH 052	QR: Fundamentals of Mathematics	
STAT 151	QR: Applied Probability	3
or STAT 251	QR: Probability Theory	
COMPUTER SCIENCE CORE (19 CREDITS):		
CS 021	QR: Computer Programming I	3
CS 110	QR: Intermediate Programming	4
CS 124	QR: Data Struc & Algorithms	3
CS 204	QR: Database Systems	3
CS 224	QR: Algorithm Design & Analysis	3
100-Level (or above) CS Elective <sup>1</sup>		3
STATISTICS CORE (24 CREDITS):		
STAT 087	QR: Intro to Data Science	3
STAT 141	QR: Basic Statistical Methods 1	3

or STAT 143	QR: Statistics for Engineering	
or STAT 211	QR: Statistical Methods I	
STAT 201	QR: Stat Computing & Data Analysis	3
STAT 221	QR: Statistical Methods II	3
STAT 229	QR: Survival/Logistic Regression	3
STAT 281	Capstone Experience	1-18
or STAT 293	Undergrad Honors Thesis	
or MATH 293	Undergraduate Honors Thesis	
or CS 283	Undergraduate Honors Thesis	
STAT/CS 287	QR: Data Science I	3
STAT 288	QR: Statistical Learning	3
MATHEMATICS CORE (17 CREDITS):		
MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
MATH 122	QR: Applied Linear Algebra	3
or MATH 124	QR: Linear Algebra	
Choose 6 credits in Mathematics electives at the 100-Level (or above) <sup>1</sup>		6
Choose 12 Credits in Data Science (DS) electives selected from the list of approved courses (see below) in MATH/STAT/CS/CSYS/NR, with at least 9 of these credits at the 200-level (or above): <sup>2</sup>		12
CS 120	QR: Advanced Programming	
CS 148	QR: Database Design for Web	
CS 166	QR: Cybersecurity Principles	
CS 167	Cybersecurity Defense	
CS 205	QR: Software Engineering	
CS 224	QR: Algorithm Design & Analysis	
CS 228	QR: Human-Computer Interaction	
CS 254	QR: Machine Learning	
CS/CSYS 302	Modeling Complex Systems <sup>3</sup>	
CS/CSYS 352	Evolutionary Computation <sup>3</sup>	
MATH 121	QR: Calculus III	
MATH 173	QR: Basic Combinatorial Theory	
MATH 235	QR: Mathematical Models & Analysis	
MATH/CS 237	QR: Intro to Numerical Analysis	
MATH 266	QR: Chaos, Fractals & Dynamical Syst	
MATH 268	QR: Mathematical Biology & Ecol	

MATH/CSYS 300	Principles of Complex Systems <sup>3</sup>	
MATH/CSYS 303	Complex Networks <sup>3</sup>	
STAT 183	QR: Basic Statistical Methods 2	
STAT 224	QR: Stats for Quality&Productvty	
STAT 231	QR: Experimental Design	
STAT 235	QR: Categorical Data Analysis	
STAT 241	QR: Statistical Inference	
STAT/CS 288	QR: Statistical Learning	
STAT 330	Bayesian Statistics <sup>3</sup>	
STAT 387	Data Science II <sup>3</sup>	
NR 143	Intro to Geog Info Systems	
CE 359	Appld Artificial Neural Ntwrks <sup>3</sup>	
CE/CSYS/STAT 369	Applied Geostatistics <sup>3</sup>	
CHOOSE ONE 2-COURSE NATURAL SCIENCE (W/ LAB) SEQUENCE:		8
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
PHYS 051 & PHYS 152	Fundamentals of Physics I and Fundamentals of Physics II	

- <sup>1</sup> Students should select appropriate courses from list of approved Data Science (DS) electives. Alternative courses may be approved by the DS Curriculum Committee.
- <sup>2</sup> Additional courses, including special topics courses, may be granted approval if appropriate (consult advisor)
- <sup>3</sup> Undergraduate students require instructor permission to enroll in 300-level courses.

## GRADUATE

Complex Systems and Data Science AMP

Complex Systems and Data Science M.S.

Complex Systems and Data Science Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

## COMPUTER SCIENCE MINOR REQUIREMENTS

Eighteen credits in computer science including nine credits at the 100-level or above.	18
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Minor curricula must be approved by a Computer Science advisor. Optional pre-approved tracks are available on the Computer Science department's website.

## MATHEMATICS AND STATISTICS DEPARTMENT

<http://www.uvm.edu/~cems/mathstat/>

### CURRICULA

The College of Engineering and Mathematical Sciences offers programs in several areas of the mathematical sciences and their applications. The following section outlines the curricula for the Bachelor of Science in Mathematical Sciences with majors in mathematics and statistics.

The Handbook for Majors and Minors, available on the department website or from the department office, provides additional information on the mathematics and statistics 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.

### 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. The B.S. and M.S. may be earned in five years, as six credits of undergraduate coursework may 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. Students must apply to the Graduate College for admission, noting their interest in the Accelerated Master's Program. Once admitted, AMP students receive concurrent undergraduate and graduate credit for one or two courses. Please refer to the Handbook for Graduate Studies in Mathematics 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.

### MAJORS

#### MATHEMATICS AND STATISTICS MAJORS

Data Science B.S. (p. 384)

Mathematics B.S.MSC. (p. 388)

Statistics B.S.MSC. (p. 392)

**MINORS****MATHEMATICAL SCIENCES AND STATISTICS MINORS**

Mathematics: Pure (p. 394)

Statistics (p. 394)

**GRADUATE**

Biostatistics AMP

Biostatistics M.S.

Mathematical Sciences Ph.D.

Mathematics AMP

Mathematics M.S.

Mathematics M.S.T.

Statistics AMP

Statistics M.S.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

**DATA SCIENCE B.S.**

All students must meet the University Requirements. (<http://catalogue.uvm.edu/undergraduate/academicinfo/degree requirements/>)

**DATA SCIENCE MAJOR**

The study and applications of Data Science impacts our lives in myriad ways every moment of every day. Often times we are unaware of the role this important field plays in our daily routines. We have data scientists to thank as we read the latest news on our social media feed of choice, or watch a movie suggested by our go-to streaming app. Even the food we eat has likely been guided by the study of big data. For example, researchers are working hand-in-hand with farms of all sizes to help analyze data which in turn can identify and reduce areas of inefficiency and waste, and bring food to your table in a faster, safer, and more cost-effective way.

The curriculum of the Bachelor of Science with a major in Data Science combines courses from the disciplines of Statistics, Mathematics, and Computer Science to prepare students for careers in Big Data Science & Analytics: rapidly growing fields with huge unmet demand. The unique interdisciplinary educational experience allows students the opportunity to acquire the broad base of knowledge and skills that employers are seeking.

**REGULATIONS**

Students pursuing the Bachelor of Science degree with a major in Data Science are subject to the Academic Standards in CEMS outlined in this catalogue.

**REQUIREMENTS****THE CURRICULUM FOR THE B.S. IN DATA SCIENCE**

A minimum of 120 credits is required. Students must satisfy all University requirements.

CORE (6 CREDITS):		
CEMS 050	CEMS First Year Seminar	1
CS 064	QR: Discrete Structures	3
or MATH 052	QR: Fundamentals of Mathematics	
STAT 151	QR: Applied Probability	3
or STAT 251	QR: Probability Theory	
COMPUTER SCIENCE CORE (19 CREDITS):		
CS 021	QR: Computer Programming I	3
CS 110	QR: Intermediate Programming	4
CS 124	QR: Data Struc & Algorithms	3
CS 204	QR: Database Systems	3
CS 224	QR: Algorithm Design & Analysis	3
100-Level (or above) CS Elective <sup>1</sup>		3
STATISTICS CORE (24 CREDITS):		
STAT 087	QR: Intro to Data Science	3
STAT 141	QR: Basic Statistical Methods I	3
or STAT 143	QR: Statistics for Engineering	
or STAT 211	QR: Statistical Methods I	
STAT 201	QR: Stat Computing & Data Analysis	3
STAT 221	QR: Statistical Methods II	3
STAT 229	QR: Survival/Logistic Regression	3
STAT 281	Capstone Experience	1-18
or STAT 293	Undergrad Honors Thesis	
or MATH 293	Undergraduate Honors Thesis	
or CS 283	Undergraduate Honors Thesis	
STAT/CS 287	QR: Data Science I	3
STAT 288	QR: Statistical Learning	3
MATHEMATICS CORE (17 CREDITS):		
MATH 021	QR: Calculus I	4
MATH 022	QR: Calculus II	4
MATH 122	QR: Applied Linear Algebra	3
or MATH 124	QR: Linear Algebra	

Choose 6 credits in Mathematics electives at the 100-Level (or above) <sup>1</sup>		6
Choose 12 Credits in Data Science (DS) electives selected from the list of approved courses (see below) in MATH/STAT/CS/CSYS/NR, with at least 9 of these credits at the 200-level (or above): <sup>2</sup>		12
CS 120	QR: Advanced Programming	
CS 148	QR: Database Design for Web	
CS 166	QR: Cybersecurity Principles	
CS 167	Cybersecurity Defense	
CS 205	QR: Software Engineering	
CS 224	QR: Algorithm Design & Analysis	
CS 228	QR: Human-Computer Interaction	
CS 254	QR: Machine Learning	
CS/CSYS 302	Modeling Complex Systems <sup>3</sup>	
CS/CSYS 352	Evolutionary Computation <sup>3</sup>	
MATH 121	QR: Calculus III	
MATH 173	QR: Basic Combinatorial Theory	
MATH 235	QR: Mathematical Models & Analysis	
MATH/CS 237	QR: Intro to Numerical Analysis	
MATH 266	QR: Chaos, Fractals & Dynamical Syst	
MATH 268	QR: Mathematical Biology & Ecol	
MATH/CSYS 300	Principles of Complex Systems <sup>3</sup>	
MATH/CSYS 303	Complex Networks <sup>3</sup>	
STAT 183	QR: Basic Statistical Methods 2	
STAT 224	QR: Stats for Quality & Productivity	
STAT 231	QR: Experimental Design	
STAT 235	QR: Categorical Data Analysis	
STAT 241	QR: Statistical Inference	
STAT/CS 288	QR: Statistical Learning	
STAT 330	Bayesian Statistics <sup>3</sup>	
STAT 387	Data Science II <sup>3</sup>	
NR 143	Intro to Geog Info Systems	
CE 359	Appld Artificial Neural Ntwrks <sup>3</sup>	
CE/CSYS/STAT 369	Applied Geostatistics <sup>3</sup>	
CHOOSE ONE 2-COURSE NATURAL SCIENCE (W/ LAB) SEQUENCE:		8

BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
PHYS 051 & PHYS 152	Fundamentals of Physics I and Fundamentals of Physics II	

- <sup>1</sup> Students should select appropriate courses from list of approved Data Science (DS) electives. Alternative courses may be approved by the DS Curriculum Committee.
- <sup>2</sup> Additional courses, including special topics courses, may be granted approval if appropriate (consult advisor)
- <sup>3</sup> Undergraduate students require instructor permission to enroll in 300-level courses.

## GRADUATE

Complex Systems and Data Science AMP

Complex Systems and Data Science M.S.

Complex Systems and Data Science Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

## MATHEMATICS B.S.MSC.

All students must meet the University Requirements. (p. 436)

## MATHEMATICS MAJOR

Mathematics permeates every aspect of our daily lives. In support of this, the mathematics curriculum is designed to provide a strong foundation for anyone who is interested in developing their ability to navigate our increasingly quantitative society. All students are introduced to the power and breadth of mathematics and to core ideas and techniques in the discipline. Courses that emphasize written and oral communication of quantitative information increase the value to the student of this mathematical knowledge.

The flexible curriculum enables each student to focus on a particular area of interest. This flexibility is especially important given the widely varying interests and career goals of our students. Students planning on a career in a technical field may choose to focus on courses in applied mathematics. Those planning on graduate school in mathematics or in a closely related field will benefit from the more advanced elective courses needed for graduate-level studies. Those interested in law, business, teaching, or other pursuits have the opportunity to freely sample from all areas according to their interests.

A Bachelor of Arts with a major in mathematics is offered and supervised by the College of Arts and Sciences (CAS). 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.

## REGULATIONS

Students pursuing the Bachelor of Science in Mathematical Sciences (Majoring in Mathematics) or the Bachelor of Science degree with a major in Data Science are subject to the Academic Standards in CEMS outlined in this catalogue.

### Additional Regulations

No more than three grades of D, D+, or D– in 200 level (or higher) mathematics (MATH) or statistics (STAT) courses may be used to satisfy “Core Curriculum” and “Major Courses” requirements.

## REQUIREMENTS

A minimum of 120 credits is required. Students must satisfy all University requirements.

## A. CORE CURRICULUM

CEMS 050	CEMS First Year Seminar	1
MATH 021	QR: Calculus I <sup>1</sup>	4
MATH 022	QR: Calculus II	4
MATH 052	QR: Fundamentals of Mathematics	3
MATH 121	QR: Calculus III	4
MATH 122	QR: Applied Linear Algebra	3
or MATH 124	QR: Linear Algebra	
MATH 241	QR: Anyl in Several Real Vars I	3
MATH 251	QR: Abstract Algebra I	3
CS 021	QR: Computer Programming I	3

<sup>1</sup> 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 MATH 023 must be added to the Major Courses requirement.

## B. MAJOR COURSES

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 can be taken in computer science.

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 in the Recommendations for Major Courses section below, or it might be another area suggested by the student.

## C. ALLIED FIELD COURSES

Twenty-four credits selected from the following Allied Fields:

1. Physical Sciences
2. Biological Sciences
3. Medical Sciences
4. Engineering
5. Computer Science (CS 110 or higher)
6. Agricultural Sciences
7. Business Administration
8. Psychology
9. Economics
10. Environmental Sciences/Studies
11. Natural Resources

Students, in consultation with their advisors, 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 B above may not be used to satisfy this requirement.

## D. HUMANITIES AND SOCIAL SCIENCE COURSES

(Courses used to satisfy requirement C above may not be used to satisfy this requirement.)

Twenty-four credits of courses selected from categories I, II, and III listed below. These twenty-four credits must be distributed over at least two categories, and at least six credits must be taken in each of the two categories chosen.

### Category I: Language and Literature

American Sign Language (ASL); Arabic (ARBC); Chinese (CHIN); Classics (CLAS); English (ENG); English for Speakers of Other Languages (ESOL); Foreign Language (LANG); French (FREN); German (GERM); Greek (GRK); Hebrew (HEBR); Italian (ITAL); Japanese (JAPN); Latin (LAT); Linguistics (LING); Portuguese (PORT); Russian (RUSS); Spanish (SPAN); World Literature (WLIT).

### Category II: Humanities and Fine Arts

Art History (ARTH); Art Studio (ARTS); Dance (DNCE); Film & Television Studies (FTS); Humanities (HUMN); Music (MU); Philosophy (PHIL); Religion (REL); Speech (SPCH); Theatre (THE).

### Category III: Social Sciences

Anthropology (ANTH); Communication Sciences & Disorders (CSD); Community Development & Applied Economics (CDAE); Critical Race & Ethnic Studies (CRES); Economics (EC); Environmental Studies (ENVS); Gender, Sexuality & Women's Studies (GSWS); Geography (GEOG); Global & Regional Studies (GRS); History (HST); Holocaust Studies (HS); Human Development & Family Studies (HDFS); Political Science (POLS); Psychological Science (PSYS); Sociology (SOC); Vermont Studies (VS).

### RECOMMENDATIONS FOR MAJOR COURSES

Students should discuss an area of specialization with their advisor. This is especially important for students interested in graduate school in mathematics or a related field (including those interested in the Accelerated Masters Program). Below are listed several areas of specialization. Courses marked with an asterisk (\*) are central to the given area and should be taken as early as is feasible.

#### 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	QR:Real Anlys in One Variable	3
MATH 151	QR: Groups and Rings	3
MATH 173	QR: Basic Combinatorial Theory	3
MATH 240	QR:Fourier Series&Intgrl Trans	3
MATH 241	QR:Anyl in Several Real Vars I *	3
MATH 242	QR:Anyl Several Real Vrbes II	3
MATH 251	QR: Abstract Algebra I *	3
MATH 252	QR: Abstract Algebra II	3
MATH 255	QR:Elementary Number Theory	3
MATH 260	QR: Foundations of Geometry	3
MATH 273	QR:Combinatorial Graph Theory	3
MATH 331	Theory of Func of Complex Var	3
MATH 353	Point-Set Topology	3

#### 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	QR:Ordinary Diffrentl Equation *	3
MATH 237	QR:Intro to Numerical Analysis *	3
MATH 240	QR:Fourier Series&Intgrl Trans	3
MATH 272	QR: Applied Analysis	3
MATH 273	QR:Combinatorial Graph Theory	3

#### 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	QR: Basic Combinatorial Theory	3
MATH 230	QR:Ordinary Diffrentl Equation	3
MATH 237	QR:Intro to Numerical Analysis *	3
STAT 201	QR:Stat Computing&Data Anlysis	3

#### 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	QR: Basic Combinatorial Theory	3
MATH 273	QR:Combinatorial Graph Theory	3
CS 224	QR:Algorithm Design & Analysis *	3
CS 243	QR: Theory of Computation	3

#### 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	QR: Basic Combinatorial Theory	3
MATH 230	QR: Ordinary Diffrentl Equation	3
MATH 273	QR: Combinatorial Graph Theory	3
STAT 141	QR: Basic Statistical Methods I	3
or STAT 211	QR: Statistical Methods I	
STAT 151	QR: Applied Probability	3
STAT 224	QR: Stats for Quality&Productvty	3
STAT 241	QR: Statistical Inference	3

## 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 Associateship 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	QR: Calculus I	4
MATH 022	QR: Calculus II	4
MATH 121	QR: Calculus III	4
LINEAR ALGEBRA		
MATH 124	QR: Linear Algebra	3

INTRODUCTORY ACCOUNTING		
BSAD 060	Financial Accounting	3
BSAD 061	Managerial Accounting	3
MATHEMATICAL STATISTICS		
STAT 261	QR: Statistical Theory	3

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	Principles of Macroeconomics	3
EC 012	Principles of Microeconomics	3
CORPORATE FINANCE		
BSAD 180	Managerial Finance	3
BSAD 181	Intermediate Financial Mgmt	3
APPLIED STATISTICAL METHODS		
STAT 221	QR: Statistical Methods II	3

Candidates will demonstrate proficiency in these subjects by submitting transcripts.

### Preliminary Examinations

EXAM P - PROBABILITY		
STAT 151	QR: Applied Probability	3
STAT 251	QR: Probability Theory	3
EXAM FM - MATHEMATICS OF FINANCE		
BSAD 180	Managerial Finance	3
BSAD 181	Intermediate Financial Mgmt	3

Other applicable departmental courses include:

STAT 195	Intermediate Special Topics	1-18
STAT 201	QR: Stat Computing&Data Anlysis	3
STAT 229	QR: Survivl/Logistic Regression	3
STAT 235	QR: Categorical Data Analysis	3
MATH 173	QR: Basic Combinatorial Theory	3

## 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 241	QR: Anyl in Several Real Vars I	3
MATH 242	QR: Anyl Several Real Vrbes II	3
STAT 151	QR: Applied Probability	3
STAT 241	QR: Statistical Inference *	3
STAT 261	QR: Statistical Theory	3

## RECOMMENDATIONS FOR ALLIED FIELD COURSES

Students should discuss Allied Field courses with their advisor and choose ones that 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 EC 012) in their choice of Humanities and Social Sciences courses, and to include business administration (BSAD 060 and BSAD 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.

## DOUBLE MAJOR IN MATHEMATICS AND STATISTICS

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	QR: Fundamentals of Mathematics	3
Choose two of the following:		6
MATH 230	QR: Ordinary Diffmtl Equation	
MATH 237	QR: Intro to Numerical Analysis	
MATH 241	QR: Anyl in Several Real Vars I	
MATH 251	QR: Abstract Algebra I	

Note: Students pursuing the double major in mathematics and statistics must earn a total of 120 credits. The above outlined courses must be additional to the courses defined for the stat major (core, major, allied field and HSS).

## STATISTICS B.S.MSC.

All students must meet the University Requirements (p. 436).

## STATISTICS 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. 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 and oral/written presentation skills.

The curriculum is designed for students who plan to enter business, industry, or government as statisticians or data scientists; to become professional actuaries; or to continue on to graduate school in statistics/biostatistics or another field where quantitative ability is valuable (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 may be gained with local industry and other organizations for those interested in quality control, industrial statistics, survey and market research or forecasting, for example.

Students pursuing the Bachelor of Science in Mathematical Sciences in CEMS may select statistics as their major. In addition, students pursuing a Bachelor of Arts from the College of Arts and Sciences may concentrate in statistics as a part of their mathematics major.

## REGULATIONS

Students pursuing the Bachelor of Science in Mathematical Sciences (Majoring in Statistics) are subject to the Academic Standards in CEMS outlined in this catalogue.

### ADDITIONAL REGULATIONS

No more than three grades of D, D+, or D– in 200 level (or higher) mathematics (MATH) or statistics (STAT) courses may be used to satisfy “Core Curriculum” and “Major Courses” requirements.

## REQUIREMENTS

A minimum of 120 credits is required. Students must satisfy all University requirements.

Statistics majors may count no more than two of the following courses toward their degree requirements: STAT 051, STAT 052, STAT 111, STAT 141, STAT 143, and STAT 211. Credit not given for more than one of STAT 141 and STAT 143. Recommended courses are STAT 141 or STAT 143 and STAT 211.

### A. CORE CURRICULUM

CEMS 050	CEMS First Year Seminar	1
MATH 021	QR: Calculus I <sup>1</sup>	4



MATH 022	QR: Calculus II	4
MATH 121	QR: Calculus III	4
MATH 122	QR: Applied Linear Algebra	3
or MATH 124	QR: Linear Algebra	
CS 021	QR: Computer Programming I	3
STAT 183	QR: Basic Statistical Methods 2	3
STAT 187	QR: Basics of Data Science	3
STAT 201	QR: Stat Computing & Data Analysis	3
STAT 221	QR: Statistical Methods II	3
Choose one of each of the following:		12
STAT 141	QR: Basic Statistical Methods 1	
or STAT 143	QR: Statistics for Engineering	
or STAT 211	QR: Statistical Methods I	
STAT 151	QR: Applied Probability	
or STAT 251	QR: Probability Theory	
STAT 241	QR: Statistical Inference	
or STAT 261	QR: Statistical Theory	
STAT 281	Capstone Experience	
or STAT 293	Undergrad Honors Thesis	

<sup>1</sup> 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 MATH 023 must be added to the Major Courses requirement.

## B. MAJOR COURSES

An additional six credits of statistics, so that the total credits earned in statistics is at least twenty-four. A minimum of three 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 are earned. A total of eighteen credits in the combined core and major courses must be taken at the 200-level. No more than twelve credits can be taken in computer science.

## C. ALLIED FIELD COURSES

Twenty-four credits selected from the following Allied Fields:

1. Physical Sciences
2. Biological Sciences
3. Medical Sciences
4. Engineering
5. Computer Science (CS 110 or higher)
6. Agricultural Sciences
7. Business Administration
8. Psychology

## 9. Economics

## 10. Environmental Sciences/Studies

## 11. Natural Resources

Students, in consultation with their advisors, 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 B above may not be used to satisfy this requirement.

## D. HUMANITIES AND SOCIAL SCIENCE COURSES

(Courses used to satisfy requirement C above may not be used to satisfy this requirement.)

SPCH 011 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.

### Category I: Language and Literature

American Sign Language (ASL); Arabic (ARBC); Chinese (CHIN); Classics (CLAS); English (ENG); English for Speakers of Other Languages (ESOL); Foreign Language (LANG); French (FREN); German (GERM); Greek (GRK); Hebrew (HEBR); Italian (ITAL); Japanese (JAPN); Latin (LAT); Linguistics (LING); Portuguese (PORT); Russian (RUSS); Spanish (SPAN); World Literature (WLIT).

### Category II: Humanities and Fine Arts

Art History (ARTH); Art Studio (ARTS); Dance (DNCE); Film & Television Studies (FTS); Humanities (HUMN); Music (MU); Philosophy (PHIL); Religion (REL); Speech (SPCH); Theatre (THE).

### Category III: Social Sciences

Anthropology (ANTH); Communication Sciences & Disorders (CSD); Community Development & Applied Economics (CDAE); Critical Race & Ethnic Studies (CRES); Economics (EC); Environmental Studies (ENVS); Gender, Sexuality & Women's Studies (GWS); Geography (GEOG); Global & Regional Studies (GRS); History (HST); Holocaust Studies (HS); Human Development & Family Studies (HDFS); Political Science (POLS); Psychological Science (PSYS); Sociology (SOC); Vermont Studies (VS).

## OPTIONAL PRE-MEDICAL CONCENTRATION

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 semesters of general chemistry and two semesters of organic chemistry with laboratory:	16
Choose one of the following sequences:	
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2
CHEM 047 & CHEM 048	Organic Chemistry for Majors 1 and Organic Chemistry for Majors 2
Complete the following sequence:	
CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2
Choose one of the following physics sequences with laboratory:	7-8
PHYS 031 & PHYS 125 & PHYS 022	Physics for Engineers I and Physics for Engineers II and Introductory Lab II
PHYS 051 & PHYS 152	Fundamentals of Physics I and Fundamentals of Physics II
At least one year of biology with laboratory:	8
BIOL 001	Principles of Biology
BIOL 002	Principles of Biology

## DOUBLE MAJOR IN MATHEMATICS AND STATISTICS

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	QR: Fundamentals of Mathematics	3
Choose two of the following:		6
MATH 230	QR: Ordinary Differential Equation	
MATH 237	QR: Intro to Numerical Analysis	
MATH 241	QR: Any 1 in Several Real Vars I	
MATH 251	QR: Abstract Algebra I	

Note: Student pursuing the double major in mathematics and statistics must earn a total of 120 credits. The above outlined courses must be additional to the courses defined for the stat major (core, major, allied field and HSS).

## MATHEMATICS: PURE MINOR REQUIREMENTS

CHOOSE 1 OF THE FOLLOWING SEQUENCES:	8
MATH 019 & MATH 023	QR: Fundamentals of Calculus I and QR: Transitional Calculus

MATH 021 & MATH 022	QR: Calculus I and QR: Calculus II	
CHOOSE 1 OF THE FOLLOWING:		3-4
MATH 052	QR: Fundamentals of Mathematics	
MATH 121	QR: Calculus III	
9 ADDITIONAL CREDITS IN MATHEMATICS COURSES NUMBERED 100 OR ABOVE		9
If both MATH 052 and MATH 121 are taken, MATH 121 counts as one of the three 100-or 200-level courses needed.		

The course plan for a mathematics minor must be approved by a mathematics faculty advisor.

## STATISTICS MINOR

Each student pursuing the statistics minor is assigned a minor advisor, appointed by the Program Director, in consultation with the student and faculty. Statistics (STAT) courses are selected in consultation with the advisor to represent a cohesive curricula that considers the student's mathematical background and relates to the student's educational and career goals.

### REQUIREMENTS

1 COURSE IN CALCULUS SELECTED FROM THE FOLLOWING:		3-4
MATH 019	QR: Fundamentals of Calculus I	
MATH 021	QR: Calculus I	
TOTAL OF 15 CREDITS OF STATISTICS COURSES INCLUDING:		
1 INTRODUCTORY STATISTICS COURSE SELECTED FROM THE FOLLOWING: <sup>1</sup>		3
STAT 141	QR: Basic Statistical Methods 1	
STAT 143	QR: Statistics for Engineering	
STAT 211	QR: Statistical Methods I	
1 INTERMEDIATE STATISTICS COURSE SELECTED FROM THE FOLLOWING:		3
STAT 183	QR: Basic Statistical Methods 2	
STAT 221	QR: Statistical Methods II	
1 COMPUTING/PROGRAMMING COURSE SELECTED FROM THE FOLLOWING: <sup>2</sup>		3
STAT 187	QR: Basics of Data Science	
STAT 201	QR: Stat Computing & Data Analysis (Recommended)	
6 ADDITIONAL CREDITS OF STATISTICS		6

<sup>1</sup> EC 170 may substitute for the introductory statistics course requirement and may count toward the fifteen required credits of statistics coursework.

- <sup>2</sup> Students may fill the computing/programming requirement with an approved CS programming course, such as CS 020 or CS 021. A CS programming course meets the computing/programming requirement for the statistics minor, but does not count toward the required fifteen credits of statistics course work.

## RESTRICTIONS

No more than six credits selected from the following courses may count toward the minor: STAT 051, STAT 111, STAT 141, STAT 143, STAT 211 or EC 170.

Ineligible Majors: Statistics major in CEMS (within B.S. Mathematical Sciences degree); Statistics Concentration in CAS (within Mathematics major)

## THE COLLEGE OF NURSING AND HEALTH SCIENCES

<http://www.uvm.edu/cnhs/> (<http://www.uvm.edu/~cnhs/>)

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 provide a solid foundation for 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 Communication Sciences and Disorders; Exercise Science; Health Sciences; Medical Laboratory Science; Medical Radiation Sciences; and Nursing. Nursing also offers an RN to B.S. curriculum for RN's with an associate's degree in Nursing. A post-baccalaureate program in Medical Laboratory Science to prepare students with a degree in another field to sit for the national certification exam is offered through Continuing and Distance Education. Continuing and Distance Education also offers a post-baccalaureate certificate program in Communication Sciences and Disorders that prepares students to practice as speech-language pathology assistants, and a post-baccalaureate certificate program that prepares students to enter a master's degree program. The baccalaureate degree in Health Sciences offered by the Department of Biomedical and Health Sciences may be selected by either four-year residential or degree-completion students who have previously earned at least one year (30 credit hours) of college credit.

A Master of Science degree is offered by the Communication Sciences and Disorders Department; and a Master of Science in Medical Laboratory Science degree is offered by the Department of Biomedical and Health Sciences. A Master of Science in Physical Activity and Wellness Science, doctoral degree in Physical Therapy, and an Emergency Medical Services minor are offered through the

Rehabilitation and Movement Sciences Department. The department has also offered an undergraduate major in Athletic Training, which transitioned to a Master of Science in Athletic Training, and is no longer accepting students. The Nursing Department offers a direct-entry degree program (DEPN) for non-nurse college graduates; a master's degree as a Clinical Nurse Leader, and a doctoral program (D.N.P.) in Primary Care for practice as either a Family or Adult-Gerontological Nurse Practitioner. The Executive Nurse Leader credential may be achieved through the D.N.P. program. Post-graduate certificates are also available. The graduate program in Nursing is designed to enhance the clinical and academic background of licensed registered nurses and to prepare them for advanced practice and leadership. The College also offers a doctoral degree in Interprofessional Health Sciences.

The College offers undergraduate certificates in Integrative Health Care and Integrative Health and Wellness Coaching, which are also available to non-degree students through Continuing and Distance Education.

Graduates of baccalaureate-level professional programs are eligible to sit for the appropriate licensure examination and enter practice or go on to other health-related fields. All of the professional programs needing accreditation and/or state approval for licensure eligibility have achieved and maintained such status.

## MAJORS

- Athletic Training Education B.S. (p. 410)
- Communication Sciences and Disorders B.S. (p. 406)
- Exercise Science B.S. (p. 411)
- Health Sciences B.S. (p. 396)
- Medical Laboratory Science B.S. (p. 401)
- Medical Radiation Sciences B.S. (p. 403)
- Nursing B.S. (p. 408)
- Nursing (for Registered Nurses) B.S. (p. 409)

## MINORS AND CERTIFICATES

- Communication Sciences and Disorders (p. 407)
- Emergency Medical Services (p. 413)
- Integrative Health and Wellness Coaching (p. 413) - Undergraduate Certificate
- Integrative Health Care (p. 413) - Undergraduate Certificate

## REQUIREMENTS

### 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. Radiation therapy students must demonstrate professionalism, professional development, and competency in the clinical setting.

## RESPONSIBILITIES

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.

## DEPARTMENTS AND PROGRAMS

- Biomedical and Health Sciences (p. 396)
- Communication Sciences and Disorders (p. 405)
- Nursing (p. 407)
- Rehabilitation and Movement Science (p. 410)

## BIOMEDICAL AND HEALTH SCIENCES

<https://www.uvm.edu/cnhs/bhsc> (<https://www.uvm.edu/cnhs/bhsc/>)

Students in the Department of Biomedical and Health Sciences study and work at the intersection of human health, medicine, and technology. Programs offered lead to Bachelor of Science degrees in Medical Laboratory Science, Medical Radiation Sciences, and Health Sciences.

The B.S. in Medical Laboratory Science offers two concentrations: Clinical Laboratory Science or Public Health Laboratory Science.

The B.S. in Medical Radiation Science offers a clinical track in Radiation Therapy.

The B.S. in Health Sciences program offers both a four-year, residential option and a degree completion option for students who have previously earned at least one year (30 credit hours) of college credit.

All programs offer an integrated curriculum, with courses in the humanities, basic, health and medical sciences, and direct hands-on experience through clinical practica, research or field work. Students have the opportunity to interact with faculty from the department and throughout the university, including the College of Medicine. Graduates of all three programs are prepared for immediate employment in the healthcare arena, or graduate study.

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.

## MAJORS

### BIOMEDICAL AND HEALTH SCIENCES MAJORS

Health Sciences B.S. (p. 396)

Medical Laboratory Science B.S. (p. 401)

Medical Radiation Sciences B.S. (p. 403)

## GRADUATE

Interprofessional Health Sciences Ph.D.

Medical Laboratory Science AMP

Medical Laboratory Science M.S.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## HEALTH SCIENCES B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 395)

A minimum of 120 semester credit hours and minimum GPA per program requirement are required for graduation.

## HEALTH SCIENCES CORE COURSES (36 CREDITS)

HSCI 021	Introduction to Public Health	3
HSCI 102	Epidemics-Dyn. of Inf. Disease	3
HSCI 103	D2: Fndns of Global Health	3
STAT 111	QR: Elements of Statistics <sup>1</sup>	3
or STAT 141	QR: Basic Statistical Methods 1	
NH 120	Health Care Ethics	3
HSCI 130	Health Promotion	3
HSCI 140	Struct & Finan of US Hlthcare	3



HSCI 160	Health Communication	3
HSCI 230	SU:Reading and Eval. Research	3
HSCI 240	Project Planning and Eval.	3
HSCI 250	Writing for Health Profess.	3
HSCI 280	Capstone	3

**ENGLISH (6 CREDITS)**

ENGS 001	FW: Written Expression	3
BHSC 098	Intro to Scientific Writing	3

**HUMANITIES (6 CREDITS)**

See advisor to request approval for a course not listed or to ask if courses can apply to more than one area. Select from the following:

ARTH (any)		3
GRK 203	Greek Historians	3
GRK 205	Greek Philosophers	3
MU 001	Exploring Music History	3
MU 005	D1: Intro to Jazz History	3
MU 010	D1: Blues & Related Traditions	3
MU 012	D1:Music & Culture:New Orleans	3
MU 015	History of Rock and Roll	3
MU 105	History of Jazz	3
MU 111	Music History & Literature I	3
MU 112	Music History & Literature II	3
CLAS 021	Greek History and Civilization	3
CLAS 022	Etymology	3
CLAS 023	Classical Roman Civilization	3
CLAS 024	Myths/Legends Trojan War	3
CLAS 121	Greek History and Civilization	3
CLAS 122	Roman History and Civilization	3
CLAS 147	Ancient Law	3
CLAS 148	D2:Ancient Egypt Thr the Ages	3
CLAS 163	Stoicism	3
HS 139	Modern Germany	3
HS 180	Moral&Rel Pers on Holocaust	3
HS 190	The Holocaust	3
HS 191	World War II	3
HS 227	Seminar in Modern Europe	3

PHIL (any course except PHIL 013)		
HST (any)		
POLS 041	Intro to Political Theory	3
POLS 182	Ancient Law	3
POLS (any course within 140s and 240s)		
DNCE 050	Dance History & Legends	3
REL (any)		

**MATH OR STATISTICS (6 CREDITS)**

Must complete 6 credits in addition to either STAT 111 or STAT 141.

STAT (any) or MATH (019 or higher)	
STAT (any) or MATH (019 or higher)	

**SOCIAL AND BEHAVIORAL SCIENCES (12 CREDITS)**

Select from the following:

ANTH (any)		
GEOG (any course except 040, 140, 143, 148)		
POLS (any course except 041, 182 and all courses within the 140s and 240s)		
CRES 061	D1: Asian-American Experiences	3
PSYS (any course except 111, 115, 211, 215, 216, 217, 218, 219)		
CSD 094	Dev of Spoken Language	3
GSWS 001	D2:Gender Sexuality Wmn's Stdy	3
SOC (any)		
EC (any)		
LING (any)		
VS 052	Sustainable Vermont	3

**NATURAL AND APPLIED SCIENCES (18 CREDITS)**

One semester of chemistry (4 credits) is recommended. Select from the following:

BHSC 034	Human Cell Biology (required)	4
ANTH 026	D2:Biological Anthropology	3
ANPS 019	Ugr Hum Anatomy & Physiology	4
ANPS 020	Ugr Hum Anatomy & Physiology	4
BIOL 001	Principles of Biology	4
BIOL 002	Principles of Biology	4
BCOR 101	Genetics	3

BCOR 103	Molecular and Cell Biology	4
BIOC 201	Fundamentals of Biochemistry	3
BIOC 295	Advanced Special Topics	1-18
BHSC 242	Immunology <sup>1</sup>	3
BHSC 281	Applied Molecular Biology <sup>1</sup>	3
CHEM 023	Outline of General Chemistry	4
CHEM 025	Outline of General Chemistry	3
CHEM 026	Outline of Organic & Biochem	4
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
CHEM 042	Intro Organic Chemistry	4
CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4
ENSC 001	SU: Intro Environmental Sci	3
GEOL 001	Earth System Science	4
PATH 101	Intro to Human Disease <sup>1</sup>	3
PHYS 011	Elementary Physics	4
PHYS 012	Elementary Physics	4
PHYS 021	Introductory Lab I	1
PHYS 022	Introductory Lab II	1
PBIO 004	SU: Intro to Botany	4
MMG 065	Microbiology & Pathogenesis	4
MMG 101	Microbiol & Infectious Disease	4
MMG 222	Advanced Medical Microbiology (may count as health-related elective)	4
MMG 223	Immunology	3
BHSC 034	Human Cell Biology <sup>1</sup>	4
MLS 221	Clinical Chemistry I <sup>1</sup>	4
MLS 222	Clinical Chemistry II <sup>1</sup>	3
MLS 231	Hematology <sup>1</sup>	3-4
BHSC 244	Immunology Lab <sup>1</sup>	1
MLS 255	Clinical Microbiology II <sup>1</sup>	3
MLS 282	Public Health Lab Practicum <sup>1</sup>	12
NFS 143	Nutrition in the Life Cycle <sup>1</sup>	3
NFS 153	Principles of Food Technology <sup>1</sup>	3
NFS 154	Principles Food Technology Lab <sup>1</sup>	1
NFS 183	Introduction to Biochemistry <sup>1</sup>	3

NFS 203	Food Microbiology <sup>1</sup>	3
NFS 213	Food Microbiology Lab <sup>1</sup>	1
PHRM 201	Introduction to Pharmacology	3
PHRM 240	Molecules & Medicine	3

<sup>1</sup> course may count as health-related elective

## HEALTH-RELATED ELECTIVES (18 CREDITS)

Must select at least six credits at 100-level. See advisor to request approval for a course not listed or to ask if courses can apply to more than one area. Select from the following:

ANTH 089	D2:SU:Global Health Devl & Div	3
ANTH 172	D2:Gender Sex Race & the Body	3
ANTH 174	D2:Culture, Health and Healing	3
ANTH 242	Research in Hum Biol Diversity	4
ASCI 177	Animal Plagues & Global Health	3
AT 168	Directed Obsv. in Athl Trng	1
BHSC 297	Leadership & Mgt in Hlth Care	3
BIOL 241	Human Diversity and Evolution	3
BIOL 242	Research in Hum Biol Diversity	4
CDAE 002	D2:SU:World Food,Pop & Develop	3
CSD 020	Intro to Disordered Comm	3
CSD 094	Dev of Spoken Language	3
CSD 199	Adv Topics in Clin Aud & SLP	3
CSD 208	Cognition & Language	3
CSD 274	D2: Culture of Disability	3
CSD 281	Intro Cognitive Neuroscience	3
CSD 287	D2:Mindfulness&Helping Skills	3
CSD 299	Autism Spect Dis:Assess&Interv	3
COMU (any)		
EC 230	Microecon & Appl w Writing	3
EDHE 146	Personal Health	3
EDSP 005	D2:Iss Aff Persons W/Disabil	3
ENVS 107	SU: Human Health & Envirnmnt	3
ENVS 154	D2:Trad Ecological Knowledge	3
ENVS 195	Special Topics	1-18
ENVS 236	Women, Health & Environment	3
ENVS 237	Human Ecology & Health-Arctic	3
or ENVS 295	Advanced Special Topics	

HLTH (any)		
NFS (any)		
NURS 200	SU: Health and Sustainability	3
PEAC 052	Yoga & Mindfulness	1
PEAC 103	Yoga & Ayurveda	1
PEAC 115	Yoga & the Chakras	1
PRNU 121	Gerontology	0-3
PSYS 276	D1: Cross-Cultrl Psyc: Clin Pers <sup>2</sup>	3
PSYS 279	Intro to Health Psychology <sup>2</sup>	3
RMS 157	Prevention & Care Athletic Inj	3
EXSC 175	Applied Kinesiology	3
RMS 191	Iceland Ther Thermal Springs	3
SOC 054	Health Care in America <sup>2</sup>	3
SOC 102	Population, Environment & Soc <sup>2</sup>	3
SOC 120	Aging in Modern Society <sup>2</sup>	3
SOC 157	QR: Population Health Research <sup>2</sup>	3
SOC 223	Sociology of Reproduction <sup>2</sup>	3
SOC 295	Advanced Special Topics <sup>2</sup>	1-18
SURG 200	Emergency Medicine Research I	4
or SURG 201	Emergency Medicine Research II	
Health-Related Travel Course		

<sup>2</sup> may also count as social and behavioral elective

## COLLEGE REQUIREMENTS (1 CREDIT)

NH 050	App to Hlth: From Pers to Syst	1
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## UNIVERSITY REQUIREMENTS

University sustainability (SU - 3 credits), diversity fulfillment (D1, D2 - 6 credits), and quantitative reasoning (QR - 3 credits) are required for graduation.

## FREE ELECTIVES (12-14 CREDITS)

The number of free elective requirements needed may vary by student.

## PLAN OF STUDY

The Health Sciences major offers four-year residential and degree completion options.

Graduates of the program will be prepared by rigorous courses relevant to a variety of roles in health care. Depending on the electives or if a minor is chosen, students may pursue health-related interests in a variety of fields, including: health education, health communications, community health, corporate wellness, health care

administration, health care data analysis, and health information technology. Graduates are also competitively positioned for advanced education in public health, health administration, health and biomedical sciences, the health professions or medicine.

## A Model Four-Year Residential Health Sciences Curriculum

First Year	Credits	
	Fall	Spring
NH 050 App to Hlth: From Pers to Syst	1	
HSCI 021 Introduction to Public Health <sup>1</sup>	3	
Social and Behavioral Science Elective <sup>5</sup>	3	3
BHSC 034 Human Cell Biology (or Natural and Applied Science elective) <sup>4</sup>	4	4
Math/STAT Elective <sup>6</sup>	3	3
Learning Community Course <sup>3</sup>	1-3	
ENG 001 FW: Written Expression		3
HSCI 102 Epidemics-Dyn. of Inf. Disease <sup>1</sup>		3
Year Total:	15-17	16
Sophomore	Credits	
	Fall	Spring
HSCI 103 D2: Fndns of Global Health <sup>1</sup>	3	
STAT 111 QR: Elements of Statistics <sup>1</sup> or STAT 141 QR: Basic Statistical Methods 1	3	
Approved Health-Related Elective	3	3
English Elective	3	
Math/STAT	3	
Natural and Applied Science Elective <sup>4</sup>		3
HSCI 140 Struct & Finan of US Hlthcare <sup>1</sup>		3
HSCI 130 Health Promotion <sup>1</sup>		3
Social and Behavioral Science Elective <sup>5</sup>		3
Year Total:	15	15
Junior	Credits	
	Fall	Spring
HSCI 230 SU: Reading and Eval. Research <sup>1</sup>	3	
NH 120 Health Care Ethics <sup>1</sup>	3	
Natural and Applied Science Elective <sup>4</sup>	3	4
Humanities Elective	3	3

Diversity (D1) Course	3	
HSCI 160 Health Communication <sup>1</sup>		3
Approved Health-Related Elective		3
Free Elective		3
Year Total:	15	16
<b>Senior</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
HSCI 240 Project Planning and Eval. <sup>1</sup>	3	
Approved Health-Related Elective	3	3
Social and Behavioral Science Elective <sup>5</sup>	3	
Free Elective	3-5	3
HSCI 280 Capstone <sup>1,2</sup>		3
HSCI 250 Writing for Health Profess. <sup>1</sup>		3
Year Total:	12-14	12
Total Credits in Sequence:	116-120	

- <sup>1</sup> Core course; HSCI 021 is a pre-requisite for all HSCI core courses.
- <sup>2</sup> HSCI 280 is a project based, service-learning course with hours at a community partner site completed outside of class time.
- <sup>3</sup> Course is assigned based on campus learning community.
- <sup>4</sup> BHSC 034 is a required course that also counts towards Natural and Applied Science Electives and is recommended in the first year (4 credits); one semester of chemistry (4 credits) is also recommended, such as CHEM 023 or CHEM 032.
- <sup>5</sup> PSYS 001 and SOC 001 are recommended.
- <sup>6</sup> To fulfill the MATH requirement, courses must be at the level of MATH 019 or higher.

Total Requirements: Minimum of 120 semester credit hours: 36 credits in core courses in the major, 18 credits in approved health-related courses, 18 credits in natural and applied sciences, 12 credits in social and behavioral sciences, 6 credits in math/statistics (excluding one of either STAT 111 or STAT 141), 6 credits in English (including ENGS 001), 6 credits in humanities, and 12 credits in free electives.

University sustainability (SU - 3 credits), diversity fulfillment (D1, D2 - 6 credits), and quantitative reasoning (QR - 3 credits) are required for graduation.

Course selection should be reviewed by a student's academic advisor.

### Transfer student 2-year curriculum (fall start)

First Year	Credits	
	Fall	Spring
NH 120 Health Care Ethics	3	
HSCI 021 Introduction to Public Health	3	
STAT 111 QR: Elements of Statistics or STAT 141 QR: Basic Statistical Methods 1	3	
Life and Physical Science Elective (BHSC 034)	4	
Electives	3	
HSCI 102 Epidemics-Dyn. of Inf. Disease		3
HSCI 130 Health Promotion		3
HSCI 140 Struct & Finan of US Hlthcare		3
HSCI 160 Health Communication		3
Electives (D1)		3-6
Year Total:	16	15-18
Second Year	Credits	
	Fall	Spring
HSCI 103 D2: Fndns of Global Health	3	
HSCI 230 SU: Reading and Eval. Research	3	
HSCI 240 Project Planning and Eval.	3	
Electives	3-6	9-12
HSCI 250 Writing for Health Profess.		3
HSCI 280 Capstone		3
Year Total:	12-15	15-18
Total Credits in Sequence:	58-67	

### TRANSFER student 2-year curriculum (summer start)

#### SUMMER

#### HSCI 021 (online)

First Year	Credits	
	Fall	Spring
NH 120 Health Care Ethics	3	
HSCI 103 D2: Fndns of Global Health	3	
STAT 111 QR: Elements of Statistics or STAT 141 QR: Basic Statistical Methods 1	3	
HSCI 102 Epidemics-Dyn. of Inf. Disease	3	



Electives (D1)	3-6	
HSCI 130 Health Promotion		3
HSCI 140 Struct & Finan of US Hlthcare		3
HSCI 160 Health Communication		3
Life and Physical Science Elective (BHSC 034)		4
Electives		3-6
Year Total:	15-18	16-19
<b>Second Year</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
HSCI 230 SU:Reading and Eval. Research	3	
HSCI 240 Project Planning and Eval.	3	
Electives	6-9	9-12
HSCI 250 Writing for Health Profess.		3
HSCI 280 Capstone		3
Year Total:	12-15	15-18
Total Credits in Sequence:		58-70

Minimum of 120 semester credit hours and final GPA of 2.3 or higher required for the major.

Elective credits required will depend on student transcript and transfer credits.

Coursework consists of: 36 credits in core courses; 18 credits in approved health-related courses; 18 credits in life and physical sciences (including BHSC 034, which is required); 12 credits in social and behavioral sciences (in two or more disciplines); 6 credits in math/statistics (excluding STAT 111 and STAT 141); 6 credits in English (including ENGS 001); 6 credits in humanities; and 12 credits in free electives.

University sustainability (SU - 3 credits), diversity fulfillment (D1, D2 - 6 credits), and quantitative reasoning (QR - 3 credits) are required for graduation.

## MEDICAL LABORATORY SCIENCE B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 395)

A minimum of 121 semester credit hours and minimum GPA per program requirement are required for graduation.

## PLAN OF STUDY

The Medical Laboratory Science major offers two concentrations:

Clinical Laboratory Science Concentration

Public Health Laboratory Science Concentration

## 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 takes place at one of the College of Nursing and Health Sciences' clinical affiliates. The entire final semester consists of a clinical practicum at an off-campus affiliate site, which may require additional room, meal, and/or transportation expenses. Site selection for the final semester is determined by a lottery system.

This four-year curriculum leading to the baccalaureate degree is accredited by the National Accrediting Agency for Clinical Laboratory Sciences.

### Practicum sites

Albany Medical Center, Albany, NY  
 Beth Israel Deaconess Medical Center, Boston, MA  
 Brigham and Women's Hospital, Boston, MA  
 Champlain Valley Physicians Hospital, Plattsburgh, NY  
 Elliot Hospital, Manchester, NH  
 Glens Falls Hospital, Glens Falls, NY  
 Massachusetts General Hospital, Boston, MA  
 NorDx, Portland and Scarborough, ME  
 Rutland Regional Medical Center, Rutland, VT  
 St. Peter's Hospital, Albany, NY  
 University of Vermont Medical Center, Burlington, VT  
 Yale New Haven Hospital, New Haven, CT  
 Note: Clinical affiliations subject to change.

<b>First Year</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
CHEM 031 General Chemistry 1	4	
ENGS 001 FW: Written Expression	3	
HLTH 003 Medical Terminology	2	
NH 050 App to Hlth: From Pers to Syst	1	
BHSC 034 Human Cell Biology or MATH 019 QR: Fundamentals of Calculus I	3-4	3-4
Elective/Diversity/Sustainability Course	3	3
BHSC 098 Intro to Scientific Writing		3
CHEM 032 General Chemistry 2		4
Year Total:	16-17	13-14

<b>Sophomore</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
ANPS 019 Ugr Hum Anatomy & Physiology	4	
STAT 111 QR: Elements of Statistics or STAT 141 QR: Basic Statistical Methods 1	3	
MMG 101 Microbiol & Infectious Disease	4	
NH 120 Health Care Ethics	3	
ANPS 020 Ugr Hum Anatomy & Physiology		4
CHEM 042 Intro Organic Chemistry		4
Elective/Diversity/Sustainability Course		7
Year Total:	14	15
<b>Junior</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
BHSC 297 Leadership & Mgt in Hlth Care <sup>1</sup>	3	
BIOC 201 Fundamentals of Biochemistry	3	
PATH 101 Intro to Human Disease	3	
MLS 221 Clinical Chemistry I <sup>1</sup>	4	
Elective Course	3	4
MMG 222 Advanced Medical Microbiology <sup>1</sup>		4
Choose one of the following courses:		3
BHSC 242 Immunology <sup>1</sup>		
MMG 223 Immunology <sup>1</sup>		
BHSC 244 Immunology Lab <sup>1</sup>		1
MLS 222 Clinical Chemistry II <sup>1</sup>		3
Year Total:	16	15
<b>Senior</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
BHSC 281 Applied Molecular Biology <sup>1</sup>	3	
BHSC 282 Applied Molecular Biology Lab <sup>1</sup>	1	
MLS 231 Hematology <sup>1</sup>	4	
MLS 255 Clinical Microbiology II <sup>1</sup>	3	
MLS 262 Immunohematology <sup>1</sup>	4	
Elective Course	1	
MLS 292 Topics in Medical Lab Science <sup>1</sup>		3
MLS 220 Clinical Practicum: Chemistry <sup>1</sup>		3

MLS 230 Clinical Practicum:Hematology <sup>1</sup>		3
MLS 250 Clin Practicum:Microbiology <sup>1</sup>		3
MLS 260 Clin Practicum:Immunohematolog <sup>1</sup>		3
Year Total:	16	15
Total Credits in Sequence:	120-122	

### <sup>1</sup> Professional course

This plan of study is designed to meet the requirements for the Medical Laboratory Science major's clinical laboratory science concentration. Changes should be reviewed with a student's academic advisor.

A minimum of 121 semester credit hours, minimum GPA per program requirement, and University sustainability and diversity fulfillment are required for graduation.

## 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. The entire final semester consists of a public health laboratory practicum at an off-campus site, which may require additional room, meal, and/or transportation expenses. Site selection for the final semester is determined by a lottery system.

### Practicum Sites

District of Columbia Health Department, Washington DC  
New Hampshire Department of Health Laboratory, Concord, NH  
Vermont Department of Health Laboratory, Burlington, VT  
Wadsworth Center, New York Department of Health, Albany, NY  
Note: Clinical affiliations subject to change.

### A Model Curriculum in Medical Laboratory Science/ Public Health Laboratory Science Concentration

<b>First Year</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
CHEM 031 General Chemistry 1	4	
ENGS 001 FW: Written Expression	3	
NH 050 App to Hlth: From Pers to Syst	1	
BHSC 034 Human Cell Biology or MATH 019 QR: Fundamentals of Calculus I	3-4	3-4
HLTH 003 Medical Terminology	2	
Elective/Diversity/Sustainability Course <sup>3</sup>	3	3
BHSC 098 Intro to Scientific Writing		3
CHEM 032 General Chemistry 2		4

Year Total:	16-17	13-14
<b>Sophomore</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
ANPS 019 Ugr Hum Anatomy & Physiology	4	
MMG 101 Microbiol & Infectious Disease	4	
NH 120 Health Care Ethics	3	
STAT 111 QR: Elements of Statistics or STAT 141 QR: Basic Statistical Methods 1	3	
Elective/Diversity/Sustainability Course <sup>3</sup>	3	7
ANPS 020 Ugr Hum Anatomy & Physiology		4
CHEM 042 Intro Organic Chemistry		4
Year Total:	17	15
<b>Junior</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
PATH 101 Intro to Human Disease	3	
Elective Course <sup>3</sup>	4	4
STAT 200 QR: Med Biostat&Epidemiology	3	
BIOC 201 Fundamentals of Biochemistry	3	
BHSC 297 Leadership & Mgt in Hlth Care <sup>1</sup>	3	
MMG 222 Advanced Medical Microbiology <sup>1</sup>		4
Choose one of the following courses:		3
BHSC 242 Immunology <sup>1</sup>		
MMG 223 Immunology <sup>1</sup>		
BHSC 244 Immunology Lab <sup>1</sup>		1
BCOR 101 Genetics		3
Year Total:	16	15
<b>Senior</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
BHSC 281 Applied Molecular Biology <sup>1</sup>	3	
BHSC 282 Applied Molecular Biology Lab <sup>1</sup>	1	
HLTH 105 D2: Cultural Health Care or HSCI 102 Epidemics-Dyn. of Inf. Disease	3	
NFS 203 Food Microbiology	3	
MLS 255 Clinical Microbiology II <sup>1</sup>	3	

Choose one of the following:		3
MLS 250 Clin Practicum: Microbiology <sup>1,2</sup>		
Elective Course		
MLS 282 Public Health Lab Practicum <sup>1</sup>		12
Year Total:	13	15
Total Credits in Sequence:	120-122	

<sup>1</sup> Professional course

<sup>2</sup> MLS 250 Clinical Practicum: Microbiology must be approved by the MLS program director.

<sup>3</sup> For the public health science concentration, students must take 6 credits of department-approved electives in the area of Public Health. Students must obtain a list of approved elective courses for each respective academic year from their academic advisor.

This plan of study is designed to meet the requirements for the Medical Laboratory Science major's public health laboratory science concentration. Changes should be reviewed with a student's academic advisor.

A minimum of 121 semester credit hours, minimum GPA per program requirement, and University sustainability and diversity fulfillment are required for graduation.

## MEDICAL RADIATION SCIENCES B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 395)

A minimum of 121 semester credit hours, minimum GPA per program requirement.

## PLAN OF STUDY

### MEDICAL RADIATION SCIENCES RADIATION THERAPY CONCENTRATION

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 delivering 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 121 credits, which may include approved transfer credits from an associate degree. Additional required courses will be based on prior courses completed in an associate degree program.

This four-year curriculum leading to the baccalaureate degree is accredited by the Joint Review Committee on Education in Radiologic Technology.

**CLINICAL AFFILIATIONS**

Albany Medical Center, Albany, NY  
 Central VT Hospital (National Life Cancer Treatment Center),  
 Berlin, VT  
 Dartmouth-Hitchcock Medical Center, Hanover, NH  
 Eastern Maine Medical Center, Brewer, ME  
 Elliot Hospital, Manchester, NH  
 Medical Center at Londonderry, Londonderry, NH  
 University of Vermont Medical Center, Burlington, VT  
 Massachusetts General Hospital, Boston, MA  
 Rutland Regional Medical Center, Rutland, VT  
 Note: Clinical affiliations subject to change.

**A Model Curriculum in Medical Radiation Sciences/  
Radiation Therapy Concentration**

First Year	Credits	
	Fall	Spring
PSYS 001 Intro to Psychological Science	3	
ENGS 001 FW: Written Expression	3	
CHEM 023 Outline of General Chemistry	4	
HLTH 003 Medical Terminology	2	
NH 050 App to Hlth: From Pers to Syst	1	
Elective, Diversity or Sustainability Course <sup>2</sup>	3	3
BHSC 034 Human Cell Biology		4
MATH 019 QR: Fundamentals of Calculus I		3
NFS 043 Fundamentals of Nutrition		3
BHSC 098 Intro to Scientific Writing		3
Year Total:	16	16
Sophomore	Credits	
	Fall	Spring
ANPS 019 Ugr Hum Anatomy & Physiology <sup>1</sup>	4	
BHSC 140 Radiation Science <sup>1</sup>	4	
SOC 001 SU: Introduction to Sociology or SOC 019 D1: Race Relations in the US	3	
STAT 111 QR: Elements of Statistics or STAT 141 QR: Basic Statistical Methods 1	3	
ANPS 020 Ugr Hum Anatomy & Physiology <sup>1</sup>		4
RADT 152 Prin of Radiation Therapy <sup>1</sup>		3
PHYS 013 Conceptual Physics		3
PHYS 096 Special Topics (lab)		1
Elective, Diversity or Sustainability Course <sup>2</sup>		3
Elective Course <sup>2</sup>		3

Year Total:	14	17
Junior	Credits	
	Fall	Spring
RADT 270 Dosimetry Concepts <sup>1</sup>	3	
PATH 101 Intro to Human Disease	3	
BHSC 175 Cross Sectional Imaging <sup>1</sup>	3	
RADT 173 Intro to Clinical Practice <sup>1</sup>	3	
NH 120 Health Care Ethics	3	
RADT 275 Dosimetry <sup>1</sup>		3
RADT 176 Clinical Radiation Oncology <sup>1</sup>		3
RADT 215 CT Procedures <sup>1</sup>		3
RADT 174 Clinical Practicum II <sup>1</sup>		2
RADT 244 Essentials of Patient Care <sup>1</sup>		3
Year Total:	15	14
Senior	Credits	
	Fall	Spring
BHSC 297 Leadership & Mgt in Hlth Care <sup>1</sup>	3	
RADT 277 Techniques Radiation Therapy <sup>1</sup>	4	
RADT 223 Clinical Practicum III <sup>1</sup>	3	
RADT 278 Senior Seminar in Rad Therapy <sup>1</sup>	2	
Elective Course <sup>3</sup>	3	
RADT 279 Final Clinical Pract Overview (taken in winter session) <sup>1</sup>		1
RADT 274 Clinical Practicum IV <sup>1</sup>		11
RADT 280 Qual Assurance & Treatment Plan <sup>1</sup>		2
Year Total:	15	14
Total Credits in Sequence:		121

<sup>1</sup> Professional course

<sup>2</sup> Minimum of 121 semester credit hours, minimum GPA per program requirement, and University sustainability and diversity requirement are required for graduation.



- <sup>3</sup> Students must take at least three credits of electives from the 100-level or above that meet the program requirements. Students may request a list of available courses from their advisor. Students who are completing a double major, minor, certificate or fulfilling requirements for graduate school should discuss requirements with their advisor.

## DEPARTMENT OF COMMUNICATION SCIENCES AND DISORDERS

<http://www.uvm.edu/cnhs/csd/> (<http://www.uvm.edu/~cnhs/csd/>)

The undergraduate program in 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 start with an introduction to the types of communication disorders that occur and how they impact people's lives. A series of courses present core concepts from 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 speech; and how communication develops from infancy to adulthood. Students also learn about the professions of speech-language pathology and audiology, especially professional ethical issues, cultural competence, person/family centered care, and collaborating with other professionals.

Courses in the junior and senior year focus on the principles of assessment as they apply to the study of human communication and its disorders. Students 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 and of speech production skill
- The role of temperament in stuttering
- Speech development and 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 - through guided observations in the Eleanor M. Luse Center for Communication. Special opportunities include clinical internships in either area. High-performing CSD juniors may be invited to apply for early acceptance into the UVM graduate program in speech-language pathology. There are a number of factors that are considered for qualification each year (e.g., GPA, expected space in the graduate class, etc.), but this process potentially eliminates the need for these students to take the Graduate Record Examination for UVM admittance.

## ARTICULATION AGREEMENTS

UVM's Department of Communication Sciences and Disorders has an articulation agreement with the Community College of Vermont (CCV). The agreement provides pathways for students in certain two-year degree programs (A.A. Early Childhood - Education or A.S. Human Services) to transfer to UVM's Communication Sciences and Disorders program if capacity allows. See the Admissions section of this catalogue for further information.

## MAJORS

### COMMUNICATION SCIENCES AND DISORDERS MAJOR

Communication Sciences and Disorders B.S. (p. 406)

## MINORS

### COMMUNICATION SCIENCES AND DISORDERS MINOR

Communication Sciences and Disorders (p. 407)

## GRADUATE

Communication Sciences and Disorders M.S.

Interprofessional Health Sciences Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

## COMMUNICATION SCIENCES AND DISORDERS B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 395)

This major leads to a Bachelor of Science. The major provides the breadth of a liberal arts education plus an introduction to the health sciences, as well as in-depth information about human communication, including opportunities to explore the fields of speech-language pathology and audiology. Students are introduced to a variety of communication disorders through classes, observations, and clinical activities. A minimum of 120 credits, a minor, and a GPA of 2.5 are required for the Communication Sciences and Disorders major.

Students with a semester and/or cumulative grade point average below 2.5 will be placed on trial for one semester. Students are allowed one trial period while in the Communication Sciences and Disorders program and must maintain semester and cumulative grade point averages of 2.5 or higher for the duration of the program following a semester on trial. Failure to do so will result in discontinuation from the program. In addition, students who earn a grade of C-, D, or F in any CSD, LING, or PSYS course twice, or once each in two separate courses, will be discontinued from the program.

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 require a professional doctorate, the Au.D., or a scholarly Ph.D. Employment opportunities for fully qualified speech-language pathologists and audiologists exist in birth-to-three programs, public schools, medical centers, nursing homes, and private practices. The profession is a growing one with excellent opportunities for future employment.

A bachelor's degree in Communication Sciences and Disorders prepares students for a wide variety of careers, some of which require a graduate degree and some of which do not. Students can prepare to work as speech-language pathology assistants (SLPAs), audiology assistants, or in many other fields such as education, psychology, linguistics, cognitive science, or medicine.

### PLAN OF STUDY

#### A MODEL CURRICULUM IN COMMUNICATION SCIENCES AND DISORDERS

First Year	Credits	
	Fall	Spring
CSD 099 Intro Topics in Clin Aud & SLP	3	
CSD 023 Linguistics for Clinicians (or elective if LING 080 to be taken in spring) <sup>3</sup> or LING 080 Introduction to Linguistics	3	

CSD 020 Intro to Disordered Comm	3	
NH 050 App to Hlth: From Pers to Syst	1	
PSYS 001 Intro to Psychological Science	3	
Elective/Distribution/Minor/Diversity/Physical Science Course (Recommended: CSD 025: D2) <sup>1,2</sup>	3	
CSD 094 Dev of Spoken Language		3
ENG 001 FW: Written Expression		3
LING 080 Introduction to Linguistics (or elective instead if CSD 023 was taken in fall) <sup>3</sup> or CSD 023 Linguistics for Clinicians		3
Physical Science Course <sup>1</sup>		3-4
Elective/Distribution/Minor/Diversity/Physical Science Course (Recommended: CSD 025:D2) <sup>2</sup>		3
Year Total:	16	15-16

Sophomore	Credits	
	Fall	Spring
CSD 101 Speech & Hearing Science	4	
ANPS 019 Ugr Hum Anatomy & Physiology or BIOL 004 (offered in spring)	4	
NH 120 Health Care Ethics	3	
PSYS 150 Developmental Psych: Childhood	3	
Elective/Distribution/Minor/Diversity (Recommended: CSD 025: D2) <sup>2</sup>	3	
CSD 199 Adv Topics in Clin Aud & SLP		3
CSD 122 Clinical Phonetics		4
BIOL 004 The Human Body or ANPS 019 (offered in fall)		3
BIOL 014 The Human Body Laboratory (recommended)		1
STAT 111 QR: Elements of Statistics or STAT 141 QR: Basic Statistical Methods 1		3
Elective/Distribution/Minor/Diversity <sup>2</sup>		3
Year Total:	17	17

Junior	Credits	
	Fall	Spring
CSD 271 Introduction to Audiology	3	
LING 081 Structure of English Language or LING 166 Introduction to Syntax	3	

Elective/Distribution/Minor/Diversity (Recommended: CSD 025: D2) <sup>2</sup>	6	
CSD 208 Cognition & Language		3
CSD 262 Measurement of Comm Processes		4
CSD 272 Hearing Rehabilitation		3
Elective/Distribution/Minor/Diversity <sup>2</sup>		6
Year Total:	12	16
<b>Senior</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
CSD 281 Intro Cognitive Neuroscience	3	
Recommended for Fall:		
CSD 296 Advanced Special Topics or CSD 287 D2: Mindfulness & Helping Skills	3	
Elective/Distribution/Minor/Diversity (Recommended: CSD 025: D2) <sup>2</sup>	9	9
Recommended for Spring:		3
CSD 274 D2: Culture of Disability or CSD 287 D2: Mindfulness & Helping Skills or CSD 299 Autism Spect Dis: Assess & Interv or CSD 296 Advanced Special Topics		
Year Total:	15	12
Total Credits in Sequence:	120-121	

<sup>1</sup> Physical Science course: any course with CHEM or PHYS prefix.

<sup>2</sup> Distribution courses include the following: Fine Arts (3 credits); Foreign Language (6-8 credits)\*; Literature (3 credits); Humanities (6 credits).

<sup>3</sup> CSD 023 offered in fall; LING 080 offered in spring

\* Appropriate level is determined by the offering department. At least 6 credits in the same foreign language. The following courses are not approved for this category: ASL 120, ASL 195, ASL 196; CHIN 020, CHIN 095, CHIN 096; FREN 095, FREN 096; ITAL 095, ITAL 096; JAPN 010, JAPN 095, JAPN 096, JAPN 121, JAPN 122, JAPN 221, JAPN 222; SPAN 010, SPAN 095, SPAN 096.

Minimum of 120 semester credit hours including the University's general education requirements and a GPA of 2.5 required for graduation. This model curriculum is designed to meet all course requirements. Changes should be reviewed with an academic advisor. Minor required. Minors, concentrations, or majors cannot count both CSD 022 and CSD 122 or both CSD 023 and LING 080. Majors must take CSD 122 and may not take CSD 022 or LING 165.

## COMMUNICATION SCIENCES AND DISORDERS MINOR

### REQUIREMENTS

All of the following:		
CSD 023	Linguistics for Clinicians	3
or LING 080	Introduction to Linguistics	
CSD 094	Dev of Spoken Language	3
CSD 020	Intro to Disordered Comm	3
Two courses at the 100-level or above, from the following list:		6
CSD 122	Clinical Phonetics	
Any LING course(s) except LING 081 or LING 165		
PSYS 115	Biopsychology	
PSYS 130	Social Psychology	
PSYS 150	Developmental Psych: Childhood	
One CSD or LING course at the 200 level or above. Recommended: CSD 274 D2: Culture of Disability or CSD 287 D2: Mindfulness & Helping Skills or CSD 299 Autism Spect Dis: Assess & Interv		3

### RESTRICTIONS

Ineligible Major: Communication Sciences and Disorders

The following courses do not count toward the LING requirement:		
LING 081	Structure of English Language	
LING 165	Phonetic Theory and Practice	
The following courses do not count toward the minor requirements:		
CSD 262	Measurement of Comm Processes	
CSD 271	Introduction to Audiology	
CSD 272	Hearing Rehabilitation	
Students cannot receive credit for both CSD 023 and LING 080		
Students cannot receive credit for both CSD 122 and LING 165		

## DEPARTMENT OF NURSING

<http://www.uvm.edu/cnhs/nursing/> (<http://www.uvm.edu/~cnhs/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. The baccalaureate degree program in nursing, master's degree program in nursing, Doctor of Nursing Practice program and post-graduate APRN certificate program at the University of Vermont are accredited by the Commission on Collegiate Nursing Education (<http://www.ccneaccreditation.org>). The Office of Professional

Regulation in the Vermont Secretary of State's office governs Vermont licensure requirements. (<https://www.sec.state.vt.us/professional-regulation/list-of-professions/nursing.aspx>)

## PROGRESSION POLICY

1. Cumulative GPA of 2.8 or better is required to remain in the nursing major. Students who do not meet the requirement are placed on academic trial for one semester. Failure to raise the cumulative GPA to 2.8 upon completion of the 'on trial' semester is grounds for discontinuation from the major.
2. A grade of C or better is required in all nursing prerequisite courses. If the standard is not met, the course must be repeated. Progression to the next semester may be affected. Receiving a grade of C- or below or W in the same prerequisite course twice or in two different courses is grounds for discontinuation from the major.
3. A grade of C+ or better is required in all PRNU nursing courses and NURS 220. If the standard is not met, the course must be repeated. Progression to the next semester will be affected. Receiving a grade of C or below or W in the same nursing course twice or in two different courses is grounds for discontinuation for the major.

## 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 criteria admission to a prescribed program of study in the RN-B.S. program at UVM. Upon successful completion of the RN-B.S. program and degree requirements, students receive a Bachelor of Science degree with a major in Nursing from UVM.

## MAJORS

### NURSING MAJORS

Nursing B.S. (p. 408)

Nursing (for Registered Nurses) B.S. (p. 409)

## GRADUATE

Master of Science (Clinical Nurse Leader)

Accelerated Master of Science (Clinical Nurse Leader)

Direct Entry Program in Nursing (Pre-Licensure)

Doctor of Nursing Practice (Primary Care: AGNP/FNP, Executive Nurse Leader)

Post-Master's Doctor of Nursing Practice

Interprofessional Health Sciences Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

## NURSING B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 395)

This major leads to a 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 123 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 Enterprise Technology Services's website.

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.

The Bachelor of Science degree with a major in nursing is awarded upon completion of a minimum of 123 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:

Nursing major courses	66
Required non-nursing courses	45
Elective courses	12

The baccalaureate degree program in nursing, master's degree program in nursing, Doctor of Nursing Practice program and post-graduate APRN certificate program at the University of Vermont are accredited by the Commission on Collegiate Nursing Education.

## PLAN OF STUDY

### A MODEL CURRICULUM IN NURSING (123 CREDITS)

First Year	Credits	
	Fall	Spring
CHEM 023 Outline of General Chemistry	4	
ENGS 001 FW: Written Expression	3	
PSYS 001 Intro to Psychological Science	3	
HDFS 005 Human Development	3	
NH 050 App to Hlth: From Pers to Syst	1	
CHEM 026 Outline of Organic & Biochem		4
SOC 001 SU: Introduction to Sociology <sup>1</sup>		3
PSYS 170 Abnormal Psychology		3
NFS 043 Fundamentals of Nutrition		3
Philosophy or Religion or Ethics Elective		3



Year Total:	14	16
<b>Sophomore</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
ANPS 019 Ugr Hum Anatomy & Physiology	4	
MMG 065 Microbiology & Pathogenesis	4	
STAT 111 QR: Elements of Statistics	3	
PRNU 110 Art & Science of Nursing	3	
ANPS 020 Ugr Hum Anatomy & Physiology		4
PRNU 111 Research in Nursing		3
PRNU 113 Health Assessment		3
PRNU 114 Intro to Clinical Practice		3
Elective		3
Year Total:	14	16
<b>Junior</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
NURS 220 Pathophysiology	3	
PRNU 121 Gerontology	3	
PRNU 228 Pharmacology	3	
PRNU 129 Women & Newborn Nurs: Thry&Ptm	4	
Elective	3	3
PRNU 131 Health Alterations		3
PRNU 134 Adlt Hlth Nursing I Thry & Ptm		6
PRNU 232 Child & Adolescent Nursing or PRNU 235 Psych/MH Nurs: Thry & Ptm		5
Year Total:	16	17
<b>Senior</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
PRNU 245 Public Health Nursing	3	
PRNU 234 Adlt Hlth Nurs II: Thry & Ptm	6	
PRNU 232 Child & Adolescent Nursing or PRNU 235 Psych/MH Nurs: Thry & Ptm	5	
PRNU 231 Chronic & Palliative Care Nurs		3
PRNU 240 Iss & Ldrs Prf Nurs Thr & Ptm		6
PRNU 246 Practicum Pub Health Nursing		3

PRNU 243 Transition to Prof Practice		1
Elective		3
Year Total:	14	16
Total Credits in Sequence:		123

<sup>1</sup> Any sociology course under 100 can be substituted for SOC 001.

Six credits meeting diversity requirements must be taken prior to graduation (3 credits D1 and 3 credits D1 or D2)

Must meet 3-credit sustainability requirement prior to graduation

## NURSING (FOR REGISTERED NURSES) B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 395)

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 BACCALAUREATE NURSING COURSES INCLUDE:

PRNU 060	Trans to Cntmp Prof Nursing	3
PRNU 111	Research in Nursing	3
PRNU 113	Health Assessment	3
PRNU 260	Chronic Disease Management	3
PRNU 263	Prof Nursing Pract&Soc Justice	3
PRNU 264	Public Health Nursing for RN	3
PRNU 265	Intro Health Care Fin & Policy	3
PRNU 266	Theories for Nursing Practice	3
Additional NURS/HLTH courses		6

## THE BACCALAUREATE NON-NURSING COURSES INCLUDE:

Quantitative Sciences		18
STAT 111	QR: Elements of Statistics	3

or STAT 141	QR: Basic Statistical Methods 1	
HDFS 005	Human Development	3
Philosophy, Religion, or Ethics		3
English Elective		3
Psychology Elective		3
Sociology Electives		6
General Electives		18
Diversity courses (3 credits D1 designation and 3 credits D2 designation or 6 credits D1 designation)		6
Sustainability course (3 credits SU)		3

The baccalaureate degree program in nursing, master's degree program in nursing, Doctor of Nursing Practice program and post-graduate APRN certificate program at the University of Vermont are accredited by the Commission on Collegiate Nursing Education.

## DEPARTMENT OF REHABILITATION AND MOVEMENT SCIENCE

<http://www.uvm.edu/cnhs/rms/> (<http://www.uvm.edu/~cnhs/rms/>)

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 offers an undergraduate major in Exercise Science, a Master of Science in Physical Activity and Wellness Science and a doctoral degree in Physical Therapy. A minor in Emergency Medical Services is also available. 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.

The department has also offered an undergraduate major in Athletic Training, which transitioned to a Master of Science in Athletic Training, and is no longer accepting students.

### MAJORS

#### REHABILITATION AND MOVEMENT SCIENCE MAJORS

Athletic Training Education B.S. (p. 410)

Exercise Science B.S. (p. 411)

### MINORS AND CERTIFICATES

#### REHABILITATION AND MOVEMENT SCIENCE MINORS AND UNDERGRADUATE CERTIFICATES

Emergency Medical Services (p. 413)

Integrative Health and Wellness Coaching (p. 413) -

Undergraduate Certificate

Integrative Health Care (p. 413) - Undergraduate Certificate

### GRADUATE

Interprofessional Health Sciences Ph.D.

Physical Activity and Wellness Science M.S.

Physical Therapy D.P.T.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

### ATHLETIC TRAINING EDUCATION B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 395)

The UVM Athletic Training Program is no longer accepting applicants for the undergraduate degree as it undergoes a transition to address the Athletic Training Strategic Alliance's establishment of the master's level as the professional degree for athletic training. The undergraduate Athletic Training Program at the University of Vermont is accredited by the Commission on accreditation of Athletic Training Education (CAATE) and is currently in the process of applying to the CAATE for a change in level of degree.

The purpose of the Athletic Training Program (ATP) 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 ATP 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 athletic training students undertake 50 hours of directed observation of sports practices and games, during which time they become acquainted with the daily routines of athletic training staff on campus and engage with upper-level students in the program. Upon meeting retention and promotion requirements, students matriculate into the 'clinical portion' of the program in their second year, where

they are assigned to a different clinical preceptor each semester at both on- and off-campus clinical sites.

Our more than 25 affiliated clinical sites include UVM's varsity and club sports teams, the Department of Orthopaedics and Rehabilitation at the UVM College of Medicine, local high schools, colleges, and outpatient orthopedic rehabilitation clinics. Students are directly involved with patients and athletes and gain experience interacting with parents, coaches, and other health care professionals. Students will also have the opportunity to observe surgery and engage in research with department faculty if interested. The required clinical experiences are completed within a minimum of five clinical experience courses/semesters, in addition to didactic and practicum courses. Each student is evaluated at regular intervals and must demonstrate mastery of educational competencies in order to continue with subsequent clinical assignments.

## PLAN OF STUDY

### A MODEL CURRICULUM IN ATHLETIC TRAINING EDUCATION

The UVM Athletic Training Program stopped accepting applicants for the undergraduate degree in Fall 2018. The program is undergoing a transition to address the Athletic Training Strategic Alliance's establishment of the master's level as the professional degree for athletic training.

Junior	Credits	
	Fall	Spring
AT 161 Practicum in Athletic Trng III <sup>1</sup>	1	
AT 171 Clinical Experience in AT III <sup>1</sup>	1	
AT 187 Rehabilitation Techniques <sup>1</sup>	3	
AT 189 Recog & Tx of Med Cond in AT <sup>1</sup>	3	
EXSC 242 Exercise and Sport Psychology	3	
STAT 111 QR: Elements of Statistics	3	
Humanities or Diversity Elective	3	
AT 162 Practicum in Athletic Trng IV <sup>1</sup>		1
AT 172 Clinical Experience in AT IV <sup>1</sup>		1
RMS 188 D2:Org&Ldrship in AthTrn&Ex Sc <sup>1</sup>		3
AT 220 Evidence-Based Practice in AT		3
EXSC 250 Exercise Physiology		3
Elective (if necessary)		3
Year Total:	17	14
Senior	Credits	
	Fall	Spring
AT 190 Senior Seminar in AT I <sup>1</sup>	2	

AT 173 Clinical Experience in AT V (variable credit: 6-12) <sup>1</sup>	6	
NH 120 Health Care Ethics <sup>2</sup>	3	
Elective (if necessary)	3	6
AT 192 Senior Seminar in AT II (or electives) <sup>1</sup>		2
AT 174 Clinical Experience in AT VI (variable credit: 6-12; or electives) <sup>1</sup>		6
Year Total:	14	14
Total Credits in Sequence:		59

<sup>1</sup> Athletic Training Core Courses (courses with subject code 'AT') are used in calculating AT core GPA as it relates to successful progression in the program

<sup>2</sup> Course can be taken fall or spring

6 credits of Human/Behav Science required: includes any course with the subject prefix ANTH, HST, LANG, PHIL, POLS, PSYS, REL, SOC, THE

6 credits of diversity requirements must be taken prior to graduation (3 credits D1 and 3 credits D1 or D2).

Must meet University sustainability requirement prior to graduation.

122 total credit hours required for graduation.

## EXERCISE SCIENCE B.S.

All students must meet the University Requirements. (p. 436)

All students must meet the College Requirements. (p. 395)

The Exercise Science (EXSC) major comprises in-depth study of the theory and applications of exercise and movement science in health, fitness and disease prevention in diverse populations. Students can tailor their educational experience to individual goals, including mentored internship and research experiences. Graduates of the EXSC major may pursue careers in related areas of fitness and health, such as health promotion, adapted physical activity, and corporate wellness. They may also pursue one of several professional certifications, such as American College of Sports Medicine (ACSM) certified exercise physiologist, or National Strength and Conditioning Association (NSCA) certified strength and conditioning specialist. Finally, students graduating from this program may be qualified for graduate work in exercise and movement science, physical therapy or other health care programs.

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.

Exercise Science students must maintain a cumulative 2.5 grade point average. First-year students who do not meet the GPA requirements

will be placed on academic trial. Failure to raise the semester GPA to 2.5 the subsequent semester, and the cumulative GPA to 2.5 upon completion of two subsequent semesters, is grounds for discontinuation from the major.

Any student beyond the first year whose semester and cumulative GPA is below 2.5 will be placed on academic trial for one semester. To be removed from trial, students must achieve a cumulative GPA of 2.5 by the end of the trial period. An inability to raise the required cumulative GPA to 2.5 during this trial period is grounds for discontinuation from the major.

In order to remain in good standing within the Exercise Science program, students must also be consistently progressing in required coursework. Failure to follow the required sequence of courses outlined in the Exercise Science program of study for more than one semester is grounds for discontinuation from the major.

## PLAN OF STUDY

### A MODEL CURRICULUM IN EXERCISE SCIENCE

First Year	Credits	
	Fall	Spring
NH 050 App to Hlth: From Pers to Syst	1	
HSCI 021 Introduction to Public Health	3	
RMS 157 Prevention & Care Athletic Inj	3	
NFS 043 Fundamentals of Nutrition	3	
Gen Ed/Minor/Certificate Elective	3	
PSYS 001 Intro to Psychological Science		3
BIOL (any 3-credit Biology course) <sup>1</sup>		3-4
ENGS 001 FW: Written Expression		3
EXSC 150 Intro to Exercise Science		1
CHEM 031 General Chemistry 1		4
Year Total:	13	14-15
Sophomore	Credits	
	Fall	Spring
ANPS 019 Ugr Hum Anatomy & Physiology	4	
NFS 163 Sports Nutrition	3	
STAT 111 QR: Elements of Statistics or STAT 141 QR: Basic Statistical Methods 1	3	
EXSC 242 Exercise and Sport Psychology	3	
Gen Ed/Minor/Certificate Elective	3	3
ANPS 020 Ugr Hum Anatomy & Physiology		4
EXSC 175 Applied Kinesiology		3

RMS 220 Research Methods I		3
NH 120 Health Care Ethics		3
Year Total:	16	16
Junior	Credits	
	Fall	Spring
EXSC 260 Adapted Physical Activity	3	
EXSC 213 Biomechanics of Human Movement	3	
EXSC 250 Exercise Physiology (or Elective)	3	3
EXSC 252 Exercise Physiology Lab (if taking EXSC 250)	1	1
Gen Ed/Minor/Certificate Elective	6	6
EXSC 240 Motor Skill Learning & Control		3
EXSC 270 Exer Sci Professional Seminar		1
HSCI 130 Health Promotion		3
Year Total:	16	17
Senior	Credits	
	Fall	Spring
EXSC 296 Advanced Special Topics (Applied Exercise Science Seminar)	3	3
EXSC 263 Exercise in Chronic Conditions	3	
EXSC 245 Evaluation & Prescription	3	
Choose one of the following:	6	6
EXSC 272 Senior Capstone Experience (taken in either semester)		
Electives (taken in the semester when not taking EXSC 272)		
EXSC 264 Certified Exerc Physiologist or EDPE 267 Sci Strength Training&Condtnng		3
EXSC 262 Human Perf & Ergogenic Aids		3
Year Total:	15	15
Total Credits in Sequence:	122-123	

<sup>1</sup> Pre-health take BIOL 002 w/lab

6 credits of Human/Behavioral Science required (any course with the abbreviation ANTH, HST, LANG, PHIL, POLS, PSYS, REL, SOC, THE).

6 credits meeting diversity requirements must be taken prior to graduation (3 credits D1 and 3 credits D1 or D2).



Must meet 3-credit sustainability requirement prior to graduation.

Minimum of 121 credits required for degree completion.

## EMERGENCY MEDICAL SERVICES MINOR

### REQUIREMENTS

The minor consists of 17 credit hours including the following:

HLTH 003	Medical Terminology	2
HLTH 153	Emergency Medical Technician	6
Two courses from the following:		
HLTH 195	Intermediate Special Topics (EMS Teaching Assistant)	
HLTH 051	Wilderness First Responder	
SURG 200	Emergency Medicine Research I	
HLTH 257	Advanced EMT	
SURG 201	Emergency Medicine Research II	

The minor is available to all UVM degree students. For more information regarding the minor in Emergency Medical Services, please contact the College of Nursing and Health Sciences Office of Student Services.

### RESTRICTIONS

At any given time, due to fluctuations in demand for the minor in Emergency Medical Services, the program reserves the right to cap enrollment in the minor. Courses may not be taken pass/fail.

### OTHER INFORMATION

Students must maintain a 2.0 or greater GPA in all coursework for the minor in order to be awarded the minor degree on the academic transcript.

## INTEGRATIVE HEALTH AND WELLNESS COACHING UNDERGRADUATE CERTIFICATE

### REQUIREMENTS

The certificate consists of 12 credit hours including the following:

HLTH 187	Health Coach Immersion Intro	1
HLTH 188	Motivational Interview Intro	1
HLTH 189	Health Coach Skills Lab Intro	2
HLTH 288	Motivational Interview Advance	1
HLTH 289	Health Coach Skill Lab Advance	2
HLTH 287	Health Coach Immersion Advance	1
HLTH 299	Building your Coaching Career	2

Two credits of electives selected from:		2
CSD 299	Autism Spect Dis:Assess&Interv	
COMU 122	Family Wellness Coaching	
HLTH 295	Advanced Special Topics (Working with People with Intellectual & Dev Disabilities)	
HLTH 297	Independent Study	
HLTH 291	Teaching Assistantship	

### OTHER INFORMATION

The certificate is available to all UVM degree students. GPA of 3.0 required to apply.

## INTEGRATIVE HEALTH CARE UNDERGRADUATE CERTIFICATE

### REQUIREMENTS

Fifteen credits must include the following:

HLTH 101	Intro to Integrative Health <sup>1</sup>	3
HLTH 102	Science Complementary&Alt Med	3
HLTH 107	SU:Human Health & the Envirnmnt	3

Select 6 credits from at least two areas in the following categories (with a maximum of 3 one-credit courses in a single area):

#### MINDFULNESS

CSD 287	D2:Mindfulness&Helping Skills	3
HLTH 137	Mindful Eating	3
HLTH 095	Special Topics (Mindfulness-Based Health and Wellness)	3

#### BEHAVIOR CHANGE

HLTH 098	Restore, Rejuvenate&Energize <sup>1</sup>	1
COMU 001	Healthy Brains, Healthy Bodies	3
COMU 125	The Science of Happiness	3

#### TRAVEL

HLTH 145	D2:Women's Hlth & Spirituality	3
HLTH 092	D2:Mongolian Medicine & Cultr	3
HLTH 093	D2:CAM Therapies in Cuban Hlth	3
RMS 191	Iceland Ther Thermal Springs	3
HLTH 210	D2: Health and Culture: Oaxaca	3

**YOGA**

PEAC 052	Yoga & Mindfulness	1
PEAC 103	Yoga & Ayurveda	1
PEAC 115	Yoga & the Chakras	1

**ENERGY THERAPIES**

HLTH 141	Healing Touch Level 1	1
HLTH 109	Energy Medicine	3
HLTH 142	Healing Touch Level 2	1
HLTH 143	Healing Touch Level 3	1
HLTH 144	Healing Touch Level 4	3
HLTH 146	Healing Touch Level 5	3
HLTH 160	Meridians, Systems & Organs	1

**INTEGRATIVE NUTRITION AND HERBALISM**

ENVS 195	Special Topics (Plant-Based Healing Medicine)	3
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**INTEGRATIVE HEALTH AND WELLNESS COACHING**

COMU 122	Family Wellness Coaching	3
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**INDEPENDENT STUDY OPTIONS**

HLTH 297	Independent Study	1-18
HLTH 291	Teaching Assistantship	1-3

This certificate is available to students in all majors.

<sup>1</sup> HLTH 101 is an online class with recommended face-to-face lab, HLTH 098

## THE RUBENSTEIN SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES

<http://www.uvm.edu/rsenr/>

In the Rubenstein School of Environment and Natural Resources (RSENr), excitement for discovery and a commitment to life-long learning are central. The Rubenstein School's 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. The School believes there is a strong interplay between teaching and scholarship and 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.

The school is 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.

**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. 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 school, the university, and the local, national, and international communities.

The OEL works directly with the Office of Community-University Partnerships and Service Learning and the UVM Career Center.

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.

## MAJORS

- Environmental Sciences B.S. (p. 417)
- Environmental Studies B.S. (p. 421)
- Forestry B.S. (p. 421)
- Natural Resources B.S. (p. 423)
- Parks, Recreation and Tourism B.S. (p. 427)
- Wildlife and Fisheries Biology B.S. (p. 428)

## MINORS

- Environmental Studies (p. 421)
- Forestry (p. 422)
- Geospatial Technologies (<http://catalogue.uvm.edu/undergraduate/rubenstein-school/geospatialtechnologiesminor/>)
- Parks, Recreation, and Tourism (p. 427)
- Sports Management (p. 427)
- Wildlife Biology (p. 429)

## GRADUATE

Ecological Design CGS

Ecological Economics CGS

Leadership for Sustainability M.P.S.

Natural Resources M.S.

Natural Resources Ph.D.

Natural Resources: Master of Environmental Law and Policy/Master of Science in Natural Resources (MELP/MSNR)

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information

## REQUIREMENTS

### 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. University Degree Requirements for Undergraduates (p. 436)
2. RSENr Core Curriculum
3. RSENr General Education Courses
4. Major Requirements

### 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

critical thinking, communication, problem solving, and analytical skills. Faculty from all undergraduate programs teach in the core. The RSENr core curriculum represents knowledge, skills, and values that are central to the study of natural resources and the environment.

Eight courses are required (23 credits):

NR 001	Natural Hist & Human Ecology 1 <sup>1</sup>	4
NR 002	Natural Hist & Human Ecology 2 <sup>1</sup>	4
NR 006	D1: Race & Culture in NR <sup>2</sup>	3
NR 103	Ecology, Ecosystems & Environ	3
NR 104	Social Proc & the Environment	3
NR 205	SU: Ecosys Mgt: Intg Sci, Soc & Pol	3
NR 206	Env Prob Sol & Impact Assessmt	4
NR 207	D1: Power, Privilege & Envrnmt <sup>2</sup>	1

<sup>1</sup> Internal and external transfer students to RSENr substitute NR 009, Social-ecological Systems for NR 001 and NR 002.

<sup>2</sup> Internal and external transfer students to RSENr may take any 3-credit Category D1 course from the University Approved Diversity courses to substitute for NR 006 and NR 207, and any 3-credit Category D1 or D2 course to complete the University Diversity Requirement.

NR 001 and NR 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 NR 104, emphasize ecosystems and social systems, respectively. NR 205 and NR 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 NR 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<sup>1</sup>:

<b>Writing and Information Literacy</b> <sup>2</sup>		
ENGS 001	FW: Written Expression	3
or ENGS 002	FW: Written Expression: Theme	
or HCOL 085	FW: Honors Coll First Year Sem	
<b>Speaking</b>		
NR 021	Speaking and Listening	2
or SPCH 011	Effective Speaking	
or CALS 183	Communication Methods	
<b>Race and Culture</b> <sup>3</sup>		
NR 006	D1: Race & Culture in NR	3
NR 207	D1: Power, Privilege & Envrnmt	1
One additional course from the approved list of University Approved Diversity courses		3
<b>Mathematics</b>		
MATH 009	QR: College Algebra (or higher, but not MATH 017. Individual majors may specify a higher math requirement.)	3
<b>Statistics</b>		
NR 140	Applied Environ Statistics (Individual majors may be more restrictive)	3-4
or STAT 111	QR: Elements of Statistics	
or STAT 141	QR: Basic Statistical Methods I	
or STAT 211	QR: Statistical Methods I	

<sup>1</sup> 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.

<sup>2</sup> This requirement also fulfills the University Writing and Information Literacy Requirement. In addition to ENGS 001, ENGS 002, and HCOL 085 students may use any other course approved to count for the University Requirement.

<sup>3</sup> This requirement also fulfills the University Diversity Requirement. Internal and external transfer students to RSENr may take any 3-credit Category D1 course from the University Approved Diversity courses to substitute for NR 006 and NR 207, and any 3-credit Category D1 or D2 course to complete the University Diversity Requirement.

## UNDECIDED MAJORS

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.

## DEPARTMENTS AND PROGRAMS

- Environmental Sciences (p. 416)
- Environmental Studies (p. 420)
- Forestry (p. 421)
- Natural Resources (p. 422)
- Parks, Recreation and Tourism (p. 426)
- Wildlife and Fisheries Biology (p. 428)

## ENVIRONMENTAL SCIENCES IN THE RUBENSTEIN SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES

<http://www.uvm.edu/~ensc/>

The environment is a common theme in the courses offered at UVM. The Rubenstein School of the Environment and Natural Resources partners with the College of Agriculture and Life Sciences and the College of Arts and Sciences to offer two interdisciplinary majors: Environmental Sciences and Environmental Studies.

The interdisciplinary Environmental Sciences major combines a natural science-based core curriculum with hands-on experience needed to identify, analyze, and solve environmental problems arising from human activity. 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 assessment, Environmental Sciences graduates are equipped with the knowledge to protect the health and integrity of our terrestrial, aquatic, and urban ecosystems.

Students may pursue the major through the College of Agriculture and Life Sciences (CALS), the College of Arts and Sciences (CAS), or the Rubenstein School of Environment and Natural Resources (RSENr). The distinctions between the major offered through these three schools is subtle, and a student can usually shift between the three with little difficulty.

- The Rubenstein School provides a degree with an applied focus, so an environmental sciences major is balanced with a broad-based understanding of frameworks to integrate social and natural systems towards solving complex problems.
- The College of Arts and Sciences provides a degree with a traditional liberal arts orientation, so the major in environmental sciences is pursued within the context of a liberal arts education.
- The College of Agriculture and Life Sciences provides a degree in which the student pursuing the environmental sciences major is engaged in the application and understanding of the environment within the context of agricultural literacy.

The decision about which school is best to pursue the major is typically based on the student's desired focus within the major and other academic interests. All environmental science majors take a common set of courses in biology, chemistry, mathematics, and



geology or plant and soil science. A common set of environmental science core courses is followed by specialization in one of nine concentrations:

- Agriculture and the Environment
- Conservation Biology and Biodiversity
- Ecological Design
- Environmental Analysis and Assessment
- Environmental Biology
- Environmental Geology
- Global Environmental and Climate Change
- Water Resources

Goals of the major include providing students with a strong foundation in basic sciences as well as advanced knowledge in environmental sciences; emphasizing scientific analysis aimed at assessment and remediation of environmental problems; familiarizing students with sources and measurements of pollutants on ecosystems; and providing practical experience in environmental sciences through internships/service learning and research.

## MAJORS

### ENVIRONMENTAL SCIENCES MAJOR

Environmental Sciences B.S. (p. 417)

### ENVIRONMENTAL SCIENCES B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 415)

Students in the ENSC major must choose one of the following concentrations or an advisor approved self-design concentration (14-17 credits):

- Agriculture and the Environment (p. )
- Conservation Biology and Biodiversity (p. 418)
- Ecological Design (p. 418)
- Environmental Analysis and Assessment (p. 418)
- Environmental Biology (p. 419)
- Environmental Geology (p. 419)
- Environmental Health (p. )
- Global Environment and Climate Change (p. )
- Water Resources (p. 420)

## MAJOR REQUIREMENTS

A total of 120 credits is required for the degree.

BCOR 011	Exploring Biology	4
or BIOL 001	Principles of Biology	

BCOR 012	Exploring Biology	4
or BIOL 002	Principles of Biology	
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
CHEM 042	Intro Organic Chemistry <sup>1</sup>	4
or CHEM 141	Organic Chemistry 1	
GEOL 055	Environmental Geology	4
or PSS 161	SU: Fundmntls of Soil Science	
MATH 019	QR: Fundamentals of Calculus I <sup>2</sup>	3
or MATH 021	QR: Calculus I	
MATH 020	QR: Fundamentals of Calculus II <sup>2</sup>	3
or MATH 022	QR: Calculus II	
NR 140	Applied Environ Statistics <sup>2</sup>	3-4
or STAT 141	QR: Basic Statistical Methods 1	
ENSC 001	SU: Intro Environmental Sci	3
ENSC 009	Orientation to Env Sciences <sup>3</sup>	1
ENSC 130	Global Environmental Assessmnt	3
ENSC 160	Pollutant Mvmt/Air, Land&Water	4
ENSC 201	Recovery&Restor Altered Ecosys	4
ENSC 202	Applied Envir Assess Analysis	4

- <sup>1</sup> Students interested in concentrations such as environmental analysis and assessment should consider taking more advanced courses, such as CHEM 141/CHEM 142.
- <sup>2</sup> MATH 019/MATH 020 and NR 140 (or STAT 141) also fulfill RSENR general education requirements.
- <sup>3</sup> Internal and external transfer students to ENSC are exempt from ENSC 009. (\*Note: RSENR & CALS students only)

## CONCENTRATION REQUIREMENTS

### Agriculture and the Environment Concentration

PSS 162	Soil Fertility & Conservation	3
Choose a minimum of 11 additional credits from the following courses:		11
PBIO 109	Plant Systematics	
MMG 220	Environmental Microbiology	
PSS 106	Entomology & Pest Mgmt	
PSS 112	Weed Ecology & Management	
PSS 117	Plant Pathology	
PSS 143	Forage and Pasture Mgmnt	
PSS 156	Permaculture	

PSS 232	Biological Control	
ENSC 195	Internship <sup>1</sup>	
ENSC 196	Undergraduate Research <sup>1</sup>	
PSS 212	SU: Advanced Agroecology	
PSS 261	Soil Morph Class & Land Use	
PSS 264	Chemistry of Soil & Water	
PSS 268	Soil Ecology	
PSS 269	Soil/Water Pollution/Bioremed	

<sup>1</sup> A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 11 elective credits with advisor approval.

### Conservation Biology and Biodiversity Concentration

WFB 224	Conservation Biology	4
Choose ONLY one of the following :		
PBIO 109	Plant Systematics	
or FOR 021	Dendrology	
or WFB 130	Ornithology	
or WFB 232	Ichthyology	
Choose a minimum of 6-7 additional credits from the following courses:		
ASCI 171	Zoos, Exotics & Endang Species	
BCOR 101	Genetics	
BCOR 102	SU:Ecology and Evolution	
PBIO 108	Morph & Evo of Vascular Plants	
ENVS 174	Nat Areas Conservation&Steward	
FOR 122	Forest Ecosystem Analysis	
ENSC 195	Internship <sup>1</sup>	
ENSC 196	Undergraduate Research <sup>1</sup>	
BIOL 254	Population Genetics	
BIOL 264	Community Ecology	
FOR 272	Sustain Mgmt Forest Ecosys	
FOR/NR 228	Ecosystems Ecology	
NR 220	Landscape Ecology	
PSS 268	Soil Ecology	
WFB 161	Fisheries Biology & Techniques	
WFB 174	Prin of Wildlife Management	
WFB 176	Florida Ecology Field Trip	
WFB 261	Fisheries Management	

WFB 279	Marine Ecology & Conservation	
WFB 283	Terrestrial Wildlife Ecology	
WFB 275	Wildlife Behavior	

<sup>1</sup> A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 10 elective credits with advisor approval.

### Ecological Design Concentration

NR 288	Ecol Design & Living Technol	3
Choose a minimum of 11 additional credits from the following courses:		
CDAE 102	Sustainable Community Dev	
CDAE 170	Green Building Energy Systems	
CDAE 191	Independent Study	
CDAE 237	Economics of Sustainability	
CDAE 276	Community Design Studio	
CE 132	SU: Environmental Systems	
CE 151	SU: Water & Wastewater Engr	
ENVS 187	Campus Sustainability	
ENVS 188	SU:Sustainability Science	
ENSC 195	Internship <sup>1</sup>	
ENSC 196	Undergraduate Research <sup>1</sup>	
MMG 220	Environmental Microbiology	
NR 289	Advanced Ecological Design	
PSS 127	Greenhouse Operations & Mgmt	
PSS 137	Landscape Design Fundamentals	
PSS 162	Soil Fertility & Conservation	
PSS 238	Ecological Landscape Design	
PSS 154	Composting Ecology & Mgmt	
PSS 156	Permaculture	
PSS 212	SU: Advanced Agroecology	
PSS 268	Soil Ecology	
PSS 269	Soil/Water Pollution/Bioremed	
PRT 230	Ecotourism	

<sup>1</sup> A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 11 elective credits with advisor approval.

### Environmental Analysis and Assessment Concentration

Choose a minimum of 14 credits from the following courses:		
CHEM 121	Quantitative Analysis	

PBIO 223	Fundamentals of Field Science	
CE 132	SU: Environmental Systems	
CE 151	SU: Water & Wastewater Engr	
CE 254	Environmental Quantitative Anyl	
CHEM 131	Inorganic Chemistry	
CHEM 165	Intro Physical Chemistry	
CHEM 221	Instrumental Analysis	
CHEM 223	Mass Spectrometry	
FOR/NR 146/ GEOG 185	Remote Sensing of Natural Res	
ENSC 195	Internship <sup>1</sup>	
ENSC 196	Undergraduate Research <sup>1</sup>	
GEOL 235	Geochemistry of Natural Waters	
MMG 220	Environmental Microbiology	
NR 143	Intro to Geog Info Systems	
or NR 243	GIS Practicum	
PSS 261	Soil Morph Class & Land Use	
PSS 264	Chemistry of Soil & Water	

<sup>1</sup> A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 14 elective credits with advisor approval.

### Environmental Biology Concentration

BCOR 102	SU:Ecology and Evolution	4
Choose a minimum of 12 additional credits from the following courses:		
BIOL 209	Field Zoology of Arthropods	
BIOL 217	Mammalogy	
BIOL 254	Population Genetics	
BIOL 264	Community Ecology	
BIOL 269	Plant-Animal Interactions	
BIOL 271	Evolution	
BIOL 276	Behavioral Ecology	
WFB 279	Marine Ecology & Conservation	
NR 250	Limnology	
or NR 280	Stream Ecology	
PSS 268	Soil Ecology	
ENSC 195	Internship <sup>1</sup>	
ENSC 196	Undergraduate Research <sup>1</sup>	

<sup>1</sup> A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 12 elective credits with advisor approval.

### Environmental Geology Concentration

Choose a minimum of 14 credits from the following courses:		
GEOL 101	Field Geology	
GEOL 116	Glacial Geology	
GEOL 135	Environmental Geochemistry	
GEOL 151	Geomorphology	
or GEOG 144	Geomorphology	
GEOL 161	SU:Field Methods in Geophysics	
GEOL 201	Advanced Field Geology	
GEOL 217	Vermont Field Geology	
GEOL 233	Environmental Isotope Geochem	
GEOL 234	Global Biogeochemical Cycles	
GEOL 235	Geochemistry of Natural Waters	
NR 143	Intro to Geog Info Systems	
or GEOG 184	Geog Info:Cncpts & Applic	
ENSC 195	Internship <sup>1</sup>	
ENSC 196	Undergraduate Research <sup>1</sup>	

<sup>1</sup> A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 14 elective credits with advisor approval.

### Environmental Health Concentration

NR/ENVS/ HLTH 107	SU:Human Health & the Envirnmnt	3
Choose a minimum of 11 additional credits from the following courses:		
ANTH 288	Anthro Research Global Health	
BCOR 101	Genetics	
BIOC 201	Fundamentals of Biochemistry	
BIOC 275	Adv Biochem of Human Disease	
BIOL 261	Neurobiology	
CHEM 142	Organic Chemistry 2	
ENSC 195	Internship <sup>1</sup>	
ENSC 196	Undergraduate Research <sup>1</sup>	
ENVS 195	Special Topics (When topic is Emerging Technologies and Human Health)	
HSCI 102	Epidemics-Dyn. of Inf. Disease	
MMG 101	Microbiol & Infectious Disease	
NFS 114	Human Health in the Food Syst	

NR 143	Intro to Geog Info Systems	
NURS 200	SU: Health and Sustainability	
PH 304	Environmental Public Health	
PH 308	Environmental Public Health 2	
PHRM 201	Introduction to Pharmacology	
PHRM 240	Molecules & Medicine	
PHRM 272	Toxicology	
STAT 200	QR: Med Biostat&Epidemiology	

<sup>1</sup> A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 11 elective credits with advisor approval.

### Global Environment and Climate Change Concentration

FOR/NR 146/ GEOG 185	Remote Sensing of Natural Res	3
or NR 143	Intro to Geog Info Systems	
Choose a minimum of 11 additional credits from the following courses:		
CE 132	SU: Environmental Systems	
ENSC 195	Internship <sup>1</sup>	
ENSC 196	Undergraduate Research <sup>1</sup>	
ENSC 274	SU:Climate Chg: Sci & Percept	
GEOG 140	Biogeography	
GEOG 143	Climatology: Concepts & Tools	
GEOG 148	Global Environmental Change	
GEOG 153	The Circumpolar Arctic	
GEOG 244	Adv Top: Global Change	
GEOG 245	Adv Top:Human Env Interactions (The Anthropocene)	
GEOG 246	Adv Top:Climate&Water Resource (Climatology and Natural Hazards)	
GEOG 246	Adv Top:Climate&Water Resource (Paleoclimatology)	
GEOL 151/ GEOG 144	Geomorphology	
GEOL 234	Global Biogeochemical Cycles	
NR 102	SU:Water as a Natural Resource	
or GEOG 145 SU: Geography of Water		
NR 220	Landscape Ecology	
PSS 261	Soil Morph Class & Land Use	

<sup>1</sup> A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 11 elective credits with advisor approval.

### Water Resources Concentration

Choose a minimum of 14 credits from the following courses:		
ENSC 195	Internship <sup>1</sup>	
ENSC 196	Undergraduate Research <sup>1</sup>	
GEOG 246	Adv Top:Climate&Water Resource (Snow Hydrology)	
GEOL 135	Environmental Geochemistry	
GEOL 235	Geochemistry of Natural Waters	
NR 102	SU:Water as a Natural Resource	
or GEOG 145 SU: Geography of Water		
NR 143	Intro to Geog Info Systems	
NR 250	Limnology	
NR 280	Stream Ecology	
PSS 269	Soil/Water Pollution/Bioremed	
WFB 161	Fisheries Biology & Techniques	
WFB 279	Marine Ecology & Conservation	

<sup>1</sup> A maximum of 3 credits of ENSC 195 or ENSC 196 may apply toward the 14 elective credits with advisor approval.

## ENVIRONMENTAL STUDIES IN THE RUBENSTEIN SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES

<http://www.uvm.edu/~envprog/>

The environment is a common theme in the courses offered at UVM. The Rubenstein School of the Environment and Natural Resources partners with the College of Agriculture and Life Sciences and the College of Arts and Sciences to offer two interdisciplinary majors: Environmental Sciences and 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. Students complete a culminating nine-credit senior capstone thesis, internship, or advanced course option.

The Environmental Studies Program at the University of Vermont was established in 1972 to meet the need for greater understanding of the ecological and cultural systems supporting all life on earth. This broadly interdisciplinary program is a campus-wide program serving students in three colleges across the university. The faculty are committed interdisciplinary thinkers drawing on the sciences, social



sciences, and humanities to create a lively hub, addressing local and global issues with equal concern. We believe in collaborative problem-solving and the power of human imagination to create a more sustainable future.

The Environmental Program offers a major in Environmental Studies (ENVS) that can be pursued in three different colleges, including the College of Agriculture and Life Sciences, the College of Arts and Sciences, and the Rubenstein School of Environment and Natural Resources. Students can choose which college best suits their broad educational needs and then pursue the Environmental Studies major from within that college. While major requirements differ slightly from college to college, the core curriculum is the same. Following the introductory courses and working closely with faculty advisors, each student creates an individually-designed major. The major culminates in a final capstone thesis, internship or advanced courses, usually carried out in the senior year.

## MAJORS

### ENVIRONMENTAL STUDIES MAJOR

Environmental Studies B.S. (p. 421)

## MINORS

### ENVIRONMENTAL STUDIES MINOR

Environmental Studies (p. 421)

## ENVIRONMENTAL STUDIES B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 415)

## MAJOR REQUIREMENTS

A total of 120 credits is required for the degree.

ENVS 001	SU: Intro to Envrnmtl Studies	4
ENVS 002	SU: Solutions in Env Studies	4
ENVS 101	Academic Planning Workshop	1
One breadth course in each of the following areas: natural sciences, social science and humanities:		9
Twenty-one credits of approved environmentally-related courses at the 100- or 200-level including three credits at the 200-level. <sup>1</sup>		21
Students must choose one of the following options for their Senior Capstone Project:		9
Option One: Capstone Courses		
3 environmentally-related courses at the 200-level		
Option Two: Capstone Internship		
6 credits in ENVS 202		
3 credits 200-level		
Option Three: Capstone Thesis		

3 credits in ENVS 201	
6 credits ENVS 202	

<sup>1</sup> The 21 credits of approved environmentally-related courses at the 100- or 200-level are in addition to the RSENR core and general education requirements.

## ENVIRONMENTAL STUDIES MINOR REQUIREMENTS

A total of 17 credits is required for the minor.

ENVS 001	SU: Intro to Envrnmtl Studies	4
ENVS 002	SU: Solutions in Env Studies	4
9 credits at the 100-level or above. <sup>1</sup>		9

<sup>1</sup> One non-ENVS course at the appropriate level may be substituted with the approval of the student's advisor.

## FORESTRY PROGRAM

<http://www.uvm.edu/rsenr/?Page=undergraduate/forestry.html&SM=undergradmenu.html> (<http://www.uvm.edu/rsenr/?Page=undergraduate/forestry.html&#38;SM=undergradmenuhtml>)

The Forestry Major trains students to meet the needs of the 21st century, which include managing forests for resilience, adaptation, and climate mitigation. The program attracts students who want a career working outdoors, excel at math and science, learn by doing, and can embrace both the fundamentals of traditional forestry and emerging perspectives in the field. The Forestry major provides students with an education in ecologically responsible forestry, emphasizing the complex landscapes of the northeastern United States, while also stressing global context and change. Students develop the ability 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 classes, internships, research experience, and forest management projects.

## MAJORS

### FORESTRY MAJOR

Forestry B.S. (p. 421)

## MINORS

### FORESTRY MINOR

Forestry (p. 422)

## FORESTRY B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 415)

## MAJOR REQUIREMENTS

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<sup>1</sup> such as forest ecosystem health, forest ecology, consulting forestry, public forest administration, or international development.

The concentration represents at least nine credits and can be fulfilled by a self-designed sequence of course work<sup>2</sup>, an appropriate university minor, or a natural resource oriented study abroad experience.

A total of 123 credits is required for the degree.

PBIO 004	SU: Intro to Botany	4-8
or BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
CHEM 023	Outline of General Chemistry	4
MATH 018	QR: Basic Mathematics <sup>3</sup>	3
NR 140	Applied Environ Statistics <sup>3</sup>	4
FOR 111	Nat Res Ecol and Assessment 1	4
FOR 112	Nat Res Ecol and Assessment 2	4
PSS 161	SU: Fundmntls of Soil Science	4
NR 143	Intro to Geog Info Systems	3
FOR 021	Dendrology	4
FOR 122	Forest Ecosystem Analysis <sup>4</sup>	4
FOR 223	Multi-Resource Silviculture	4
FOR 233	Management of Forest Woodlots1	3
FOR 272	Sustain Mgmt Forest Ecosys	4
A course in economics or ecological economics <sup>5</sup>		3
EC 012	Principles of Microeconomics	3
or NR/ENVS 141	Intro to Ecological Economics	
At least 9 additional credits in the area of concentration <sup>1, 2</sup>		9-12
FOR 190	Internship	3
FOR 095	Special Topics (Intro to Forestry and Wildlife Biology)	1

- <sup>1</sup> The student-proposed concentration must be endorsed by the student's advisor and approved by the Forestry faculty prior to the last three semesters of study.
- <sup>2</sup> The self-designed sequence of course work for the student's concentration should be at least six credits at the 100-level or higher.
- <sup>3</sup> MATH 018 and NR 140 also fulfill the RSENR general education requirements.
- <sup>4</sup> The field intensive course, FOR 122, is offered only during the summer session.
- <sup>5</sup> Or an advisor approved economics course.

## FORESTRY MINOR REQUIREMENTS

A minimum of sixteen credit hours is required, with at least nine at the 100-level or higher. Applications for a minor must be filed no later than June 1 of the year preceding graduation. Students must earn at least a 2.00 cumulative GPA in their Forestry minor courses to earn a minor in Forestry. Required courses:

FOR 021	Dendrology	4
FOR 111	Nat Res Ecol and Assessment 1	4
FOR 223	Multi-Resource Silviculture	4
4 additional credits in Forestry <sup>1</sup>		4

- <sup>1</sup> At least 1 of these 4-credits must be at the 100-level or above.

## PRE/CO-REQUISITES

Variable, depending on upper level courses chosen. Typically, these might include:

NR 103	Ecology, Ecosystems & Environ	3
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## OTHER INFORMATION

Note: Rubenstein School students may not count FOR 001 towards completion of minor.

## NATURAL RESOURCES PROGRAM

[http://www.uvm.edu/rsenr/?Page=undergraduate/natl\\_resources.html&SM=undergradmenu.html](http://www.uvm.edu/rsenr/?Page=undergraduate/natl_resources.html&SM=undergradmenu.html) ([http://www.uvm.edu/rsenr/?Page=undergraduate/natl\\_resources.html&#38;SM=undergradmenuhtml](http://www.uvm.edu/rsenr/?Page=undergraduate/natl_resources.html&#38;SM=undergradmenuhtml))

The Natural Resources Curriculum combines course work from disciplines inside and outside The Rubenstein School to produce an individualized major focused on an ecological theme or the human-environment relationship. Students concentrate in Resource Ecology, Resource Planning, or Integrated Natural Resources. They take foundational courses in natural or social sciences and then tap into upper-level and field-based courses to focus in areas such as aquatic ecology; terrestrial ecology; environmental policy, economics and law; community-based resource planning;

environmental education; sustainability and resource management; and energy and environmental systems. Most students incorporate internship, research, and/or study abroad experiences into their academic program. Graduates are competitive for positions in the environmental field in a range of settings. They also are prepared to pursue graduate studies in environment and natural resources including advanced study in the natural sciences and in law, urban, regional and community planning, and public administration.

## MAJORS

### NATURAL RESOURCES MAJOR

Natural Resources B.S. (p. 423)

## GRADUATE

Natural Resources M.S.

Natural Resources Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate/>) for more information.

### NATURAL RESOURCES B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 415)

There are three concentrations available under the Natural Resources major:

Integrated Natural Resources Concentration (p. 423)

Resource Ecology Concentration (p. 423)

Resource Planning Concentration (p. 425)

### INTEGRATED NATURAL RESOURCES CONCENTRATION

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	
Quantitative and analytical methods	

These courses are in addition to those taken to fulfill RSENR's general education requirements. The list of approved courses is available on the RSENR website.

### 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 concentration and must seek another major. The program of study is to be approved 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 concentration. 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 CONCENTRATION

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. Please note that courses taken for concentrations may NOT be double-counted for distribution requirements.

A total of 120 credits is required for the degree.

#### Required Courses

BIOL 001	Principles of Biology	4
BIOL 002	Principles of Biology	4
GEOL 001	Earth System Science	4
or PSS 161	SU:Fundmntls of Soil Science	
MATH 019	QR: Fundamentals of Calculus I <sup>1</sup>	3
NR 140	Applied Environ Statistics <sup>1</sup>	4
CHEM 023	Outline of General Chemistry	4-8
or CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
CHEM 026	Outline of Organic & Biochem	4-8
or CHEM 042	Intro Organic Chemistry	
or CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2	
NR 143	Intro to Geog Info Systems	3

or NR 146	Remote Sensing of Natural Res	
FOR 111	Nat Res Ecol and Assessment 1	4
Students chose at least 9 credits in strong ecological content courses from the following list, in consultation with their advisor.		
BCOR 102	SU:Ecology and Evolution	
BIOL 264	Community Ecology	
BIOL 269	Plant-Animal Interactions	
BIOL 271	Evolution	
ENSC 201	Recovery&Restor Altered Ecosys	
GEOG 140	Biogeography	3
GEOL 234	Global Biogeochemical Cycles	
NR 250	Limnology	
NR 280	Stream Ecology	
PSS 212	SU: Advanced Agroecology	
PSS/NR 268	Soil Ecology	
WFB 224	Conservation Biology	
WFB 279	Marine Ecology & Conservation	
BIOL 276	Behavioral Ecology	
WFB 283	Terrestrial Wildlife Ecology	
FOR 122	Forest Ecosystem Analysis	
MMG 220	Environmental Microbiology	
NR 220	Landscape Ecology	
NR/FOR 228	Ecosystems Ecology	
Students choose up to 18 credits (to total 27) in courses to contribute to, or expand ecological understanding, or strong ecological content, in consultation with their advisor.		
BIOL 209	Field Zoology of Arthropods	
WFB 015	Wildlife Track Analysis	
BIOL 277	Sociobiology	
ENVS 188	SU:Sustainability Science	
GEOG 153	The Circumpolar Arctic	
WFB 141	Field Herpetology	
GEOL 101	Field Geology	
GEOL 135	Environmental Geochemistry	
PBIO 177	Biology of Fungi	
PBIO 294	Ecological Modeling	
WFB 013	Intro to Wildlife Tracking	
BIOL 217	Mammalogy	

BIOL 254	Population Genetics	
ENVS 173	Landscape Natural History	
ENSC 274	SU:Climate Chg: Sci & Percept	
GEOL 116	Glacial Geology	
FOR 021	Dendrology	
FOR 223	Multi-Resource Silviculture	
GEOG 040	Weather, Climate & Landscapes	
GEOG 143	Climatology: Concepts & Tools	
GEOL 001	Earth System Science <sup>4</sup>	
GEOL 055	Environmental Geology	
GEOL 151/ GEOG 144	Geomorphology	
NR 102	SU:Water as a Natural Resource	
NR 143	Intro to Geog Info Systems <sup>4</sup>	
NR/FOR 146	Remote Sensing of Natural Res <sup>4</sup>	
NR 288	Ecol Design & Living Technol	
PBIO 104	Plant Physiology	
PBIO 108	Morph & Evo of Vascular Plants	
PBIO 109	Plant Systematics	
PBIO 151	Plant Anatomy	
PBIO 241	Tropical Plant Systematics	
PSS 161	SU:Fundmntls of Soil Science <sup>4</sup>	
PSS 238	Ecological Landscape Design	
PSS 264	Chemistry of Soil & Water	
WFB 130	Ornithology	
WFB 131	Field Ornithology	
WFB 232	Ichthyology	
WFB 275	Wildlife Behavior	
GEOL 235	Geochemistry of Natural Waters	
Additional Options:		
NR 190	Internship <sup>2</sup>	
NR 192	Independent Study <sup>2</sup>	
NR 196	Undergraduate Research <sup>2</sup>	
NR 290	Internship <sup>2</sup>	
NR 292	Independent Study <sup>2</sup>	
NR 299	Honors <sup>3</sup>	



- <sup>1</sup> MATH 019 and NR 140 also fulfill RSENR general education requirements.
- <sup>2</sup> A maximum of 6 credits may count toward either strong ecological content OR expands ecological understanding with the Program Chair's approval.
- <sup>3</sup> A maximum of 3 credits may count toward either strong ecological content OR expands ecological understanding with the Program Chair's approval.
- <sup>4</sup> May not double count for required courses.

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 PLANNING CONCENTRATION

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. Please note that courses taken for concentrations may NOT be double-counted for distribution requirements.

A total of 120 credits is required for the degree.

### Required Courses

ANTH 021	D2:SU: Cultural Anthropology	3
or GEOG 050	D2:SU:Global Envmnts& Cultures	
CDAE 002	D2:SU:World Food,Pop & Develop	3-4
or ENVS 002	SU:Solutions in Env Studies	
EC 011	Principles of Macroeconomics	3
or EC 012	Principles of Microeconomics	
or CDAE 061	SU:Principles of Comm Dev	
PHIL 010	Introduction to Philosophy (Ethics or Ethics of Eating or Environmental Ethics)	3
or ENVS 178	Environmental Ethics	
or CDAE 208	Agricultural Policy and Ethics	
POLS 021	American Political System	3
or POLS 041	Intro to Political Theory	
or POLS 051	Intro International Relations	
PSYS 001	Intro to Psychological Science	3
or PSYS 111	Learning, Cognition & Behavior	
or PSYS 130	Social Psychology	
or PSYS 150	Developmental Psych: Childhood	
SOC 001	SU: Introduction to Sociology	3

or SOC 011	Social Problems	
Students choose 21 credits in Content Courses from the following list in consultation with their advisor.		21
CDAE 102	Sustainable Community Dev	
POLS 180	SU:Comparative Envir Pol	
NR 277	Land Use Policy & Economics	
POLS 159	Int'l Environmental Governance	
ASCI 171	Zoos, Exotics & Endang Species	
CDAE 171	Community&Int'l Econ Transform	
ENVS 183	Env Impacts of Consumerism	
ENVS 181	D1:Environmental Justice	
CDAE 186	Community Developmt:St Lucia I	
GEOG 174	Rural Geography	
POLS 159	Int'l Environmental Governance	
PRT 149	Wilderness Educ & Leadership <sup>4</sup>	
CDAE 208	Agricultural Policy and Ethics <sup>3</sup>	
CDAE 218	Community Org & Development	
CDAE 237	Economics of Sustainability	
ENVS 167/ HST 067	D2: Global Env History	
ASCI 272	Adv Top:Zoo,Exotic,Endang Spec	
CDAE 251	Contemp Policy Iss:Comm Dev	
EC 133	SU:Economics Environmntl Policy	
ENVS 154	D2:Trad Ecological Knowledge	
ENVS 179	D2: Ecofeminism	
ENVS 180	Radical Environmentalism	
ENVS 182	D2:Religion and Ecology	
ENVS 293	Environmental Law	
ENVS 294	Environmental Education <sup>4</sup>	
ENVS/HST 267	Environmental History Seminar	
GEOG 175	Urban Geography	
HP 205	Historic Preservation Law	
HP/HST 201	History on the Land	
NR 102	SU:Water as a Natural Resource	
NR 153	Intro Environmental Policy	
NR 254	Adv Natural Resource Policy	
NR/ENVS 141	Intro to Ecological Economics	

PRT 050	Tourism Planning	
PRT 230	Ecotourism	
PRT 235	Outdoor Recreation Planning	
PRT 240	Park and Wilderness Management	
PRT 255	Environmental Interpretation <sup>4</sup>	
SOC 121	SU:Sociology of Disaster	
NR 264	SL:C Ross Env Pb Srv Practicum <sup>4</sup>	
SOC 160	Our Consuming Society	
ANTH 179	D2: Environmental Anthropology	
ENVS 178	Environmental Ethics	
GEOG 173	Political Ecology	
GEOG 178	Gender, Space & Environment	
SOC 102	Population, Environment & Soc	
Students choose 6 credits in Tools Courses from the following list, in consultation with their advisor.		6
CDAE 273	Project Development & Planning	
ENVS 294	Environmental Education <sup>4</sup>	
GEOG 184	Geog Info:Cncpts & Applic	
ENVS 187	Campus Sustainability	
NR 143	Intro to Geog Info Systems	
NR/FOR 146	Remote Sensing of Natural Res	
PRT 149	Wilderness Educ & Leadership <sup>4</sup>	
NR 242	Adv Geospatial Techniques	
NR 243	GIS Practicum	
NR 264	SL:C Ross Env Pb Srv Practicum <sup>4</sup>	
GEOG 081	Geospatial Cncpt&Visualization	
BSAD 040	Information Technology	
BSAD 141	Info, Technology & Bus Systems	
NR 288	Ecol Design & Living Technol	
PRT 255	Environmental Interpretation <sup>4</sup>	
POLS 181	Fund of Social Research	
or SOC 100	Fund of Social Research	
PSS/CDAE/ NR 137	Landscape Design Fundamentals	
PSS 238	Ecological Landscape Design	
SPCH 031	Argument & Advocacy	
SPCH 071	Fundamentals of Debate	

SPCH 072	Citizen Advocacy & Debate	
ANTH 290	Ethnographic Field Methods	
SOC 275	Meth of Data Anyl in Soc Rsch	
6 credits of a modern foreign language		
Additional Options:		
NR 190	Internship <sup>1</sup>	
NR 192	Independent Study <sup>1</sup>	
NR 196	Undergraduate Research <sup>1</sup>	
NR 290	Internship <sup>1</sup>	
NR 292	Independent Study <sup>1</sup>	
NR 299	Honors <sup>2</sup>	

- <sup>1</sup> A maximum of 6 credits may count toward either content courses OR tools courses with the Program Chair's approval.
- <sup>2</sup> A maximum of 3 credits may count toward either content courses OR tools courses with the Program Chair's approval.
- <sup>3</sup> May not double count for both required courses and option electives.
- <sup>4</sup> May be counted as either content or tools but may NOT be double counted.

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 PROGRAM

<http://www.uvm.edu/rsenr/?Page=undergraduate/parks.html&SM=undergradmenu.html> (<http://www.uvm.edu/rsenr/?Page=undergraduate/parks.html&/#38;SM=undergradmenuhtml>)

The Parks, Recreation and Tourism Program provides outstanding learning opportunities for students interested in the world of outdoor recreation and tourism. Students will learn how to design and deliver high-quality recreation and tourism programs and services that enrich peoples' lives, create livable communities, and preserve the natural environment. Specifically, the program prepares students to become leaders in innovative sustainable practices in the recreation and tourism fields. Students also learn about experience-based program design and management including resort management, ecotourism, entrepreneurial business management, leisure behavior, environmental interpretation, leisure programming, green design, marketing, leadership, visitor-centered service, and more. Vermont's natural environment provides an ideal laboratory to learn first-hand about recreation and tourism practices that are environmentally sustainable, socially inclusive, and economically responsible.

**MAJORS****PARKS, RECREATION AND TOURISM MAJOR**

Parks, Recreation and Tourism B.S. (p. 427)

**MINORS****PARKS, RECREATION AND TOURISM MINOR**

Parks, Recreation and Tourism (p. 427)

Sports Management (p. 427)

**PARKS, RECREATION AND TOURISM B.S.**

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 415)

**MAJOR REQUIREMENTS**

A total of 120 credits is required for the degree. All PRT students must complete the PRT foundation courses, take PRT 010 and PRT 191, and choose a thematic concentration (either Tourism Planning and Management or Recreation Leadership and Environmental Education). Students take 6 additional required courses that support the concentrations, and 2 professional electives.

**PRT FOUNDATION COURSES**

1 three-credit course in humanities (classics, history, philosophy, religion)	3
1 three-credit course in communications (art, art history, English literature, foreign language, music, theatre, world literature)	3
1 three-credit course in social sciences (anthropology, economics, geography, political science, psychology, sociology)	3
1 four-credit laboratory course in natural sciences (biology, chemistry, geology, physics, plant biology, plant and soil science, zoology)	4

**OTHER REQUIREMENTS**

REQUIREMENTS:		
PRT 010	Intr Sustainable Rec & Tourism	3
PRT 191	Parks, Rec & Tourism Practicum <sup>1</sup>	3
CONCENTRATION REQUIREMENTS:		
PRT 050	Tourism Planning	3
PRT 158	Resort Mgmt & Marketing	3
PRT 230	Ecotourism	3
PRT 096	Special Topics (when the topic is Parks and Protected Areas)	3
PRT 235	Outdoor Recreation Planning	3
PRT 255	Environmental Interpretation	3
ELECTIVES CONCENTRATION 1: TOURISM PLANNING AND MANAGEMENT (6 CREDIT MINIMUM)		

Take 2 of the following:		
PRT 138	Landsc. Arch for Parks & Rec	
PRT 157	Ski Area Management	
PRT 258	Entrepreneurship Rec&Tourism	
ENVS 141	Intro to Ecological Economics	
ELECTIVES CONCENTRATION 2: RECREATION LEADERSHIP AND ENVIRONMENTAL EDUCATION (6 CREDIT MINIMUM)		
Take 2 of the following:		
PRT 149	Wilderness Educ & Leadership	
NR 153	Intro Environmental Policy	
ENVS 294	Environmental Education	
ENVS 295	Advanced Special Topics (When the topic is Birding for Change)	

- <sup>1</sup> Internship must be approved by an advisor in advance with required documentation complete.

**PARKS, RECREATION, AND TOURISM MINOR****REQUIREMENTS**

A minimum of 9 credits are required from the following:		9
PRT 010	Intr Sustainable Rec & Tourism	
PRT 050	Tourism Planning	
PRT 138	Landsc. Arch for Parks & Rec	
PRT 149	Wilderness Educ & Leadership	
PRT 157	Ski Area Management	
PRT 158	Resort Mgmt & Marketing	
A minimum of 6 credits to be selected from the following:		6
PRT 230	Ecotourism	
PRT 235	Outdoor Recreation Planning	
PRT 240	Park and Wilderness Management	
PRT 255	Environmental Interpretation	
PRT 258	Entrepreneurship Rec&Tourism	

**PRE/CO-REQUISITES**

None. However, some optional courses may have additional prerequisites. Please check individual course information.

**SPORTS MANAGEMENT MINOR REQUIREMENTS**

A total of 18 credits is required for the minor.

EDPE 220	Sport in Society	3
EDPE 101	Intro to Sports Management	3
or EDPE 241 at 3 credits may be substituted for EDPE 101; EDPE 241 is a fee-based spring recess travel course		
PRT 235	Outdoor Recreation Planning	3
One of the following Management courses:		3
BSAD 120	Leadership & Org Behavior	
EDPE 119	Careers in College Athletics	
EDPE 230	Philosophy of Coaching	
PRT 157	Ski Area Management	
One of the following Marketing/Communications courses:		3
BSAD 150	Marketing Management	
CDAE 168	SU:Marketing:Com Entrepreneurs	
CDAE 119	Event Planning for Athletics	
CDAE 024	Fund of Public Communication	
PRT 158	Resort Mgmt & Marketing	
One of the following Entrepreneurship courses:		3
BSAD 137	Entrepreneurial Leadership	
CDAE 166	Intro to Comm Entrepreneurship	
CDAE 267	Strat Plan:Comm Entrepreneurs	
PRT 258	Entrepreneurship Rec&Tourism	

## OTHER INFORMATION

Consult your major advisor for any applicable course/major restrictions and information regarding the use of one course to meet multiple degree requirements. Majors in Parks, Recreation and Tourism, or Business Administration may double count at most two courses from the Sports Management minor towards the major.

At least half the courses must be taken at UVM. Students must earn at least a 2.0 cumulative GPA in their Sports Management minor courses to earn a minor in Sports Management.

## WILDLIFE AND FISHERIES BIOLOGY PROGRAM

<http://www.uvm.edu/rsenr/?Page=undergraduate/wildlife.html&SM=undergradmenu.html> (<http://www.uvm.edu/rsenr/?Page=undergraduate/wildlife.html&#38;SM=undergradmenuhtml>)

The Wildlife and Fisheries Biology curriculum focuses on the biology, ecology, management, and conservation of animal populations that range from species common enough to be hunted/fished to species that are endangered. Management strategies include direct manipulation of populations or indirect manipulation through alteration of habitat. Courses emphasize applied ecology and

techniques for bringing populations into balance, and provide hands-on experience in labs and field trips. As sophomores, students elect either the Wildlife Biology or the Fisheries Biology concentration.

## MAJORS

### WILDLIFE AND FISHERIES BIOLOGY MAJOR

Wildlife and Fisheries Biology B.S. (p. 428)

## MINORS

### WILDLIFE AND FISHERIES BIOLOGY MINOR

Wildlife Biology (p. 429)

## WILDLIFE AND FISHERIES BIOLOGY B.S.

All students must meet the University Requirements (p. 436).

All students must meet the College Requirements. (p. 415)

There are two concentrations available under the Wildlife and Fisheries Major:

Fisheries Biology Concentration (p. 429)

Wildlife Biology Concentration (p. 429)

## MAJOR REQUIREMENTS

A total of 120 credits is required for the degree.

Courses required for both concentrations:

MATH 019	QR: Fundamentals of Calculus I <sup>1</sup>	3
or MATH 021	QR: Calculus I	
NR 140	Applied Environ Statistics <sup>1</sup>	4
BIOL 001	Principles of Biology	4
or BCOR 011	Exploring Biology	
BIOL 002	Principles of Biology	4
or BCOR 012	Exploring Biology	
CHEM 023	Outline of General Chemistry	4
CHEM 026	Outline of Organic & Biochem	4
or CHEM 042	Intro Organic Chemistry	
FOR 111	Nat Res Ecol and Assessment 1	4
NR 143	Intro to Geog Info Systems	3
WFB 117	Scientific Writing and Interpr	3
WFB 161	Fisheries Biology & Techniques	4
WFB 174	Prin of Wildlife Management	3
WFB 224	Conservation Biology	4

<sup>1</sup> MATH 019 (or MATH 021) and NR 140 also fulfill the RSENr general education requirements.



**FISHERIES BIOLOGY CONCENTRATION**

WFB 232	Ichthyology	3
WFB 261	Fisheries Management	3
NR 250	Limnology	4
NR 280	Stream Ecology	4
Choose two of the following:		
BIOL 264	Community Ecology	
WFB 279	Marine Ecology & Conservation	
BIOL 276	Behavioral Ecology	
GEOL 235	Geochemistry of Natural Waters	
NR 295	Advanced Special Topics (Phycology)	
BIOL 196	Special Topics (Intro to Marine Science)	
A relevant study abroad, internship, or research experience may potentially count towards this requirement with approval of the Program Chair.		

**WILDLIFE BIOLOGY CONCENTRATION**

FOR 021	Dendrology	4
WFB 130	Ornithology	3
WFB 131	Field Ornithology <sup>1</sup>	2
WFB 150	Wildl Habitat & Pop Measrmnt <sup>1</sup>	1
BIOL 217	Mammalogy	4
Choose two of the following (one must have a lab):		
PBIO 109	Plant Systematics <sup>2</sup>	
WFB 141	Field Herpetology <sup>2</sup>	
WFB 283	Terrestrial Wildlife Ecology <sup>2</sup>	
WFB 275	Wildlife Behavior	
WFB 279	Marine Ecology & Conservation	
A relevant study abroad, internship, or research experience may potentially count towards this requirement with approval of the Program Chair.		

<sup>1</sup> Field intensive courses (WFB 131 and WFB 150) are offered only during the summer session.

<sup>2</sup> PBIO 109, WFB 141, and WFB 283 are laboratory courses.

**WILDLIFE BIOLOGY MINOR****REQUIREMENTS**

15 credits including:

Required Courses:		
WFB 074	SU: Wildlife Conservation	3

WFB 130	Ornithology	3
or WFB 232	Ichthyology	
or WFB 141	Field Herpetology	
WFB 174	Prin of Wildlife Management	3
Elective Courses (6 credits):		
WFB 131	Field Ornithology	
WFB 141	Field Herpetology	
WFB 150	Wildl Habitat & Pop Measrmnt	
WFB 176	Florida Ecology Field Trip	
WFB 187	Undergraduate Research	
WFB 191	Internship	
WFB 192	Independent Study	
WFB 195	Intermediate Special Topics	
WFB 224	Conservation Biology	
WFB 275	Wildlife Behavior	
WFB 279	Marine Ecology & Conservation	
WFB 283	Terrestrial Wildlife Ecology	
WFB 287	Undergraduate Research	
WFB 295	Advanced Special Topics	

**PRE/CO-REQUISITES**

BIOL 001	Principles of Biology	4
or BCOR 011	Exploring Biology	
BIOL 002	Principles of Biology	4
or BCOR 012	Exploring Biology	
NR 103	Ecology, Ecosystems & Environ	3-4
or BCOR 102	SU:Ecology and Evolution	

**THE HONORS COLLEGE**

<http://www.uvm.edu/honorscollege> (<http://www.uvm.edu/honorscollege/>)

The Honors College (HCOL) 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, representing every undergraduate college and the wide range of academic disciplines through robust coursework, research, and scholarly and societal engagement. The Honors College is above all a community of students, faculty, and staff 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 HCOL based on the strength of their application to the university; no additional application is required. Approximately 260 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 HCOL 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. Up to 100 sophomores are admitted annually. Students transferring into UVM should contact the Honors College office to express their interest.

## CURRICULUM

Honors College students have "dual citizenship": they are members of both the HCOL and one of the seven undergraduate degree granting schools and colleges. The Honors College supplements and enriches degree offerings with 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 seminars for first-year and sophomore students is limited to Honors College students. HC 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

First-year Honors College students take a two-course sequence, HCOL 085 (taught in the fall) and HCOL 086 (taught in the spring). The fall semester seminar provides a common experience 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, which fulfills the university's first-year writing requirement, encourages students to develop their reasoning and sharpen their focus through their writing. HCOL 085 (taught in the fall) is a prerequisite for HCOL 086 (taught in the spring). The spring semester, a follow-up to the fall class, offers a choice of seminars that build on the skills and knowledge developed during the fall semester. Many spring seminars are on the theme of diversity, allowing students to progress toward completing the university's diversity requirements.

### Sophomore Seminars

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. Unlike the first year curriculum, the fall and spring sophomore seminars are not sequential.

### 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 thesis project. Senior students complete a six-credit research thesis or senior project approved by their home school or college. Requirements for both years vary across the schools and colleges.

## ACADEMIC STANDARDS

A cumulative grade-point average (GPA) of 3.20 is required for first year and sophomore students to remain in good standing in the Honors College. Beyond the sophomore year, a cumulative grade-point average (GPA) of 3.40 is required for all Honors College students at the time of thesis proposal in their home college. The student must maintain a GPA of 3.40 or higher to graduate as an Honors College Scholar.

### Process for Grade Review

At the end of each semester the Honors College Dean (in consultation with the college's Academic Standards Committee) reviews academic records of Honors College students eligible for academic probation or dismissal. In that meeting the Dean makes a decision for each student under consideration for academic trial or dismissal. Students under consideration for trial or dismissal receive notification of their academic standing in the Honors College within 10 business days of the posting of final semester grades. Students who are notified of dismissal have the opportunity to appeal the decision.

Questions about good standing, academic trial, or dismissal can be directed to the Honors College at 802-656-9100 or [honors.college@uvm.edu](mailto:honors.college@uvm.edu).

### Criteria for Academic Trial

First-year and sophomore students whose cumulative GPA falls below 3.20 will be given one semester of academic trial to raise their GPA to at least a 3.20. Academic trial in the Honors College consists of regular meetings with Honors College academic advising staff, as well as work with other academic support programs determined to be an important part of student success. After one semester of academic probation student academic records will be reviewed again by the Honors College Dean and Academic Standards Committee. Students who raise their GPA above a 3.20 will be removed from probation. Students who fail to bring their GPA above a 3.20 will be subject to dismissal from the Honors College. The Dean may take personal or academic considerations into account prior to dismissal for any student on trial.

### Criteria for Honors College Dismissal

Students who are not successful in bringing their cumulative GPA above the 3.20 level after a semester of academic trial are eligible for dismissal. In addition, the following situations may warrant a student dismissal from the Honors College:

- Lack of a cumulative GPA of 3.40 at the time a student submits their thesis proposal. Students must then maintain a GPA of 3.40 or higher to graduate as an Honors College Scholar.

- Receipt of grades of C- or below for more than eight credits of coursework.
- Offenses committed against the academic integrity code, as determined by standard university procedures.
- A failing grade in an Honors College seminar.
- Lack of satisfactory progress toward the completion of Honors College requirements are subject to dismissal from the Honors College.

The Dean may take personal or academic considerations into account prior to dismissal for any of the situations listed above. Such considerations are on a case-by-case basis.

Students who are dismissed have the opportunity to appeal the decision in writing, and they receive information on the appeal process in their dismissal notification. To appeal, students must e-mail their appeal to the Honors College Dean within five business days of receiving their notification of dismissal. The Dean (in consultation with the Academic Standards Committee) will review all appeals within five business days of receiving the appeal. Students will then hear of their final Honors College status from the Honors College Dean.

Once dismissed from the Honors College, students will be disenrolled from any Honors College courses no later than the end of the first week of classes. There is no possible re-entry for students who are dismissed (post-appeal) from the Honors College.

Contact the Honors College at 802-656-9100 or [honors.college@uvm.edu](mailto:honors.college@uvm.edu) for additional information.

## 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 spaces 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.

## FELLOWSHIP AND UNDERGRADUATE RESEARCH SUPPORT

The Honors College provides special advising for students throughout UVM, not just the Honors College, in two areas. The FOUR (Fellowships, Opportunities, and Undergraduate Research) Office advises undergraduates interested in pursuing research under the mentorship of a faculty member by maintaining a database of research opportunities and administering funding programs. FOUR also provides mentoring for students applying for nationally competitive fellowships and scholarships (e.g., Fulbright, Truman, Udall, Goldwater, and Rhodes).

## PLAN OF STUDY

First Year	Credits	
	Fall	Spring
HCOL 085 FW:Honors Coll First Year Sem (Fulfills University FY Writing Requirement and may count toward specific degree requirements in home college/school)	3	
HCOL 086 Honors College First Year Sem (may count toward specific degree requirements in home college/school)		3
Year Total:	3	3
Sophomore	Credits	
	Fall	Spring
HCOL 185 Honors College Sophomore Sem (may count toward specific degree requirements in home college/school)	3	
HCOL 186 Honors College Sophomore Sem (may count toward specific degree requirements in home college/school)		3
Year Total:	3	3
Junior	Credits	
	Fall	Spring
1-3 credits related to research and thesis preparation, offered in the home college/school (may be completed either fall or spring)	1-3	1-3
Year Total:	1-3	1-3
Senior	Credits	
	Fall	Spring
A total of six credits of honors thesis must be taken over two semesters. May count toward specific degree requirements.	3	3
Year Total:	3	3
Total Credits in Sequence:	20-24	

## LARNER COLLEGE OF MEDICINE

As the 7th oldest medical school in the nation, the Larner College of Medicine has a longstanding reputation for educating and training superb physicians and scientists, fostering groundbreaking research to improve patients' lives, and actively engaging with the community of Vermont and the region.

In addition to educating medical and graduate students, the Larner College of Medicine is affiliated with the cross-college minor and major in Biochemistry, and offers undergraduate minors in Pharmacology and Behavioral Change Health Studies, as well as a variety of courses available to undergraduate students.

## MINORS

- Behavioral Change Health Studies (p. 432)
- Affiliated with the cross-college minor and major in Biochemistry (<https://www.uvm.edu/biochemistry/>)
- Pharmacology (p. 432)

## BEHAVIORAL CHANGE HEALTH STUDIES MINOR

### OVERVIEW

The College of Medicine offers a 15 credit minor designed to expose students to cutting edge research with a focus on behavioral change science embedded in the programmatic research and clinical programs at the Vermont Center for Children, Youth, and Families.

This minor program is appropriate for students with interests in law, social work, medicine, education, social sciences, and business because of its emphasis on healthy lifestyles and healthy decision-making.

### REQUIREMENTS

15 credits are required for the minor, including:

COMU 001	Healthy Brains, Healthy Bodies	3
Additional courses (must include at least three at the 100-level) may be selected from:		12
COMU 021	Your Brain on Drugs	
COMU 096	Special Topics	
COMU 122	Family Wellness Coaching	
COMU 123	The Effects of Adversity	
COMU 125	The Science of Happiness	
COMU 131	Sex, Love, Neurosci of Relationships	
COMU 195	How You Became You: Personality Dev	
COMU 196	Special Topics	
COMU 197	Teaching Assistantship	
COMU 198	Undergraduate Research	
PSYS 001	Intro to Psychological Science	
PSYS 150	Developmental Psych: Childhood	
PSYS 170	Abnormal Psychology	
PSYS 211	Learning	

PSYS 252	Emotional Development & Temperament	
PHIL 196	Intermediate Special Topics	

## PHARMACOLOGY MINOR

### OVERVIEW

The Department of Pharmacology offers a 15 credit minor designed to provide students with both a theoretical and practical understanding of a wide array of pharmacological principles, applications and experimental techniques.

### REQUIREMENTS

15 credits are required for the minor, including:

PHRM 201	Introduction to Pharmacology	3
PHRM 272	Toxicology	3
PHRM 290	Topics Molecular & Cell Pharm	3
Additional courses may be selected from:		6
PHRM 200	Medical Cannabis	
PHRM 240	Molecules & Medicine	
PHRM 296	Special Topics	
PHRM 297	Undergraduate Research	
PHRM 305	Milestones in Pharmacology	
PHRM 372	Special Topics	
PHRM 373	Readings in Pharmacology	
PHRM 381	Seminar	
1 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:		
NSCI 323	Neurochemistry	
BIOC 295	Advanced Special Topics	
BIOL 288	Seminar in Forensic Biology	
CHEM 205	Biochemistry I	
MPBP 301	Human Physiology & Pharm I	
PSYS 216	Psychopharmacology	

### PRE/CO-REQUISITES

BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology (or equivalent)	8
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	8
CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2 (or equivalent)	8



## ACADEMIC INFORMATION

This section of the undergraduate catalogue includes academic policies, procedures and related information.

Academic Honors (p. 433)

Academic Internships (p. 433)

Academic Minors (p. 435)

Academic Standing (p. 435)

Alternative Methods for Earning Academic Credit (p. 436)

Degree Requirements (p. 436)

Directory Information Exclusion (p. 437)

Exams and Grading (p. 437)

FERPA Rights Disclosure (p. 440)

Graduate Course Enrollment for Undergraduate Students (p. 440)

Independent Study Courses (p. 441)

Repeated Courses (p. 441)

Student Rights and Responsibilities (p. 441)

Transcripts (p. 442)

Undergraduate Certificates (p. 442)

University Policies and Responsibility (p. 444)

## ACADEMIC HONORS

### 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.

### 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.

## ACADEMIC INTERNSHIPS

An academic internship is an on-site supervised work experience combined with a structured academic learning plan directed by a University of Vermont faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Academic credit may be awarded if the learning that takes place in the internship experience satisfies the criteria listed in this policy.

The focus of this policy is on academic internships. Academic internships may be distinguished from other forms of experiential learning. The following are not explicitly addressed in this policy, either because they are handled according to existing protocols or because they are not currently offered at the University: cooperative education (co-op); student teaching, practicums, and clinical training experiences in professional programs; service learning experiences, and student research. Where one of these experiences is gained through an academic internship, this policy applies to it. For example, if a service learning experience may be gained through an academic internship, the experience is considered service learning and internship simultaneously, and this policy applies to it.

### Need for a Policy

There are two reasons to have such a policy. First, internships address important learning outcomes. College graduates today must combine content knowledge with the ability to apply, extend and test that knowledge in order to understand complex issues and address real-world challenges. The ability to integrate and apply knowledge can be developed by encouraging students to take part in internships (and other forms of experiential education), and by offering effective guidance, support, and feedback during the process. Second, a university-wide policy for awarding academic credit for internships at the undergraduate level is necessary in order to set forth the minimum requirements that ensure learning and academic rigor as well as equitable treatment of students across academic units. Such a policy also provides clarity for students, faculty members, advisors, and employers.

### Flexibility for Academic Units

Academic units have the freedom to design specific curricula and guidelines for such credit-bearing experiences, but those guidelines should conform to the minimum requirements set forth in this policy. For example, academic units may choose to limit the number of internship credits allowed or specify a number of credits, particular coursework or a minimum GPA before a student

is eligible for internships. Moreover, as stated earlier, other forms of experiential learning are not affected by this policy.

#### Procedural and Legal Matters

The Career Center keeps updated forms and procedures online, and faculty members, staff, student, and employers are strongly encouraged to review these legal guidelines and make use of these tools and procedures in considering an internship. The University's Internship Coordinator, housed in the Career Center, is available for consultation on these procedures.

### CRITERIA FOR AWARDING CREDIT

Any internship experience for which a student receives academic credit must include the following components:

1. **Appropriate student preparation.** The student should have the academic preparation that allows the student to apply, extend and test knowledge in order to understand complex issues and address real-world challenges in the proposed internship experience. In addition, the student's academic supervisor may require the student to engage in a program of readings or other work prior to or concurrently with the internship in order to ensure the learning to be gained from it.

2. **Support and supervision from a faculty member, advisor or mentor.** The student's internship experience must be guided and evaluated by a UVM faculty member or staff member working in concert with a faculty instructor of record ("academic supervisor") to ensure an appropriate balance of challenge and support during the process. The academic supervisor should provide the student regular feedback on progress in the internship and on the demonstration of learning and is solely responsible for issuing a grade upon completion.

3. **Work experience capable of advancing learning.** Work that is only routine, does not engage the student's academic preparation or advance the student's learning goals is not appropriate for an academic internship. The internship itself must engage the student in an on-site work experience of sufficient depth, complexity and engagement that the student's learning goals (discussed below) may be achieved. A memorandum of understanding agreed to by the student, the University, and the internship site should reflect this understanding.

4. **Sufficient length.** Credit is not granted for completion of a certain number of hours of work. Demonstration of learning must also take place. Nonetheless, an internship must be long enough to allow for this learning: a minimum number of work and study hours per credit earned is required. In addition, these hours should be spread over several weeks so that there is sufficient time for students to reflect on and absorb what they are learning. Note that the following indicates a minimum number of hours; the requirement may be higher in particular departments.

- Each credit requires a minimum of 40 hours. For example, 3 credits require a minimum of 120 hours, or at least 8 hours per week during a 15-week semester or 10 hours per week during 12 weeks in the summer.

- Ordinarily, no more than six credits of internship credit may be granted for work with a single employer during the semester or summer.
- Typically, a student taking a credit-bearing academic internship will also take other courses during the internship semester. The time devoted to the internship should not be so much that it interferes with the student carrying a full-time course of study. Ordinarily, an internship assignment should not exceed 20 hours per week unless the student is not taking classes full time, as during the summer. Usually, unpaid interns work 8 to 10 hours per week.

5. **Articulation of learning goals.** The student, in consultation with the academic supervisor must identify a set of intended learning goals to be achieved through the internship process. These must be captured in a document, such as a learning contract, syllabus, or project design, that expresses the connection between the work experience, the desired learning to be achieved, and an identified product(s) that will demonstrate that the learning has occurred (see below), and indicates the means of assessment. This document should be specific enough to prepare and guide the student for effective learning, but also be flexible enough to allow for the unplanned opportunities that may arise in a workplace.

6. **Demonstration of learning.** Academic credit is not granted for the work experience itself. It is granted for academic learning of sufficient academic rigor and elaboration that takes place in connection with the internship. Learning is demonstrated in two ways. (a) By means of work products that show the application, deepening or extension of academic concepts (such as laboratory tests, handbooks, posters, forecasts, software, hardware, designs, studies, surveys, presentations, reports, plans, budgets, films, websites and so on) and in writing describing these. (b) By means of reflection on the internship experience showing what was learned and how this knowledge relates to prior and future academic learning. This reflection and synthesis may be shown in writing or other ways (in an essay, report, presentation or talk, for example). Students may demonstrate learning and reflection on their experience in a variety of ways, but the details of this requirement should be agreed upon in advance with the academic supervisor and included in the learning goals document, with mutually agreed revisions being possible.

7. **Prior approval.** Academic credit is granted when learning goals, the means for their demonstration, and appropriate supervision are settled prior to the initiation of the internship work experience. However, it may be appropriate to add detail to learning goals and make them final after the internship begins in order to permit consultation with those at the internship site. In any case, credit is not granted retroactively.

### GRADING

A student taking internships may receive a letter grade or be given a Satisfactory/Unsatisfactory grade, as the offering department determines is appropriate.

## PAYMENT

Payment for an internship does not affect the granting of academic credit unless there are well-known professional standards mandating otherwise.

## ACADEMIC MINORS

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.

Students 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.

## ACADEMIC STANDING

### 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 student services office.

#### "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 Division of Student Affairs before enrolling in any university course.

## 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.

## ALTERNATIVE METHODS FOR EARNING ACADEMIC 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)

## COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

The university considers credit for most of the thirty-three 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 to twelve credits depending on the nature and scope of the material covered.

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](mailto: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 on the Office of the Registrar (<https://www.uvm.edu/registrar/>) website.

## CREDIT FOR MILITARY SERVICE

University of Vermont degree students may have their military service record reviewed for possible transfer credit. Official documents should be sent to the Office of Transfer Affairs, 360 Waterman Building, Burlington, VT 05405. Veterans should present form DD 214; active duty personnel should present form DD 295 directly from the educational officer on the base, and Army personnel 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

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

## DEGREE REQUIREMENTS

### 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.

#### Catalogue Edition Requirement

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.

#### Minimum Grade-Point Average Requirement

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. The minimum grade-point average for graduation is 2.00. Grades in courses accepted for transfer credit are excluded in computing this average.



**minimum credit requirement**

To be eligible for graduation, a student must have successfully completed a minimum of 120 credits. Some undergraduate degrees and majors require the completion of credits in excess of 120.

**Thirty of the Last Forty-Five Credits in Residence Requirement**

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.

**Diversity Course Requirement**

All undergraduate degree students matriculating in Fall 2008 or later 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 (the Diversity of Human Experience). These requirements will apply as well to undergraduate transfer students receiving bachelor's degrees from May 2012 onward. (See the diversity course list in this catalogue under Academic Offerings/Courses for the approved courses.)

**Foundational Writing and Information Literacy Requirement**

All undergraduate degree students matriculating in Fall 2014 or later are required to successfully complete a three-credit course which provides instruction and practice with foundational writing and information literacy. (See the foundational writing and information literacy course list in this catalogue under Academic Offerings/Courses for the approved courses.)

**Quantitative Reasoning Requirement**

All undergraduate degree students matriculating in Fall 2017 or later must meet a General Education requirement in quantitative reasoning. To meet this requirement, students must complete a course, curriculum, or co-curriculum prior to graduation that has been approved by the Faculty Senate's Quantitative Reasoning Curriculum Review Committee. (See the quantitative reasoning course list in the catalogue under Academic Offerings/Courses for the approved courses.)

**Sustainability Requirement**

All undergraduate degree students matriculating in Fall 2015 or later must meet a General Education requirement in Sustainability. To meet this requirement, students must complete a course, curriculum, or co-curricular module prior to graduation that has been approved by the Faculty Senate's Sustainability Curriculum Review

Committee. (See the sustainability course list in this catalogue under Academic Offerings/Courses for the approved courses.)

**DIRECTORY INFORMATION EXCLUSION**

Some information about students is considered "directory information". The university may publicly share "directory information" unless the student has taken formal action to restrict its release.

A student must formally request the university registrar to prevent disclosure of directory information, except to school officials with legitimate educational interests and certain others as specified in the regulations. Once filed, this request becomes a permanent part of the student's record until the student instructs the university to have the request removed.

Directory information includes the following student information:

Name  
Address  
Telephone number  
University-issued email address  
Dates of attendance  
Class (grade level)  
Most recent educational agency or 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 (applies to Varsity student-athletes only)  
Photograph  
Residency or other post-completion placements (applies to Lerner College of Medicine students only)

Students who do not wish to have the above information released should request a directory exclusion via myUVM.

For more information, refer to the FERPA Rights Disclosure (<http://www.uvm.edu/~uvmppg/ppg/student/ferpa.pdf>) policy webpage.

**EXAMS AND GRADING****Hour Tests**

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.

In a course which has several sections meeting at different hours, a common test for all sections may be given only by arrangement with University Event Services.

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.

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 course may conduct more than one in class exam or test during the last two weeks of the semester (week prior to finals week and the week of finals).
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 four or more final exams in one 36-hour period.
11. If a student has four or more proctored in class final assessments in a 36-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 four exams they wish to take at an alternative time. In cases where the instructors in all four 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 four 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 four 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
AF	Administrative Failure due to a missing grade. <sup>1</sup>	
XF	Failure resulting from academic dishonesty. <sup>2</sup>	

<sup>1</sup> The AF grade is equivalent to the grade of F in the determination of grade-point averages and academic standing (effective spring, 2017).

<sup>2</sup> The XF 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)
W	Withdrawn
ANP	Administrative No Pass due to a missing grade
AUP	Administrative Unsatisfactory Progress
R	Repeated course

**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.

Incompletes may be approved for the following reasons: medical, personal tragedy, or academic.

**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. Both SP and UP are final grades and can remain on the transcript. If desired, they may be changed according to the following: SP may be changed 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 may be changed to an F.

## GRADE REPORTING

Grades must be reported to the Registrar's office as soon as possible after the course is completed but not later than 72 hours after the final examination for that course. If the final exam is on the Friday of exam week, grades are due by noon on the following Tuesday.

## Grade Appeals

A student who believes that s/he has received an unfair course grade should first contact the registrar's office to verify that the grade submitted by the instructor is the same grade the registrar has recorded. If the grade has been recorded correctly, the student should next contact the instructor, department chair (or the chair designate in academic units that do not have chairs), and dean of the college/school in which the course is offered (in that order) to discuss the matter.

The following deadlines must be observed by the student who wishes to appeal a grade (though extensions may be granted by the dean of the college or school offering the course). The student should contact the instructor as soon as possible, and no later than the tenth day of

instruction of the fall or spring semester following the assignment of the grade in question.

More detailed information is available on the Grade Appeals Policy (<http://www.uvm.edu/policies/student/gradeappeals.pdf>) webpage.

## FERPA RIGHTS DISCLOSURE

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 one's own student education record within 45 days of the day the university receives a request for access. Written requests for access should be submitted by the student to the university registrar, or, if appropriate, the dean of students, the dean of the student's college or school, or other school official with control over the student education record they would like to inspect and review. The written request must contain sufficient detail to identify the record(s), as well as the identity of the person(s) who may be provided access, other than the student, if any. If the records are not maintained by the school official to whom the request is submitted, that official shall advise the student of the correct school official to whom the request should be addressed. The school official with control over the requested records will make arrangements for access and notify the student of the time and place where the records may be inspected.
2. The right to request amendment to one's own student education record if the student believes such record to be inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA. To seek amendment of a student education record, the student must write to the school official responsible for the record at issue. The written request must clearly identify the part of the student education record they want changed, specifying why it is inaccurate, misleading, or otherwise in violation of their privacy rights under FERPA. Following review of the request, if the university decides not to amend the student education record, the university will notify the student in writing of the decision and advise them of their right to a formal hearing regarding the request. Information about the hearing procedures for such an appeal will be provided to the student as part of the written decision letter. After the hearing, if the university decides not to amend the student education record, the student has the right to place a statement with the applicable portion of their student education record setting forth their view about the contested information.
3. The right to provide written consent prior to disclosures of personally identifiable information contained in one's own student education record, except to the extent that FERPA authorizes disclosure without consent. Common exceptions to written consent include, but are not limited to:
  - The disclosure of a student education record to a school official, within or otherwise acting on behalf of UVM, with a legitimate educational interest.
  - The disclosure of a student education record to officials of another institution of post secondary

education where the student seeks or intends to enroll, or where the student is already enrolled, so long as the disclosure is for purposes related to the student's enrollment or transfer.

- The disclosure of a student education record to outside law enforcement officials, mental health officials, and other experts in the community in the event of a health or safety emergency, or to assess a potential threat. Student education records may also be disclosed to a parent or legal guardian when their student is experiencing a health or safety emergency.
- The disclosure of student disciplinary records to a parent or legal guardian when a student under the age of 21 has violated the law or university policy concerning the use or possession of alcohol or a controlled substance.
- The disclosure of the final results of a disciplinary proceeding conducted by the institution, regardless of whether the institution concluded a violation was committed, to an alleged victim of any crime of violence or non-forcible sex offense.
- The disclosure is to comply with a judicial order or lawfully issued subpoena.
- The information is considered "directory information" and the student has not taken formal action to restrict its release.

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 is:

Family Policy Compliance Office

U.S. Department of Education

400 Maryland Avenue, SW

Washington, DC 20202-5920

More detailed information is available on the FERPA Policy (<https://www.uvm.edu/sites/default/files/UVM-Policies/policies/ferpa.pdf>) webpage.

## GRADUATE COURSE ENROLLMENT FOR UNDERGRADUATE STUDENTS

UVM Senior undergraduates may enroll for up to six graduate credits at UVM under the following circumstances: courses must be available for graduate credit and is not an independent study, practicum, or research credit course; approval to take the course for graduate credit is obtained from the Dean of the Graduate College prior to taking the course; and the course must not be computed as part of the bachelor's degree. Permission to seek graduate credit must be obtained from the Dean of the Graduate College and by the dean of the undergraduate college/school in which the student is enrolled. Students may request graduate credit for a course by completing the form found on the Graduate College website. Graduate credit can be used as



transfer credit into a UVM graduate program if the course is deemed appropriate by the student's advisor for the particular graduate program and the student earned a grade of B or better. The transfer is credit only (not grade) and does not count towards the minimum graded credit required after matriculation into the graduate program. Generally, other institutions will not accept such credit, earned before award of the bachelor's degree, in transfer to their graduate programs.

## 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

1. 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.
2. 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:
  - a. The project title.
  - b. 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.
  - c. A clear and complete statement of project objectives.
  - d. A concise statement of the plans and methods to be used in order to accomplish each objective.
3. During the first full week of classes the student and the faculty sponsor will meet and prepare a document which includes the following:
  - a. 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.
  - b. A list of those ways in which documentation of work can be shown.

- c. 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.

4. 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 college/school committees.

## REPEATED COURSES

A student may repeat a course at the University of Vermont, but will only receive credit once for that course (unless the course catalogue specifies that a course may be repeated for credit). After a course is repeated, the student's transcript will be revised to replace the previous grade for that course with an "R." The GPA calculation will only include the grade for the repeated course, regardless of whether the repeated course grade is higher or lower than the initial course grade. A course may be repeated more than one time only at the discretion of the dean of the student's college/school, after consideration of any impact on the student's financial aid and/or progress to graduation.

Only course(s) completed at UVM will be considered in the calculation of GPA. Any credit for previously transferred course work that is repeated at UVM will be removed from the transfer credit record.

Only courses repeated after August 30, 2020 will be addressed according to the policy above.

## STUDENT RIGHTS AND RESPONSIBILITIES

### ACADEMIC INTEGRITY

The principal objective of the Code of Academic Integrity is to promote an intellectual climate and support the academic integrity of the University of Vermont. Academic dishonesty is in direct contrast to ethical expectations of students and the educational mission of the University, and serves to devalue students' education. As a result, the University takes all violations of academic dishonesty seriously. Sanctions are significant and can include an XF in a course, suspension, or dismissal.

Each student is responsible for knowing and adhering to the Code of Academic Integrity. Please refer to the Code of Academic Integrity (<http://www.uvm.edu/policies/student/acadintegrity.pdf>) policy webpage.

### ATTENDANCE POLICY

Students are expected to attend all regularly scheduled classes. With the exceptions outlined below, the instructor has the final authority to excuse absences. It is the responsibility of the instructor to inform students of their policy for handling absences and tardiness, and the

consequences 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 and to determine the appropriate response (e.g., excused absence, deadline extension, substituted work). If an out-of-class exam or other activity (e.g., field trip, campus speaker or event, workshop) conflicts with a regularly scheduled class, the regularly scheduled class has priority. Any conflicts between student and instructor regarding this policy may be presented for resolution to the course department chair or college dean's office.

When a student is unable to attend classes for reasons of health, bereavement, or required legal appearances (e.g., jury duty, citizenship hearing), the student should contact their academic dean's office regarding support. An instructor may request through the appropriate dean's office documentation to support a student's request for an excused absence.

**Intercollegiate and Academic Competitions** Students who represent the University of Vermont in official intercollegiate varsity athletic or academic program-sponsored competitions should plan their schedules with special care, recognizing the primary importance of their academic responsibilities. It is the responsibility of the student to avoid signing up for a course or section whose scheduled meetings consistently conflict with the intercollegiate competition and travel schedule. If travel for such intercollegiate competition requires absences from a class, it is also the student's responsibility to provide the instructor with documentation of anticipated absences and to meet with the instructor regarding the missed course work and instruction. Provided a student has submitted documentation for absences due to participation in official intercollegiate competitions, an instructor must excuse the absences and should provide reasonable assistance to the student concerning missed instruction, assignments, and exams, including final exams. Any conflicts between student and instructor may be presented for resolution to the course department chair or college dean's office.

**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 will treat these absences as excused and will provide reasonable accommodation to the student concerning missed instruction, assignments, and exams, including final exams. Any conflicts between student and instructor may be presented for resolution to the course department chair or college dean's office.

**Disenrollment** 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 they are enrolled in a class. Any conflicts between student and instructor may be presented for resolution to the course department chair or college dean's office.

## 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).

More detailed information is available on the Code of Student Conduct (<https://www.uvm.edu/sites/default/files/UVM-Policies/policies/studentcode.pdf>) policy webpage.

## 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.

## UNDERGRADUATE CERTIFICATES

### DESCRIPTION

Undergraduate Certificate Programs are a credentialed course of study (approved by the Faculty Senate on April 7, 2014) focused on a particular topic germane to the mission and vision of the University of Vermont. These programs are for matriculated

undergraduate students only, and constitute a category of certificate programs distinct from Post-Baccalaureate Certificates, Continuing Education Academic Certificates, Continuing Education Professional Certificates, and Graduate College Certificates of Graduate Study.

A distinguishing feature of Undergraduate Certificate programs is a capstone or other mentored learning experience that integrates knowledge and skills from prior coursework and in which students learn through innovation, creativity and reflection. Academic units have the freedom to design specific curricula for Undergraduate Certificates, but those curricula must conform to the minimum requirements set forth in this document.

## PURPOSES

The purposes of undergraduate certificates are:

1. To broaden and enrich learning and life skills opportunities for undergraduate students without impeding the students' ability to complete their degree requirements in a timely manner.
2. To engage students in substantive learning experiences to which they would otherwise not be exposed.
3. To expand experiential and interdisciplinary learning options at the University of Vermont.
4. To promote integrative learning and offer students the opportunity to gain additional exposure to areas of particular interest.

## GENERAL GUIDELINES

1. Undergraduate certificate programs should offer a unique learning experience that does not largely replicate or compete with existing academic minors
2. Each undergraduate certificate program is established and administered by one or more sponsoring academic units which will be responsible for maintaining program quality.
3. Undergraduate certificate programs must have a clearly stated mission, program goals, learning objectives and desired student outcomes. The curriculum is scaffolded in such a way as to foster developmental growth of the student over the course of the certificate program.
4. Undergraduate certificates are comprised of a minimum of 12 credits of academic core courses, at least 6 of which must be at the 100-level or higher, plus a significant credit-bearing integrative learning component.
5. The vehicles for integrative learning may include, but are not limited to, credited academic internships, service-learning courses, teaching, research, reflective essays, case studies or creative projects.
6. Prerequisite coursework may be required for enrollment in an undergraduate certificate program.
7. Special topics courses may be included in undergraduate certificate programs, although they must be reviewed for permanent status after three offerings in separate semesters, consistent with academic policies.
8. Undergraduate certificates are not to be required for any degree program.

9. No more than 50% of the total credits in the certificate program may be transfer credits.
10. Students enrolled in an undergraduate certificate program must maintain a minimum grade point average (GPA) and other performance standards as specified by the sponsoring academic unit(s).
11. Successful completion of an undergraduate certificate will be recorded in the student's official transcript. Unsuccessful completion of an undergraduate certificate will not prevent a student from graduating and will not be recorded in the transcript.
12. Each undergraduate certificate program will be included in the appropriate cluster of programs in the APR schedule.
13. The Curricular Affairs Committee of the Faculty Senate shall review proposed undergraduate certificate programs with respect to these standards and criteria.

## OPERATIONAL PRINCIPLES

1. Proposal Development and Approval: The sponsoring unit (Department, School or College) will prepare a proposal following the format described below. As with any new or substantially modified academic program, Undergraduate Certificate programs must undergo the established review and approval processes at the department, college, Faculty Senate and University levels, including the Board of Trustees.
2. Application and Admission to Undergraduate Certificate Programs: Admissions will be handled by the sponsoring unit(s). Students must apply to the sponsoring unit(s) by the date specified using a standard application form endorsed by the Curricular Affairs Committee. The sponsoring unit(s) will notify the student and the home unit (the college or school of the student's major) of acceptance or rejection.
3. Catalog Description: Undergraduate certificate programs will be described in detail in the UVM Catalog.
4. Enrollment Limitations: Because of enrollment limitations, some undergraduate certificate programs may not be accessible to all students.
5. Commitment: Sponsoring units will make a good faith effort to make curricular components available on a regular basis so that students can complete their undergraduate certificate programs in a timely manner.
6. Advising: The sponsoring unit(s) will develop and maintain an effective system of advising for all students enrolled in its undergraduate certificate programs.
7. Certification and Student Records: The student's home unit shall certify completion of the undergraduate certificate. The sponsoring unit is the only body authorized to make course substitutions for satisfying the certificate requirements and shall notify the student's home unit in writing regarding any substitutions. The student's major advisor is not authorized to make course substitutions in certificate requirements. As with all credentialed academic programs, undergraduate certificates will be indicated as such in students' transcripts.
8. Alteration of Undergraduate Certificate Programs: Alterations to undergraduate certificate programs made by its sponsor and

which meet or exceed the noted criteria must be submitted for review by the Curricular Affairs Committee as described in Format for Proposals to Substantially Revise a Curriculum, Academic Program, Research or Service Endeavor (Appendix B) located on the Faculty Senate Website.

## UNIVERSITY POLICIES AND RESPONSIBILITY

### UNIVERSITY POLICIES

Please refer to UVM's Institutional Policies (<http://www.uvm.edu/policies/>) website.

### 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.

## ENROLLMENT AND REGISTRATION

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

### ORIENTATION

All entering first-year students for fall semester are required to attend a two-day orientation session in June. First-year students entering UVM in the spring semester are required to attend January Orientation, held prior to the start of spring semester. Transfer students are strongly encouraged to attend one of several programs offered prior to the semester they enroll. For more information, visit the UVM Orientation website.

### HOUSING

All students entering as first-time, first-year students are required to live on campus for their first four semesters. New transfer students who are under the age of 20 the first day of classes are required to live on campus for their first two semesters. New transfer students 20 years old and older the first day of classes may request on-campus housing, but it is not guaranteed. For more information, visit the Residential Life website (<http://reslife.uvm.edu>).

### 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. The deadline for students entering in the fall semester is July 1st; the deadline for students entering in the spring semesters is February 1st. These requirements are presented in both paper and online forms. New students will receive detailed instructions regarding the immunizations required by Vermont state law. Further details about health requirements can be found on the Center for Health & Wellbeing website.

## 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 actions apply only to degree students.

#### Intercollege Transfers

Degree students may transfer to another college/school within the University. To do so, students must complete the online Change of Major/College form and obtain the approval of the college/school to which they are seeking a transfer. Some programs require the completion of additional application materials. Students seeking a transfer must have a cumulative GPA of 2.00 with the following exceptions.

- College of Arts and Sciences (CAS): Students must have a cumulative GPA of 2.0 or higher (in at least 12 credits completed at UVM and within their most recently completed semester) and cannot have any incompletes (INC's) or missing grades. If the student's cumulative GPA is above 2.0 but the most recent semester GPA is below 2.0, the student will be placed on academic probation. If a student has junior or senior standing, the student will be required to meet with a CAS Student Services Advisor prior to the transfer.
- Grossman School of Business (GSB): Students must complete one semester of Economics (EC 011 or EC 012) and one semester of Calculus (MATH 019 or MATH 021), each with a grade of C- or higher and an overall Business Core GPA of a 2.25 or higher. All completed Business Core classes will be assessed during the application review process. All Business Core classes must meet the C- or higher grade requirement and overall 2.25 GPA or higher. In addition, a cumulative GPA of 2.75 or higher is required for transfer admission into the Grossman School of Business and students must be in good academic standing (not on trial/academic probation).
- College of Engineering & Mathematical Sciences (CEMS): A semester and cumulative GPA of at least 2.00 is required for transfer admission into all programs. Prerequisite courses and minimum grade requirements vary by program. Additional information can be found on the CEMS Internal



Transfer Guidelines website (<https://www.uvm.edu/cems/undergraduate-internal-transfer-guidelines/>).

- College of Education and Social Services (CESS): A cumulative GPA of at least a 2.50 is required for transfer admission into teacher licensure programs in the College of Education and Social Services. A cumulative GPA of 2.30 is required for transfer admission into the Social Work program. A cumulative GPA of 2.0 is required for admission into the Human Development and Family Studies, and the Individually Designed majors.
- College of Nursing and Health Sciences (CNHS): The minimum GPA and prerequisite requirements for transfer vary by program. 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.

### Re-entry to the University

Previously enrolled undergraduate students who were working toward a degree and who wish to return to the University following a voluntary leave should complete the online Re-entry Application (<https://www.uvm.edu/admissions/re-entry-application/>).

### Withdrawal from the University

Degree students who wish to withdraw from the University must first notify (in person or in writing) Student Services in the Dean's Office of their college/school.

### Medical Withdrawal

Degree students who wish to withdraw from all current courses at the University for medical reasons must contact Student Services in the Dean's Office of their college/school to discuss their intention to medically withdraw. 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. Student must submit a request for a leave of absence, in writing, 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.

## DISTANCE EDUCATION STUDENT STATUS

A distance education student is a student whose primary affiliation with UVM is as a student matriculated in a distance education degree or academic certificate program where the majority of content is delivered at a distance. There may be a minimal residency component of the program that is exclusively available to the matriculated distance education students. A distance student may not register for an on-campus course; however a residential student may register for courses offered through a distance program on a space availability basis.

Student tuition is billed according to their primary affiliation with UVM. These categories are residential or distance. When tuition differs between these categories, tuition is billed according to the primary affiliation of the student for any courses taken.

## NON-DEGREE STUDENT STATUS

This category applies to non-degree students who have presented minimum credentials, meet the course level prerequisites, and have completed a Continuing and Distance Education application form. Non-degree students may enroll in up to 9 credit hours per semester while completing a Continuing and Distance Education academic certificate, pursuing professional development, and/or completing admission requirements for an undergraduate or graduate degree program. Visiting students enrolled at another institution and are in good standing may take courses through Continuing and Distance Education. Credit hours earned may be transferable to their home institution. Students interested in enrolling in more than 9 credit hours per semester must gain approval from Continuing and Distance Education. Credit hours earned by non-degree students prior to matriculation into a UVM degree program must be approved by a UVM school or college.

An application is required of all individuals enrolling in non-degree courses. Non-degree students may enroll for a maximum of 9 credit hours per semester, unless granted an override by Continuing and Distance Education for specific programs that have an established sequence (e.g., post-bac pre-med or other certificate programs). Non-degree students register for courses two weeks (14 days) after course registration opens for UVM degree students.

Selection of courses for those having long-range plans of earning a degree should be made in consultation with information provided by this catalogue. Students interested in making a formal application for admission to the university should contact the Office of Undergraduate or Graduate Admissions. Non-degree students are encouraged to work with a Continuing and Distance Education student services professional to discuss their educational goals and enrollment support needs. Students are required to meet with a Continuing and Distance Education student services professional, once reached 18 credit hours, unless in a certificate or other sequenced professional development program.

## REGISTRATION

Degree students must register for the next semester at the designated time, unless excused in advance by their college/school. Registration

instructions are on the Office of the Registrar website. Approval of the student's college/school is required to register for more than nineteen credits.

Students with disabilities, who are in receipt of appropriate medical certification from the Center for Health and Wellbeing, 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.

## CLASS STANDING

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

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

## 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 use the registration system to withdraw from the course. The student's advisor(s) and dean(s) will be notified. The instructor(s) will be aware of the withdrawal by the Withdraw status on the class roster and the presence of a grade of W on the grade roster.

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, dissatisfaction with the course

or instructor, or desire to change major or program. If the petition is approved, a grade of W will be assigned and recorded on the student's permanent record. If the petition is denied, the instructor(s) will assign a final grade in accordance with the same criteria applied to all other students in the course(s). Final decisions rest with the student's home college/school.

Withdrawals will be permitted after the last day of classes only when the student was incapacitated before the end of the term and unable to process a late withdrawal request. To be considered, the request must be made within 60 days of the end of the term in which the course was taken, or before the end of the add/drop period of the subsequent term attended, whichever is sooner. Final decisions rest with the student's home college/school.

In all instances, withdrawal grades remain on the permanent academic record, but will not affect the grade-point average. Withdrawn courses are included in the number of credits used for billing purposes.

## DEFINITION OF A CREDIT HOUR

The Faculty Senate has defined a University of Vermont credit hour as follows:

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.
3. "Direct faculty instruction" must include regular and substantive faculty/student contact regardless of delivery mode (for example, face-to-face, hybrid, distance/online).

All courses should span the full term (15 weeks in fall and spring) of the semester in which they are offered.

## ACADEMIC CALENDAR

**See the Office of the Registrar website for the most current calendar information and future year calendars.**

The academic calendar is subject to change. The calendar listed below reflects information known to be true in March of the prior academic year and is not further updated.

Refunds related to dropping or withdrawing from courses vary. Contact Student Financial Services for more information.

Evening classes may have final exams scheduled during reading days.

Refer to the Student Rights and Responsibilities (p. 441) section of the Catalogue for the policy on class attendance and for information regarding observance of religious holidays and participation in intercollegiate athletics.

**FALL 2020**

First Day of Classes	August 31	Monday
Last Day to Add Classes without Instructor Permission	September 4	Friday
Labor Day Holiday	September 7	Monday
Add/Drop, Pass /No Pass, Audit Deadline (Refunds vary; see Student Financial Services.)	September 14	Monday
Fall Recess	October 9	Friday
Last Day to Withdraw (Refunds vary; see Student Financial Services.)	November 2	Monday
Thanksgiving Recess	November 23-27	Monday - Friday
Last Day of Classes	December 11	Friday
Reading Days (Evening classes may have final exams scheduled during reading days.)	December 12,13,16	Saturday, Sunday, Wednesday
Exam Period	December 14-18	Monday - Friday
Exam Days	December 14,15,17,18	Mon., Tues., Thurs., Fri.

**WINTER 2021**

First Day of Classes	December 28	Monday
Last Day of Classes	January 15	Friday

**SPRING 2021**

Martin Luther King Holiday	January 18	Monday
First Day of Classes	January 19	Tuesday
Last Day to Add Classes without Instructor Permission	January 25	Monday
Add/Drop, Pass/No Pass, Audit Deadline (Refunds vary; see Student Financial Services.)	February 1	Monday
Presidents' Day Holiday	February 15	Monday
Town Meeting Day Recess	March 2	Tuesday
Spring Recess	March 8-12	Monday - Friday
Last Day to Withdraw (Refunds vary; see Student Financial Services.)	April 5	Monday

Honors Day	April 23	Friday
Last Day of Classes	May 7	Friday
Reading Days (Evening classes may have final exams scheduled during reading days.)	May 8,9,12	Sat., Sun., Wed.
Exam Period	May 10-14	Monday - Friday
Exam Days	May 10,11,13,14	Mon., Tues., Thurs., Fri.
Graduate Commencement	May 22	Saturday
Undergraduate Commencement	May 23	Sunday
Medical College Commencement	May 23	Sunday

**SUMMER 2021**

First Day of Classes	May 24	Monday
Memorial Day Holiday	May 31	Monday
Fourth of July Holiday (observed)	July 5	Monday
Last Day of Classes	August 13	Friday

**ADMISSION INFORMATION**

The University of Vermont (UVM) welcomes applications from students of diverse backgrounds. Through a holistic admissions review, UVM selects students with potential for academic success who will contribute to the UVM community. The rigor of an applicant's academic program, grades, standardized test results, and trends in performance are considered. Essays, a letter of recommendation, and other evidence of each student's life experience and character also assist the 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 admissions 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.

## ADMISSIONS REQUIREMENTS AND RECOMMENDATIONS BY 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. Transfer students may have additional requirements.

### 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 four years of high school math (precalculus / 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.

### GROSSMAN SCHOOL OF BUSINESS

**REQUIRED:** Four years of mathematics with high achievement, including at least one year beyond algebra II (trigonometry, precalculus or calculus are preferred).

### COLLEGE OF EDUCATION AND SOCIAL SERVICES

**RECOMMENDED:** Teacher Education majors are strongly encouraged to take math and science coursework beyond the UVM minimum entrance requirements. Human Development & Family Studies and Social Work majors are strongly encouraged to take one year of biology as part of the university entrance requirements.

### COLLEGE OF ENGINEERING AND MATHEMATICAL SCIENCES

**REQUIRED:** Four years of mathematics, including trigonometry or precalculus. One year of chemistry and one year of physics for all engineering majors. All other majors: two years of a laboratory-based science as part of the university entrance requirements.

### 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.

### 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.

### 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 precalculus.

**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 Medical Radiation Sciences and Medical Laboratory Science 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
- 3 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.

## MATRICULATION STATUS

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



### GED and HiSET

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. Students who chose to take HiSET (a passing score of 45 or above for the total scaled score is required) should have their Comprehensive Score Report forwarded to the Admissions Office in addition to official transcripts of any previous high school or college-level work completed.

### Three-year Graduates

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.

### Home-schooled students

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), a passing score on a HiSET exam, 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, HiSET exam (a passing score of 45 or above for the total scaled score is required) or 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 the University of Vermont course work and has met all entrance requirements, no proof of high school graduation is required.
- Examination results for students educated outside the U.S.A.

## 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:** Applicants for first-year admission may apply online using the Common Application at The Common Application (<http://www.commonapp.org>) website or the Coalition Application at the Coalition for Access, Affordability and Success (<http://www.coalitionforcollegeaccess.org>) website.

Transfer student applicants may apply on line using the Coalition Application at the Coalition for Access, Affordability and Success (<http://www.coalitionforcollegeaccess.org>) website.

**APPLICATION FEE:** A non-refundable application fee of \$55 is charged for each application for undergraduate admission to a university degree program. The fee can be paid as part of the submission of the Common Application or the Coalition Application via credit card or e-check. For candidates for whom the fee poses a financial hardship, fee waivers are accepted from the College Board, school counselors, or other reputable sources familiar with the applicant's financial situation. The \$55 application fee is waived for first-year Vermont residents applying by Nov. 1 for fall semester admission.

**OFFICIAL TRANSCRIPTS:** From all secondary and (for transfer candidates) all postsecondary course work. Transfer student applicants should send transcripts of all postsecondary courses, including those taken while in high school to ensure greatest opportunity for transfer credit earned. 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 (not emailed) 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. UVM's code for the SAT is 3920 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 college counseling office or visit the CollegeBoard (<http://www.collegeboard.org>) and ACT (<http://www.act.org>) websites.

**\*\* Submission of the ACT or SAT is not required for International applicants. Students who wish to qualify for the Honors College will be required to submit an official SAT or ACT score.**

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

**ESSAYS:** UVM requires one essay as part of the Common Application or the Coalition 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 video or audio recording before an application is considered complete (Students applying for music technology may complete their audition after matriculation at UVM). These materials become property of UVM and will not be returned. More information is available at the Department of Music website.

## 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 and State Agricultural College (UVM) shall be 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 noncustodial or joint custodial parent is domiciled in Vermont and has contributed more than 50 percent of financial support for at least one year prior to the semester for which in-state status is sought.
10. The burden of proof as to eligibility for in-state status rests with the student. Eligibility must be established by clear and convincing evidence.

## RESIDENCY RULES FOR V.A. BENEFICIARIES, MEMBERS OF THE ARMED FORCES AND THEIR FAMILY MEMBERS

Irrespective of a student's in-state status as defined in this Policy, upon submission of appropriate documentation, UVM will charge members of the armed forces, veterans, and qualifying family members thereof, the in-state tuition rate in accordance with applicable law (e.g. the Higher Education Opportunity Act and 38 U.S.C. 3679(c)) and further detailed in the University's Tuition Billing for Members of the Armed Forces and Veterans Operating Procedure (<https://www.uvm.edu/sites/default/files/UVM-Policies/policies/armedforcesbilling.pdf>).

### 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 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 for 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 or as requested by the Residency Officer. 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. An in-state student who leaves Vermont may be required to re-apply and re-establish residency upon returning.

## 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 and 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 late February/early March. Early Action candidates may also be denied admission and do not have the option of reapplying for entry as a regular decision candidate. Early Action applicants may also be offered the wait list or spring semester (Spring Start) admission after review is complete in late February/early March.

### 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 February/early March. Regular decision applicants who are not admitted into the fall semester may be denied

admission, offered spring semester (Spring Start) admission, or offered a place on the waiting list.

## SPRING ADMISSION FOR EARLY ACTION OR REGULAR DECISION APPLICANTS (SPRING START)

Selected students who apply for fall admission may be offered admission beginning in the spring semester. Admission offers for spring admission are subject to college or school space availability. Students offered spring admission will be asked to confirm their intention to enroll by May 1. Spring Start students may enroll in college coursework in the fall, but may not enroll as a matriculated student elsewhere. Students who applied for fall and were offered Spring Start may not defer their admission to a future semester; they will need to reapply.

## 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 from the New England Board of Higher Education (<http://www.nebhe.org/>) website.

New England resident students enrolling in an approved program are charged 175% of in-state tuition.

For a full listing of eligible UVM programs and policies, visit the New England Board of Higher Education (<http://nebhe.org>) website.

## ADMISSION TO THE HONORS COLLEGE

Admission to the Honors College is based on prior academic performance and students are admitted in one of two ways. First-year students are invited to the Honors College based on the strength of their application for admission to the university; no additional application is required. Approximately 225 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 Honors College 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 office to express their interest.

## 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 domestic and international candidates. Notification is on a rolling basis. Payment of a \$495 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, and no later than the first day of classes 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 \$495 non-refundable 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, and no later than the first day of classes of the semester of enrollment.

January 15 — Regular First-Year candidates. Notification for most decisions is by early March. A \$495 non-refundable 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, and no later than the first day of classes of the semester of enrollment.

Note regarding first-year students who applied for fall semester and are offered spring semester (spring start) admission: A \$495 non-refundable acceptance fee is due May 1 as proof of intention to enroll.

April 15 — Transfer candidates. Notification is on a rolling basis. Payment of a \$495 non-refundable 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.

Students applying through the Global Gateway Program (GGP) can find the deadlines here: <http://globalgateway.uvm.edu/degree-pathway/undergraduate-pathway> (<http://globalgateway.uvm.edu/degree-pathway/undergraduate-pathway/>)

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

## COLLEGE CREDIT FOR HIGH SCHOOL CLASSES

### ADVANCED PLACEMENT PROGRAM (AP) OF THE COLLEGE BOARD

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 UVM's AP credit guide ([https://www.uvm.edu/sites/default/files/AP\\_Guide.pdf](https://www.uvm.edu/sites/default/files/AP_Guide.pdf)) for specifics. 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.

## INTERNATIONAL BACCALAUREATE (IB)

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.

## OTHER COLLEGE CREDIT PROGRAMS

College-level courses taken through high school cooperatives (such as SUPA, the Syracuse University Project Advance, or through local community colleges) 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 on the Getting Credit for AP, IB, and CLEP (<https://www.uvm.edu/registrar/frequently-asked-questions-about-transferring/>) website. A third option is the UVM Credit by Exam. Contact the Office of Transfer Affairs for more information.

Credit for international post-secondary exams: Advance level, German Abitur, CEGEP, Scottish Certificate can be found on the Admissions website under information for first-year applicants.

## ARTICULATION AGREEMENTS

Note: UVM's articulation agreements are reviewed periodically. The information below is subject to change.

### COMMUNITY COLLEGE OF VERMONT (CCV) PATHWAY TO UVM PROGRAM

To promote the transfer of graduates from the Community College of Vermont (CCV) to the University of Vermont (UVM). Earn an Associate's Degree at CCV and guaranteed admission to the UVM by following an approved structured curriculum plan. Students entering UVM through the CCV Pathway are on track to earn a Bachelor's degree in two years.

For a list of Pathway programs, please visit: [go.uvm.edu/path2uvm](http://go.uvm.edu/path2uvm).

Note: UVM Pathway major options are reviewed annually and options are subject to change. Students interested in UVM majors outside of the UVM Pathway major options should refer to the Transfer Admissions ([http://www.uvm.edu/admissions/undergraduate/transfer\\_applicants/](http://www.uvm.edu/admissions/undergraduate/transfer_applicants/)) website for application requirements, processes, and scholarship details.

- Students must be admitted to CCV before applying to UVM as a Pathway student.
- Students can apply to UVM to become a Pathway student as early as May of their high school senior year.



- Pathway students must meet UVM's minimum entrance requirements prior to UVM matriculation.
- Any student who has been accepted into the Program through receipt of a Guaranteed Pathway Admission Letter shall have the benefit of the academic criteria in effect at the time of acceptance.
- The semester prior to enrolling at UVM, students must complete an intent to enroll form.
- The \$500 enrollment fee for UVM will be waived.
- Students with a CCV GPA of 2.80 or higher receive a \$10,000 scholarship (\$2,500 per semester for four semesters; must maintain full-time status).
- Students must continue to follow UVM's transfer credit policy ([https://www.uvm.edu/registrar/undergraduate-transfer-credit?\\_ga=2.131103823.1755855236.1584327182-1681792444.15753036047](https://www.uvm.edu/registrar/undergraduate-transfer-credit?_ga=2.131103823.1755855236.1584327182-1681792444.15753036047)).
- Students will attend a mandatory orientation session for Pathway students.

### Application Process

Current or prospective CCV students interested in this Pathway program should review the minimum entrance requirements, as listed on the Transfer Admissions ([http://www.uvm.edu/admissions/undergraduate/transfer\\_applicants/](http://www.uvm.edu/admissions/undergraduate/transfer_applicants/)) website. CCV Pathway candidates are encouraged to contact with the Coordinator of Transfer Admissions in the UVM Admissions office with questions about the admissions process under the CCV to UVM articulation agreement. Candidates are required to submit their Application ([http://www.uvm.edu/admissions/undergraduate/transfer\\_applicants/](http://www.uvm.edu/admissions/undergraduate/transfer_applicants/)), all supporting credentials and all financial aid forms by the stated UVM deadlines.

Candidates whose GPAs fall below the minimum will be reviewed by UVM on a case-by-case basis. Those denied admission are encouraged to connect with the Coordinator of Transfer Admissions at UVM to review future options. Recipients of a CCV associate degree prior to 1999 may contact the UVM Admissions office for general transfer information.

For a current list of transferable CCV courses and UVM equivalents, students should review the Transfer Guide on the Office of the Registrar (<http://www.uvm.edu/~rgweb/>) website. Additional questions can be directed to a CCV advisor or to UVM Office of Transfer Affairs (<http://catalogue.uvm.edu/undergraduate/admissioninfo/articulationagreements/Candidates%20whose%20GPAs%20fall%20below%20the%20minimum%20will%20be%20reviewed%20by%20UVM%20on%20a%20case-by-case%20basis.%20Those%20denied%20admission%20are%20encouraged%20to%20connect%20with%20the%20Coordinator%20of%20Transfer%20Admissions%20at%20UVM%20to%20review%20future%20options.%20For%20a%20current%20list%20of%20transferable%20CCV%20courses%20and%20UVM%20equivalents,%20students%20should%20review%20the%20Transfer%20Guide%20on%20the%20Office%20of%20the%20Registrar%20website.%20Additional%20questions%20can%20be%20directed%20to%20a%20CCV%20advisor%20or%20to%20UVM%20Office%20of%20Transfer%20Affairs%20at%20transfer@uvm.edu.%20Recipients%20of%20a%20CCV%20associate%20degree%20prior%20to%201999%20may>

[http://www.uvm.edu/admissions/undergraduate/transfer\\_applicants/](http://www.uvm.edu/admissions/undergraduate/transfer_applicants/)) website. CCV Pathway candidates are encouraged to contact with the Coordinator of Transfer Admissions in the UVM Admissions office with questions about the admissions process under the CCV to UVM articulation agreement. Candidates are required to submit their Application ([http://www.uvm.edu/admissions/undergraduate/transfer\\_applicants/](http://www.uvm.edu/admissions/undergraduate/transfer_applicants/)), all supporting credentials and all financial aid forms by the stated UVM deadlines.

CCV graduates interested in UVM programs outside of those referenced in the catalogue are encouraged to contact the UVM Coordinator of Transfer Admissions to discuss their academic history and potential for transfer admission.

### COMMUNITY COLLEGE OF VERMONT (CCV) TO RUBENSTEIN SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES GUARANTEED ADMISSION PATHWAY

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

- Students must complete a minimum of sixty transferable academic credits, at least thirty of those taken at CCV.
- Students must present a CCV grade-point average of 2.80 (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.

### Application Process

Current or prospective CCV students interested in this guaranteed admission Pathway should review the minimum entrance requirements, as listed on the Transfer Admissions ([http://www.uvm.edu/admissions/undergraduate/transfer\\_applicants/](http://www.uvm.edu/admissions/undergraduate/transfer_applicants/)) website. CCV Pathway candidates are encouraged to contact with the Coordinator of Transfer Admissions in the UVM Admissions office with questions about the admissions process under the CCV to UVM articulation agreement. Candidates are required to submit their Application ([http://www.uvm.edu/admissions/undergraduate/transfer\\_applicants/](http://www.uvm.edu/admissions/undergraduate/transfer_applicants/)), all supporting credentials and all financial aid forms by the stated UVM deadlines.

Candidates whose GPAs fall below the minimum will be reviewed by UVM on a case-by-case basis. Those denied admission are encouraged to connect with the Coordinator of Transfer Admissions at UVM to review future options. Recipients of a CCV associate degree prior to 1999 may contact the UVM Admissions office for general transfer information.

For a current list of transferable CCV courses and UVM equivalents, students should review the Transfer Guide on the Office of the Registrar (<http://www.uvm.edu/~rgweb/>) website. Additional

questions can be directed to a CCV advisor or to UVM Office of Transfer Affairs (<http://catalogue.uvm.edu/undergraduate/admissioninfo/articulationagreements/Candidates%20whose%20GPAs%20fall%20below%20the%20minimum%20will%20be%20reviewed%20by%20UVM%20on%20a%20case-by-case%20basis.%20Those%20denied%20admission%20are%20encouraged%20to%20connect%20with%20the%20Coordinator%20of%20Transfer%20Admissions%20at%20UVM%20to%20review%20future%20options.%20For%20a%20current%20list%20of%20transferable%20CCV%20courses%20and%20UVM%20equivalents,%20students%20should%20review%20the%20Transfer%20Guide%20on%20the%20Office%20of%20the%20Registrar%20website.%20Additional%20questions%20can%20be%20directed%20to%20a%20CCV%20advisor%20or%20to%20UVM%20Office%20of%20Transfer%20Affairs%20at%20transfer@uvm.edu.%20Recipients%20of%20a%20CCV%20associate%20degree%20prior%20to%201999%20may%20contact%20the%20UVM%20Admissions%20office%20for%20general%20transfer%20information.%20CCV%20graduates%20interested%20in%20UVM%20programs%20outside%20of%20those%20referenced%20in%20the%20catalogue%20are%20encouraged%20to%20contact%20the%20UVM%20Coordinator%20of%20Transfer%20Admissions%20to%20discuss%20their%20academic%20history%20and%20potential%20for%20transfer%20admission/>).

CCV graduates interested in UVM programs outside of those referenced in the catalogue are encouraged to contact the UVM Coordinator of Transfer Admissions to discuss their academic history and potential for transfer admission.

### SAINT MICHAEL'S COLLEGE (SMC)/UVM ENGINEERING 3+2

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 as specified in the agreement.

### VERMONT TECHNICAL COLLEGE (VTC)/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. 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.

For more information, please contact UVM's College of Engineering and Mathematical Sciences Student Services office at (802) 656-3392 or by e-mailing [cems.student.services@uvm.edu](mailto:cems.student.services@uvm.edu).

## UVM-VERMONT LAW SCHOOL (VLS) 3+2 PROGRAM

The UVM-VLS 3+2 Program provides high-achieving students with an opportunity to achieve a Bachelor's degree (BA or BS) and a Juris Doctor (JD) degree in a total of five years. The program is available to undergraduate students enrolled in selected academic majors at the University of Vermont.

Students complete three years of undergraduate study at UVM, then matriculate at Vermont Law School where they complete two years of approved coursework for the JD degree from VLS and are enrolled as full-time students.

Admission to the program occurs at the end of a student's first year at UVM. Interested students should connect with the College Program Coordinator of the major they plan to pursue early in their first year to clarify the academic requirements and timeline.

Students must be enrolled as full-time students during the duration of their course of study at UVM. As students will complete their major requirements in a compressed timeframe, it is vital that students are planning how to complete all of the requirements from the beginning of their first year at UVM. Students should review the academic plan for their major and connect with the appropriate 3+2 major advisor, listed below.

- Students enrolled in the UVM-VLS 3+2 Program will be admitted to VLS and matriculate as full-time students for two years.
- Credits from the first year at VLS are transferred back to UVM to allow completion of the undergraduate degree from UVM.
- Students who meet all requirements of the UVM-VLS 3+2 Program will be awarded the appropriate Bachelor's degree from UVM and a JD degree from VLS.

- Students who enroll in this program but choose not to complete the law degree after the first year of enrollment at VLS will have their credits transferred back to UVM for the completion of the Bachelor's degree.

## Requirements

Students apply to the 3+2 Program at the conclusion of their first year of study at UVM. Eligible students must have completed a minimum of 30 credit hours in two semesters of full-time study with a minimum GPA of 3.4. Eligible students must be enrolled in a major that has been approved by UVM for inclusion in this program and be on track to complete all requirements in their major's 3+2 academic plan.

Eligible candidates for the Program must be U.S. citizens or permanent residents. The number of students selected will be determined each year based on availability. Students must maintain their GPA at UVM to continue in the program

## Approved programs

### College of Agriculture and Life Sciences

- Community Entrepreneurship ([https://www.uvm.edu/cals/cdae/community\\_entrepreneurship/](https://www.uvm.edu/cals/cdae/community_entrepreneurship/))
- Community and International Development ([https://www.uvm.edu/cals/cdae/community\\_and\\_international\\_development/](https://www.uvm.edu/cals/cdae/community_and_international_development/))
- Public Communication ([https://www.uvm.edu/cals/cdae/public\\_communication/](https://www.uvm.edu/cals/cdae/public_communication/))

### College of Arts and Sciences

- Economics (<https://www.uvm.edu/cas/economics/>)
- History (<http://www.uvm.edu/cas/history/>)
- Political Science (<https://www.uvm.edu/cas/polisci/>)

### Rubenstein School of Environment and Natural Resources

- Natural Resources ([https://www.uvm.edu/rsenr/natural\\_resources/](https://www.uvm.edu/rsenr/natural_resources/))
- Environmental Studies ([https://www.uvm.edu/rsenr/environmental\\_studies/](https://www.uvm.edu/rsenr/environmental_studies/))

## Application Process

Students should submit the application by mid-April at the end of their first year. The application process includes:

- Application form (download here) ([https://www.uvm.edu/sites/default/files/Undergraduate-Admissions/UVM\\_VLS\\_32\\_Application\\_2018.pdf](https://www.uvm.edu/sites/default/files/Undergraduate-Admissions/UVM_VLS_32_Application_2018.pdf))
- Essay
- Minimum one letter of recommendation from a full-time faculty member

Applications are submitted to the UVM-VLS 3+2 coordinators in each College/School.

### Admission to Vermont Law School

To gain admission to VLS, students must sit for the LSAT no later than October of their third year of study at UVM and must present a



score that is equal to or greater than 155 and a UVM cumulative GPA of 3.5. If a student's LSAT score falls below this standard, the student may seek permission from VLS to retake the test.

Students must complete all necessary LSAC requirements and VLS admission paperwork no later than January 31 of their third year of undergraduate study. All VLS application fees are waived for students in this program.

Students must have completed the minimum requirements as set forth by the academic unit approving the applicable UVM degree program for this 3+2 Program before matriculation at VLS. VLS reserves the right to deny admission to any students who have been subject to academic and/or disciplinary action.

For more information about this program, review the contact information on the UVM VLS 3+2 website ([https://www.uvm.edu/admissions/undergraduate/university\\_vermont\\_vermont\\_law\\_school\\_32\\_program/](https://www.uvm.edu/admissions/undergraduate/university_vermont_vermont_law_school_32_program/)).

## VERMONT TECHNICAL COLLEGE (VTC)/ 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 admission, 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.

## CASTLETON STATE UNIVERSITY, VERMONT TECHNICAL COLLEGE, AND GREENFIELD COMMUNITY COLLEGE/UVM NURSING

UVM's Department of Nursing has articulation agreements with associate degree nursing programs at Castleton State University, Vermont Technical College, and Greenfield Community College. The agreements guarantee students who meet specific admission criteria entrance 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.

## 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 equivalent). Submission of standardized test scores such as the SAT or the ACT is not required 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 is reviewed in conjunction with the college record. 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 2.8 on a four-point scale. Generally, a 3.0 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.

### GROSSMAN SCHOOL OF BUSINESS

The Grossman School of Business (GSB) requires transfer candidates to have completed at least one semester of college-level calculus and one semester of college-level economics (microeconomics or macroeconomics is preferred) with at least a cumulative transfer



GPA of 2.75 or higher. AP and CLEP credits are acceptable. Transfer candidates who do not meet these requirements may be considered for their second major choice outside of the Grossman School of Business and are encouraged to work with a GSB advisor to internally transfer once the pre-requisite requirements are satisfied.

Upper-level business transfer credits must come from an AACSB-accredited institution to be considered for equivalent transfer credit.

### **College of engineering and mathematical sciences**

The College of Engineering and Mathematical Sciences (CEMS) requires transfer candidates to have completed additional coursework. Engineering majors require at least one semester of college-level calculus and one lab-science course. Mathematics, Computer Science, and Data Science majors require at least one semester of college-level calculus and prefer one computer science or lab-science course.

AP and CLEP credits are acceptable. Transfer candidates who do not meet these requirements may be considered for their second major choice outside of the College of Engineering and Mathematical Sciences and are encouraged to work with a CEMS advisor to internally transfer once the pre-requisite requirements are satisfied.

### **Honors College**

Transfer students who have completed a minimum of two semesters of full time undergraduate study and have a minimum grade point average of 3.4 from their former institution are eligible to apply for admission to UVM's selective Honors College on a space-available basis.

Transfer students interested in becoming members of the Honors College must apply both to the University of Vermont and to the UVM Honors College (the Honors College invitation process for transfer students is separate from the UVM admission process). 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.

The Honors College has two priority application deadlines for transfer students:

- December 23 for spring semester admission
- May 31 for fall semester admission

Students interested in applying for transfer admission to the Honors College must ensure that the application materials have been sent to [honors.college@uvm.edu](mailto:honors.college@uvm.edu) by 4 p.m. the day of the deadline (application information is on the Honors College website). Assuming admission to UVM and a cumulative GPA of at least 3.4 from the student's previous institution, an admissions decision to the Honors College will be rendered upon receipt of those materials.

### **Transfer Credit Policy**

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. Questions regarding credit transfer should be directed to the Office of Transfer Affairs, 339 Waterman, (802) 656-0867 or email: [transfer@uvm.edu](mailto:transfer@uvm.edu).

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 (or their designate) 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. There are limits on the number of credits transferred that may be applied to the degree program and the major selected. In general, 30 of the last 45 credits earned for the UVM degree must be taken at the university.

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.

Credits for college-level courses taken while in high school can sometimes be transferred to UVM. See the section 'College Credit for High School Classes' under General Undergraduate Admissions.

## **DIVERSITY REQUIREMENT AND TRANSFER CREDIT**

To be considered for diversity credit, a course must carry at least three credits (or the equivalent). Students should submit their materials directly to the General Education committees indicated on the Ged Ed website: <https://www.uvm.edu/generaleducation> (<https://www.uvm.edu/generaleducation/>)

## **INTERNATIONAL STUDENT ADMISSIONS**

The University of Vermont welcomes applications from international students.

### **APPLICATION REQUIREMENTS**

#### **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. All arrangements for translation must be made directly with the translation option of the applicant's choice.

#### **Standardized Tests**

International students are not required to submit SAT or ACT scores. Students wishing to qualify for the Honors College will be required to submit an official SAT or ACT score.

## English Proficiency

International students for whom English is not their first language must demonstrate English proficiency. The University of Vermont offers multiple ways to meet English proficiency including a minimum iBT TOEFL score of 80 or a minimum IELTS score of 6.5, additional options for meeting English proficiency can be found on the International Admissions website ([https://www.uvm.edu/admissions/undergraduate/apply/international\\_applicants/](https://www.uvm.edu/admissions/undergraduate/apply/international_applicants/)). If an international student has attended a U.S. institution for three or more years, or attends a school with instruction in English for three or more years, or, in rare circumstances, if a combination of evidence exists which otherwise demonstrates a student's English language proficiency, the Office of Admissions has the discretion to and may waive the requirement for an English proficiency test on a case-by-case basis.

Students whose English scores are between iBT TOEFL score of 80-89 will be required to take additional English for Speakers of Other Languages (ESOL) courses.

## Financial Support for International Students

The university offers merit-based scholarships to international students each year; no additional application is required. Students attending on non-immigrant student visas are charged out-of-state tuition rates. 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: [www.uvm.edu/oie](http://www.uvm.edu/oie).

## 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. 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](mailto:transfer@uvm.edu).

## UVM GLOBAL GATEWAY PROGRAM

Admission to the UVM Global Gateway Program is competitive. Eligible students should have the equivalent of a minimum secondary school grade point average of 2.75 on a U.S. 4.0 scale (or country/regional equivalent). UVM Global Gateway applicants must meet the minimum entrance requirements for the UVM academic college or school they choose. Placement into an appropriate term-length for the Global Gateway Program will depend on the English proficiency language test provided during the application process. The University of Vermont offers multiple ways to meet English Proficiency, all options with corresponding term-length placement can be found on the International Admissions website ([https://www.uvm.edu/admissions/undergraduate/apply/international\\_applicants/](https://www.uvm.edu/admissions/undergraduate/apply/international_applicants/)).

Eligible students are offered admission to the University of Vermont undergraduate degree program and progress to degree status by successful completion of the UVM Global Gateway Program with a cumulative grade point average in the GGP of 2.5, and a B- or higher average in English Language study for the final GGP semester, or a cumulative grade point average in the GGP of 2.8, and a B- or higher average in English Language study for the final GGP semester to progress into the Grossman School of Business. Students enrolled in the three-term program must successfully complete the first term of the UVM Global Gateway Program with a grade point average of 2.5 to progress to the second term.

The application for the UVM Global Gateway Program can be found at <http://globalgateway.uvm.edu> (<http://globalgateway.uvm.edu/>). For more information, contact the UVM Global Gateway Program Office at [naadmissions@studygroup.com](mailto:naadmissions@studygroup.com).

## 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) or passing HiSET exam 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&/#38;bannerId=clep>) website.

Nontraditional applicants who completed college-level courses during high school should refer to the College Credit for High School Classes (p. 452) section of this catalogue.

## REAPPLYING TO THE UNIVERSITY AS AN UNDERGRADUATE

Transfer applicants denied admission for a given semester may reapply for a subsequent semester, and should present new information that demonstrates an improved academic record. Students 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. Students who wish to defer admission for more than two semesters from the term of the original application will be asked to reapply for admission. 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.

## RE-ENTRY TO UVM

Students who were previously enrolled as undergraduates working toward a degree and who wish to return to the University of Vermont following a voluntary leave (including a medical leave) should submit the online Re-entry Application available on the Admissions website. The Admissions Office does not readmit former degree-seeking students. Re-entry applications are reviewed by the Assistant Coordinator of Undergraduate Retention and Re-enrollment.

If a student wishes to apply for re-entry following an academic dismissal or forced leave, they should contact the Student Services team for their major college/school (i.e. Arts and Sciences, Grossman School of Business, etc.).

If a student wishes to return to the University after a conduct suspension, a student should contact the Dean of Students' office to schedule a meeting with the Assistant Dean of Students. The Assistant Dean can be reached by calling (802) 656-3380.

A student wishing to enroll as an undergraduate who has never been admitted as a degree-seeking student should visit the Admissions website for more information.

## FINANCIAL INFORMATION

### TUITION AND FEES

The student expenses outlined in the following paragraphs are anticipated charges for the 2020-2021 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 2020 board meeting please visit the Student Financial Services costs of attending ([https://www.uvm.edu/studentfinancialservices/costs\\_attending/](https://www.uvm.edu/studentfinancialservices/costs_attending/)) page.

#### Acceptance Fee

To reserve a space in the class or semester, admitted students must submit an acceptance fee of \$495 using the application status page (<https://admissions.uvm.edu/account/login/>) online (preferred payment method), or send a check, made payable to the University of Vermont, to the Office of Admissions. See more information about paying your acceptance fee at UVM (<https://www.uvm.edu/admissions/undergraduate/paying-your-acceptance-fee-uvm/>). Payment of the acceptance fee is required prior to the start of the semester of enrollment.

#### Estimated Yearly Expenses

Estimated costs are subject to change until approved by the Board of Trustees in May 2020.

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.

	Resident	Nonresident
Tuition	\$16,392	\$41,280
Average Housing and Meals	\$13,324	\$13,324
Comprehensive Student Fee	\$2,670	\$2,670
Inter-Residence Association Fee	\$30	\$30
Textbooks and Supplies (Estimated)	\$1,200	\$1,200
Optional Student Health Insurance Plan (academic year 2017-18 cost)	\$2,694 <sup>1</sup>	\$2,694 <sup>1</sup>

<sup>1</sup> This reflects the UVM Student Health Insurance Plan for the 2019-2020 school year. Learn more about 2020-2021 premium information (<https://www.uvm.edu/health/health-insurance-information/>) through the Center for Health & Wellbeing.

## Tuition

Estimated costs are subject to change until approved by the Board of Trustees in May 2020.

### IN-STATE STUDENTS:

\$683 per credit through 11.5 credits. From twelve-nineteen credits — \$8,196 per semester plus \$683 per credit for each credit in excess of nineteen credits.

### OUT-OF-STATE STUDENTS:

\$1,720 per credit through 11.5 credits. From twelve-nineteen credits — \$20,640 per semester plus \$1,720 per credit for each credit in excess of nineteen credits.

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

## Housing Charges

### HOUSING AND MEALS:

All housing agreements include both housing and meals 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.

Find more information on costs and fees related to housing and meal plans ([https://www.uvm.edu/reslife/costs\\_and\\_fees/](https://www.uvm.edu/reslife/costs_and_fees/)) or information on meal plan options ([https://www.uvm.edu/reslife/living\\_campus/dining\\_services/](https://www.uvm.edu/reslife/living_campus/dining_services/)) through ResLife.

## Comprehensive Student Fee

This mandatory fee is used to support facilities and services available to students. More information about the mandatory comprehensive fee ([https://www.uvm.edu/studentfinancialservices/undergraduate\\_tuition\\_and\\_fees/](https://www.uvm.edu/studentfinancialservices/undergraduate_tuition_and_fees/)) can be found on Student Financial Services Undergraduate Tuition and Fees page.

## Student Health Insurance

Students enrolled in 9 or more credits are required to have health insurance. These students must purchase the UVM Student Health Insurance Plan (UVM SHIP) (<https://www.uvm.edu/health/health-insurance-information/>) or provide verification of comparable other coverage.

## Inter-Residence Association Fee

A per semester fee is charged to each resident to be used for activities within the residence hall system. More specific information on the inter-residence association fee ([https://www.uvm.edu/reslife/costs\\_and\\_fees/](https://www.uvm.edu/reslife/costs_and_fees/)) can be found through ResLife.

## Student Government Association Fee

Undergraduate degree students enrolled in 4 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 12 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 Undergraduate Tuition and Fees ([https://www.uvm.edu/studentfinancialservices/undergraduate\\_tuition\\_and\\_fees/](https://www.uvm.edu/studentfinancialservices/undergraduate_tuition_and_fees/)) page on the Student Financial Services website.

## 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

### COURSE SPECIFIC FEES

Certain courses will have course specific fees associated with them that 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.

## 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.

## DEPARTMENT OF NURSING

A fee of approximately \$20 annually (estimated) will be charged to each student for membership in the National Student Nurse Association and a fee of approximately \$40 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 \$325. These fees are included with the usual tuition bills.



## 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. Review detailed fees associated with music lessons on the Lessons (<https://www.uvm.edu/cas/music/lessons/>) page through the Department of Music website.

## 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 (<http://catalogue.uvm.edu/search/?P=FOR%20122/>) and Wildlife Biology majors must take WFB 131 (<http://catalogue.uvm.edu/search/?P=WFB%20131/>) and WFB 150 (<http://catalogue.uvm.edu/search/?P=WFB%20150/>).

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.

## GROSSMAN SCHOOL OF BUSINESS

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. All Grossman School of Business graduate students, and undergraduate major and minors (except those studying abroad), will be charged a software licensing fee ([https://www.uvm.edu/business/microsoft\\_campus\\_agreement/](https://www.uvm.edu/business/microsoft_campus_agreement/)) of \$75 per semester which covers software upgrades and support.

## 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. Learn more about the Study Abroad Fee (<https://www.uvm.edu/oie/finances/>) on the Office of International Education website.

## TK20 ASSESSMENT SYSTEM FEE

Students in selected programs within The College of Education and Social Services are assessed a one-time fee of \$110.00 to participate in Tk20 (<https://www.uvm.edu/cess/tk20/>). Tk20 is an electronic system that allows students to develop and submit key assignments, track field placements, build portfolios for licensure, and access content after graduation. Tk20 accounts are accessible for 7 years after the purchase date.

## PART-TIME STUDENT FEES

Estimated costs are subject to change until approved by the Board of Trustees in May 2020.

Students enrolled in 1 to 4 credits in a semester will be charged \$10 per credit to offset costs associated with registration. Visit the Undergraduate Tuition and Fees ([https://www.uvm.edu/studentfinancialservices/undergraduate\\_tuition\\_and\\_fees/](https://www.uvm.edu/studentfinancialservices/undergraduate_tuition_and_fees/)) page on the Student Financial Services website for more information on part-time student fees.

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:

Credits Enrolled/Semester: 5	Fee: \$549
Credits Enrolled/Semester: 6	Fee: \$612
Credits Enrolled/Semester: 7	Fee: \$689
Credits Enrolled/Semester: 8	Fee: \$766
Credits Enrolled/Semester 9 to 11.5	Fee: \$839

## PAYMENTS

By registering for courses, students are entering into a financial arrangement with UVM and accept responsibility for charges billed to their UVM account. This legal responsibility of the student is regardless of whether a third party is assisting with payment of their UVM expense. The online registration system will generate charges based on enrolled credits. Students who enroll in advance for courses will receive notification at their university email address when itemized billing statements of applicable charges are ready to view online. The billing statement will include instructions to settle in full by a specific date. 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.

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, 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.

International student accounts may be placed with a collection agency if the University can identify a collection agency willing to pursue collections in the student's home country. Since international student visas require students to supply proof of ability to pay, if it is determined that they no longer have the ability to meet their financial obligations they may have their immigration records terminated and the student will be required to leave the United States.

Accounts with problematic history of payment may be required to pre-pay for the semester or year depending upon case by case assessment by the Director of Student Financial Services.

## BUDGETED PAYMENT

The university offers a monthly payment plan ([https://www.uvm.edu/studentfinancialservices/payment\\_billing\\_repayment/#monthly\\_payment\\_plan](https://www.uvm.edu/studentfinancialservices/payment_billing_repayment/#monthly_payment_plan)) to parents who desire to budget annual costs in monthly installments.

## LATE PAYMENT FEE

Students who have not satisfactorily completed financial arrangements by the announced due date will be assessed a late payment fee of \$250 and a hold preventing access to registration, grades, and transcripts. They are also subject to potential cancellation of their enrollment. Dis-enrollment 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. Learn more about reviewing and responding to your bill ([https://www.uvm.edu/studentfinancialservices/billing\\_and\\_payment\\_due\\_dates/](https://www.uvm.edu/studentfinancialservices/billing_and_payment_due_dates/)) to avoid a late payment fee.

## REFUND AND BILL ADJUSTMENT POLICIES

### ACCEPTANCE FEE

The acceptance fee (<https://www.uvm.edu/admissions/undergraduate/paying-your-acceptance-fee-uvm/>) is non-refundable fee.

### REFUNDING IN THE EVENT OF CANCELLATION, WITHDRAWAL, CREDIT LOAD CHANGES, DEATH

For information about refunds and bill adjustments due to cancellation, withdrawal, changes in credit load, or death of a student, please refer to the university's Refund and Bill Adjustment Policy (PDF) (<https://www.uvm.edu/sites/default/files/UVM-Policies/policies/billadjust.pdf>).

## 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. Learn more about scholarships available (<https://www.uvm.edu/studentfinancialservices/scholarships/>) to students.

## FINANCIAL AID

### 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 an eligible non-citizen. To be considered for aid, a student must also be enrolled at least half-time (6 credits) in a degree program. Audited credits or Credits by Exam cannot be considered as part of the credits in determining financial aid eligibility. Courses taken which are not part of a student's degree requirements may not be eligible for financial aid. Students enrolling as non-degree (through Continuing Education) may be eligible for limited financial aid. Visit the Student Financial Services (<http://www.uvm.edu/studentfinancialservices/>) website for more information.

## FINANCIAL AID APPLICATION PROCEDURES

### FAFSA and VSAC

Incoming first-year and returning UVM students who wish to apply for aid may do so by submitting the Free Application for Federal Student Aid (FAFSA) (<https://fafsa.gov>) after October 1st and before February 1st. Students must also provide any verification information requested by UVM Student Financial Services. Incoming transfer students should submit their FAFSA online between October 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 residents should apply for a Vermont grant (<https://www.vsac.org/pay/student-aid-options/grants/>) through Vermont Student Assistance Corporation (VSAC) website as soon as possible, as funds are limited. Residents of other states should contact their state grant agency (<https://ed.gov/sgt/>) for more information.

### FINANCIAL AID PACKAGE PROVIDED BY THE UNIVERSITY

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 Federal Direct Unsubsidized 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 a Federal Direct Unsubsidized 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.

Awards are based on current information available regarding federal, state and institutional budgets and programs. Any changes to federal, state or University budgets, may result in changes to awards.

## **SATISFACTORY ACADEMIC PROGRESS STANDARD FOR FINANCIAL AID RECIPIENTS**

Federal financial aid regulations require that financial aid recipients maintain satisfactory academic progress in order to remain eligible for financial aid. The UVM Satisfactory Academic Progress (SAP) policy for financial aid recipients is found in the Student Financial Services handbook ([https://www.uvm.edu/studentfinancialservices/types\\_aid\\_and\\_how\\_apply/handbook\\_and\\_consumer\\_information\\_current/#SAP\\_UG](https://www.uvm.edu/studentfinancialservices/types_aid_and_how_apply/handbook_and_consumer_information_current/#SAP_UG)) and can also be obtained by contacting UVM Student Financial Services. All students should review the complete SAP policy to understand the requirements to remain eligible for aid.

## **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 Student Veteran Services 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.

Student veterans may also be eligible for Federal Financial Aid. Visit Student Financial Services Veteran Information page ([http://www.uvm.edu/studentfinancialservices/veteran\\_information/](http://www.uvm.edu/studentfinancialservices/veteran_information/)) for aid opportunities for veteran's.

Student veterans may also go directly to the FAFSA (<https://fafsa.gov>) to apply. Students involved in the Veterans program should contact [Veterans@uvm.edu](mailto:Veterans@uvm.edu) in the event of any change in credit load, dependency status, address, or major.

## **SCHOLARSHIPS**

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 (<https://www.uvm.edu/studentfinancialservices/scholarships/>) are offered exclusively on the basis of academic achievements and potential for success at UVM. Samples of scholarships available to new students include:

### **Dean's Merit Scholarship**

Students who apply as external transfer students will be automatically considered for the Dean's Merit Scholarship. Recipients typically have completed 21 college credits and earned at least a 3.10 cumulative grade-point average in all prior college work. For students who earned less than 21 college credits, both the college and high school records are reviewed to determine eligibility. Dean's Merit Scholars receive a merit scholarship for 4 years (8 semesters) or until graduation (whichever comes first) providing that they maintain a

minimum cumulative 3.0 grade-point average, full-time enrollment, and continue to make satisfactory academic progress toward the completion of their degree requirements. Award amounts are \$5,000/year for Vermont residents, and \$7,000 - \$10,000/year for out-of-state residents.

### **Green and Gold Scholars Award**

Recognizes the highest-achieving Vermont resident at each eligible high school with 4-year, full in-state tuition scholarship, currently valued at over \$65,000. At the end of the academic year, the principal of each eligible school submits a nominee who has completed the 11<sup>th</sup> grade. Selection criteria will be determined by each eligible high school. A minimum cumulative 3.0 grade-point average and enrollment in 12 or more credits per semester is required for renewal.

### **International Scholarships**

Several scholarships are available for qualified international students ([https://www.uvm.edu/studentfinancialservices/scholarships\\_prospective\\_out\\_of\\_state\\_resident\\_students/](https://www.uvm.edu/studentfinancialservices/scholarships_prospective_out_of_state_resident_students/)) who are admitted to the University of Vermont, including UVM Global Gateway (GGP) students (<http://globalgateway.uvm.edu/university-admission/fees/>). Applicants for admission are automatically considered for these scholarships based on their application materials. Eligibility for the scholarships is based on academic merit.

### **Justin Morrill Scholarship**

This scholarship is designated for Vermont residents who demonstrate strong academic performance. Recipients are selected based upon review of the admission application and are awarded a merit-based scholarship of \$2,000 annually for 4 years (8 semesters) or until graduation (whichever comes first). A minimum cumulative 3.0 grade-point average and enrollment in 12 or more credits per semester is required for renewal.

### **Patrick Family Scholarship**

The scholarship is designated for Vermont residents who demonstrate outstanding academic performance. Recipients are selected based upon review of the admission application and are awarded a merit-based scholarship of \$5,000 annually for 4 years (8 semesters) or until graduation (whichever comes first). A minimum cumulative 3.0 grade-point average and enrollment in 12 or more credits per semester is required for renewal.

### **Presidential Scholarship**

Out-of-state students who demonstrate the highest academic performance are eligible for consideration for the UVM Presidential Scholarship. Recipients are selected based on the application for admission. Presidential Scholars receive a merit scholarship for 4 years (8 semesters) or until graduation (whichever comes first), providing they maintain a minimum cumulative 3.0 grade-point average and enrollment in 12 or more credits per semester. Scholarship values range from \$17,000-\$20,000 annually.

### **Trustees Scholarship**

Out-of-state students who demonstrate outstanding academic performance are eligible for consideration for the UVM Trustees

Scholarship. Recipients are selected based on the application for admission. Trustees Scholars receive a merit scholarship for 4 years (8 semesters) or until graduation (whichever comes first), providing they maintain a minimum cumulative 3.0 grade-point average and enrollment in 12 or more credits per semester. Scholarship values range from \$8,000-\$15,000 annually.

### Vermont Scholars Award

This scholarship is designated for Vermont residents of the highest academic performance. Recipients are selected based upon review of the admission application and are awarded a merit-based scholarship of \$7,000 annually for 4 years (8 semesters) or until graduation (whichever comes first). A minimum cumulative 3.0 grade-point average and enrollment in 12 or more credits per semester is required for renewal.

## HOW TO APPLY FOR UVM SCHOLARSHIPS

There is no separate application process for most UVM-based scholarships. First-year and transfer applicants are considered for most UVM scholarships simply by submitting the UVM admissions application. The wealth of information provided in the admissions application is used in matching students with available scholarships. Additionally, students must file the Free Application for Federal Student Aid (FAFSA) in order to be considered for need-based scholarships. For more information, including details on scholarships that do require separate applications, visit the Scholarship Information (<http://www.uvm.edu/studentfinancialservices/scholarships/>) website.

## 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 the VSAC (<http://vsac.org/pay/student-aid-options/scholarships/>) website.
- 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 the GoArmy (<http://www.goarmy.com/rotc.html>) website.
- 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 the U.S. Air Force ROTC (<http://www.afrotc.com/scholarships/>) website.
- Veterans are encouraged to consult with UVM Student Veteran Services (<https://www.uvm.edu/veterans/>) and to visit the Student Financial Services website ([http://www.uvm.edu/studentfinancialservices/veteran\\_information/](http://www.uvm.edu/studentfinancialservices/veteran_information/)) for information regarding G.I. Bill benefits for education, including the Yellow Ribbon Program.
- There are many organizations that offer scholarship opportunities for deserving students. Check with local schools and community organizations for their offerings, and review information listed on the Student Financial Services website for outside scholarship

opportunities ([https://www.uvm.edu/studentfinancialservices/scholarship\\_resources\\_outside\\_uvm/](https://www.uvm.edu/studentfinancialservices/scholarship_resources_outside_uvm/)).

## UNIQUE LEARNING OPPORTUNITIES

In addition to the areas of study detailed in the catalogue, a number of unique curricular and co-curricular opportunities are available to UVM students.

Accelerated Master's Degree Programs (p. 464)

Continuing and Distance Education (p. 465)

Exchange Programs with New England State Universities (p. 465)

Military Studies (p. 466)

Pre-Professional Options for Undergraduate Students (p. 466)

Research Opportunities for Undergraduate Students (p. 466)

Residential Learning Communities (p. 467)

Study Abroad (p. 467)

## ACCELERATED MASTER'S DEGREE PROGRAMS

A number of departments and programs provide opportunities for selected undergraduates to participate in Accelerated Master's Programs (AMPs). The AMP allows early admission to graduate studies with up to six concurrent credits double-counted toward the bachelor's and master's degrees. Consult the Graduate College catalogue or appropriate Dean's Office for information about these or other accelerated degree programs. This option is available for admission to the following graduate programs:

- Accountancy
- Animal Biosciences
- Biochemistry
- Biology
- Biomedical Engineering
- Biostatistics
- Chemistry
- Civil Engineering
- Complex Systems and Data Science
- Computer Science
- Counseling
- Curriculum and Instruction
- Educational Leadership
- Electrical Engineering
- Engineering Management
- English
- Environmental Engineering
- Food Systems
- Greek and Latin
- Historic Preservation



- History
- Materials Science
- Mathematics
- Mechanical Engineering
- Medical Laboratory Science
- Microbiology and Molecular Genetics
- Middle Level Education
- Natural Resources
- Nursing
- Nutrition and Food Sciences
- Pharmacology
- Physics
- Psychology
- Public Administration
- Public Health
- Secondary Education
- Special Education
- Statistics

## CONTINUING AND DISTANCE EDUCATION

Continuing and Distance Education (CDE) 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 and online, CDE 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. CDE's innovative courses, programs, certificates, and professional education opportunities attract more than 8,000 individuals annually from Vermont and beyond.

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

## STUDENT SERVICES

Student services are available to individuals enrolled in Continuing and Distance 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. CDE representatives are available to help anyone register for any CDE learning opportunity. Serving as the dean's office for non-degree students, Continuing and Distance 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 the CDE office to learn how to maximize their educational experience. Please call (802) 656-2085 or (800) 639-3210 to speak with a student services staff member.

## ACADEMIC YEAR AND SUMMER SESSION

During the academic year courses are offered at varying times to provide greater access for the almost 3,000 non-degree students who enroll annually at the University of Vermont. CDE 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 which require more preparation. The summer session can also be an opportunity for undergraduates to take a course that is in high demand during the academic year or gain real world experience in an internship. 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.

## 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.

## 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 at the rank of 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 participate in numerous military training opportunities including Mountain Warfare School; Airborne School; Air Assault School; and the Cultural Understanding and Language Program (with numerous worldwide countries).

#### Department Course Offerings

The four-year Military Studies program at UVM consists of a two-year Basic Course (first & second years) and a two-year Advanced Course (third & fourth years). A fully funded 30-day Basic Camp conducted at Fort Knox, Kentucky is offered as an alternative to the first two years of study, and meets all prerequisites for students wishing to start ROTC at the end of their sophomore year. The department conducts military physical training classes three days a week with all cadets as a faculty-run, cadet-led activity.

#### Interdepartmental Course Offerings

The Military Studies department also offers a one-credit fitness course on behalf of the UVM Department of Physical Education.

PEAC 017 Military Fitness exposes students to the fitness methodologies implemented by the U.S. Army. Students do not need to participate in ROTC to take this course. The PEAC course incurs no military obligation.

### ARMY ROTC SCHOLARSHIPS AND FINANCIAL AID

Scholarships: Two, three, and four-year Army ROTC scholarships paying full tuition and 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

to the Army via: <http://www.goarmy.com/rotc/scholarships.html>. 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. All contracted cadets receive a monthly ROTC stipend. The stipend is \$420 per month.

The Department of Military Studies is located at Adams House, 601 Main Street, (802) 656-2966. Website: <http://www.uvm.edu/~goldbar/>.

## AIR FORCE ROTC AT NORWICH UNIVERSITY

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:

Norwich University  
Air Force ROTC Detachment 867  
158 Harmon Drive  
Northfield, Vermont 05663

Call 1-800-468-6679 (press '1' for admissions, then ask for the Air Force ROTC department).

## PRE-PROFESSIONAL OPTIONS FOR UNDERGRADUATE STUDENTS

Pre-Med, Pre-Dental and other Pre-Health students of all majors are supported by the Career Center's Health Professions Interest Group. Students are strongly encouraged to engage with the group, and with the Health Professions Advisor, throughout their college career. UVM's Pre-Medical Advisory Committee currently offers a Committee Letter for eligible students applying to medical/dental schools. For more information visit the Career Center's (<http://www.uvm.edu/career/>) website and join the pre-health listserv.

Pre-Law preparation is available to students of any major and is coordinated through the Career Center's Pre-Law advisors and several faculty members. For more information visit the Pre-Law section of the Career Center's (<http://www.uvm.edu/career/>) website.

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

## RESEARCH OPPORTUNITIES FOR UNDERGRADUATE STUDENTS

Undergraduate students work one-on-one or in small teams on scholarly projects under the supervision of a faculty mentor. By pursuing undergraduate research or creative endeavors, students learn how disciplines advance and knowledge is acquired; they

begin to define and focus their academic and career interests; and they may receive academic credit. Students have an opportunity to present their research or creative work at the annual Student Research Conference held on campus every April.

The FOUR (Fellowships, Opportunities, and Undergraduate Research) staff helps students identify mentors and research projects in natural and social sciences, engineering and mathematics, humanities and fine arts, and the professions. The staff advises undergraduate students across the university, at every step of the way—from helping students understand research in their disciplines, providing research support, and funding both the research and the students to present their research. Additionally, as students are finishing their undergraduate education, FOUR can help them plan for the next steps - research or teaching abroad or funding a graduate education.

The office coordinates the Student Research Conference, Pre-medical Enhancement Program (PEP), Summer Undergraduate Research Fellowships (SURF), Leahy Scholars Program, Brennan Summer Scholars, Simon Family Foundation Awards, Mini and Travel Grants, as well as vetting applications for the Office of the Chief Medical Examiner Internship program.

To begin, visit or contact: Fellowships, Opportunities, and Undergraduate Research, 50 University Heights North, Suite 017; email [four@uvm.edu](mailto:four@uvm.edu); phone (802)656-5533; webpage: Fellowships, Opportunities, and Undergraduate Research (<https://www.uvm.edu/four/>).

## RESIDENTIAL LEARNING COMMUNITIES

Residential Learning Communities (RLCs) at the University of Vermont are designed to integrate students' residential and academic experiences by offering housing and courses built around a common theme. RLCs engage the whole student, tying together the intellectual, ethical, cultural, 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 community that is also tied to the greater world beyond 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.

Students in RLCs participate in a variety of activities that are designed to explore the theme of their community, including workshops, field trips, attending music and theatre performances, guest lectures, and participating in recreational and cultural activities. First-time students (and in some cases returning students) enroll in one-credit courses that supplement each community's learning goals.

More information about these dynamic communities can be found in the UVM Housing Experience section of the Residential Life website.

## STUDY ABROAD

The Office of International Education (OIE), located in B101 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 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 evaluation from UVM. All students who intend to study abroad are required to have their study abroad program officially approved by the Office of International Education prior to departure. Contact the OIE for deadlines. Official approval is required for students to confirm that their programs of study are eligible for appropriate financial aid, where applicable. There is a \$500 study abroad fee for semester and year-long programs and a \$250 fee for summer 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 have been enrolled in UVM classes as a degree-seeking student 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 as a full-time, matriculated student 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 approval by the academic dean's office associated with the student's area of study.
- Have not been academically dismissed, nor be on academic trial or probation.
- Have not ever been suspended, nor be on deferred suspension at the time of application.

More stringent conduct record eligibility requirements may be imposed by UVM short-term, semester or exchange programs as stated in their applications.

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 their academic dean's office and the Assistant Director of Study Abroad.

After initial UVM approval is granted, students must maintain good academic and behavioral standing until departing to study abroad for the UVM approval to become final.

For more information about study abroad, visit the Office of International Education (<https://www.uvm.edu/oie/studyabroad/>) website.



## ABOUT THE UNIVERSITY

### 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.

### 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: 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, *Universitās 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 12 percent of its general fund (and about 6 percent of its total budget) from the state of Vermont.

Some of UVM's 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 110 undergraduate majors, more than 50 master's programs and 24 doctoral degrees including a medical degree.

In the Fall of 2019, the university enrolled approximately 10,700 undergraduate students, 1,600 graduate students, and 480 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 Grossman School of Business; 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 90 institutions in the U.S., out of over 4,300, that combine a "high research" profile with a "high undergraduate" enrollment mix. UVM has also been recognized



as a Carnegie Community Engagement Institution. The university employs over 4,100 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.

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 Universitas Viridis Montis, University of the Green Mountains. The colors of the university are green and gold. The mascot is the catamount.

## 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.

## THE BOARD OF TRUSTEES

Phil Scott	Governor, ex officio
Suresh V. Garimella	President, ex officio

### Term Ending March 2021

David J. Gringeri	West Haven, Vermont
Bernard C. Juskiewicz	Barre, Vermont
Curt McCormack	Burlington, Vermont
Ed Pagano	Washington, D.C.
Tristan D. Toleno	Brattleboro, Vermont

### Term Ending March 2022

Briar L. Alpert	Charlotte, Vermont
David B. Aronoff	Newton, Massachusetts
Ron E. Lumbra	Rye, New York
Berke Tinaz	Shelburne, Vermont

### Term Ending March 2023

John L. Bartholomew	Hartland, Vermont
Frank J. Cioffi	South Burlington, Vermont
Johannah Leddy Donovan	Burlington, Vermont
Shapleigh Smith, Jr.	Morrisville, Vermont

### Term Ending March 2024

Robert P. Brennan, Jr.	Pleasantville, New York
Otto G. Berkes	Bedford Hills, New York
Jodi H. Goldstein	Weston, Massachusetts

### Term Ending March 2025

Carolyn K. Dwyer	Burlington, Vermont
Kevin Christie	White River Junction, Vermont
Carol B. Ode	Burlington, Vermont
Samuel R. Young	Greensboro, Vermont

### Term Ending March 2026

Cynthia L. Barnhart	Boston, Massachusetts
John M. Dineen	Chestnut Hill, Massachusetts
Donald H. McCree	Rye, New York

## ADMINISTRATION

Suresh V. Garimella, Ph.D.	President
Patricia Prelock, Ph.D.	Provost and Senior Vice President
Simeon Ananou, Ed.D.	Chief Information Officer
Richard Cate, M.P.A.	Vice President for Finance and Treasurer
Gary Derr, Ed.D.	Vice President for Executive Operations and Public Safety
Kirk Dombrowski, Ph.D.	Vice President for Research
Thomas J. Gustafson, Ed.D.	Vice President for University Relations and Administration
William Harrison, M.B.A.	Chief Internal Auditor
Wanda Heading-Grant, Ed.D.	Vice President for Human Resources, Diversity and Multicultural Affairs
Shane Jacobson, M.Ed.	President and CEO of the UVM Foundation
Vacant	Vice President for Enrollment Management

Sharon Reich Paulsen, J.D.	Vice President for Legal Affairs and General Counsel and Chief of Staff to the President
Annie Stevens, Ph.D.	Vice Provost for Student Affairs
Cynthia Belliveau, Ed.D.	Dean, Continuing and Distance Education
William A. Falls, Ph.D.	Dean, College of Arts and Sciences
Cynthia Forehand, Ph.D.	Dean, Graduate College
David Jenemann, Ph.D.	Dean, Honors College
Nancy E. Mathews, Ph.D.	Dean, Rubenstein School of the Environment and Natural Resources
David A. Nestor, Ed.D.	Dean of Students
Richard L. Page, M.D.	Dean, Larner College of Medicine
Scott Thomas, Ph.D.	Interim Dean, College of Nursing and Health Sciences
Bryn Geffert, Ph.D.	Dean of University Libraries
Linda Schadler, Ph.D.	Dean, College of Engineering and Mathematical Sciences
Sanjay Sharma, Ph.D.	Dean, Grossman School of Business
Scott Thomas, Ph.D.	Dean, College of Education and Social Services
Leslie V. Parise, Ph.D.	Dean, College of Agriculture and Life Sciences

## 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. Jainke Yang, PhD, 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. Terence D. Cuneo, PhD is the Marsh Professor of Intellectual and Moral Philosophy.
- The **John N. Pomeroy Professorship of Chemistry** was established in 1878 by John N. Pomeroy, AB, 1809, who lectured on chemistry and served as trustee of the University. Dr. Christopher C. Landry, PhD, is the John N. Pomeroy Professor of Chemistry.
- The **Howard Professorship of Natural History** was established in 1881 by John Purple Howard, a generous benefactor of the University. This Professorship supports the appointee's salary, specimen purchase, protection and exhibition, suitable for development and instruction, and for books to increase and improve 'The Howard Library'. Dr. Ingi Agnarsson, PhD is the Howard Professor of Natural History.
- The **Flint Professorship of Mathematics, Natural or Technic Science** was established in 1895 by a bequest from Edwin Flint.

Dr. Peter S. Dodds, PhD, is the Flint Professor of Mathematics, Natural or Technic Science.

- The **Converse Professorship in Commerce and Economics** was established in 1899 by John H. Converse, AB, 1861, LLD, 1897, who as a trustee of the University proposed the teaching of Latin, modern languages, history, and other subjects. Dr. William A. Gibson, PhD is the Converse Professor in Commerce and Economics
- The **Samuel W. Thayer Professorship of Neurological Sciences** was established in 1910 to honor Dr. Samuel White Thayer, Dean of the College of Medicine from 1854-1871 and 1880-82, from contributions made by alumni of the College of Medicine. Dr. Gary M. Mawe, PhD is the Samuel W. Thayer Professor of Neurological Sciences.
- The **John G. McCullough Professorship in Political Science** was established in 1926 through grants made by Gov. and Mrs. John G. McCullough. Dr. Caroline C. Beer, PhD, is the John G. McCullough Professor in Political Science.
- The **George H. 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. Nicholas J. Gotelli, PhD is the George H. Perkins Professor of Zoology.
- The **Elliot W. Shipman Professorship of Ophthalmology** was established in 1934 by a bequest from Dr. Elliot W. Shipman, MD, 1885. Dr. Brian Y. Kim, MD is the Elliot W. Shipman Professor of Ophthalmology.
- 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. This Professorship supports the appointee's salary, giving preference to instruction in Latin and literature, and thereafter academic, literary, linguistic, cultural and general courses of study. Dr. Mark D. Usher, PhD is the Lyman-Roberts Professor of Classical Languages and Literature.
- The **Corse Professorship of English Language and Literature** was established in 1952 by Frederick M. and Fannie C.P. Corse. Dr. Lokangaka Losambe, PhD is the Corse Professor of English Language and Literature.
- The **Edwin W. Lawrence Forensic Professorship of Speech** was established in 1965 by Edwin W. Lawrence, lawyer and financier of Rutland, Vermont, AB, 1901. Dr. Helen Morgan Parmett, PhD is the Edwin W. Lawrence Forensic Professor of Speech.
- The **Daniel Clarke Sanders Endowed Chair** was established in 1968 by UVM alumni, honoring the Rev. Daniel Clarke Sanders, first president of the University. Dr. Pramodita Sharma, PhD is the Daniel Clarke Sanders Endowed Chair.
- The **John L. Beckley Professorship in American Business** was established in 1983 by John L. Beckley, 1934 graduate of UVM a trustee from 1966-1970, to encourage economic education. Dr. David A. Jones, PhD is the John L. Beckley Professor in American Business.
- The **Bishop Robert F. Joyce Chair in Human Development** was established in 1983 by alumni and friends, honoring Robert F. Joyce, 1917 graduate, a trustee from 1948-1954, and Bishop of the

R. C. Diocese of Burlington for 15 years. Dr. Betsy Hoza, PhD is the Robert F. Joyce Chair in Human Development.

- The **Ernest Hiram Buttles Professorship of Pathology and Laboratory Medicine** was established in 1984 to honor Ernest Hiram Buttles, Professor of Pathology and Bacteriology, 1921-1946. Dr. Pamela C. Gibson, MD is the Ernest Hiram Buttles Professor of Pathology and Laboratory Medicine.
- The **McClure Professorship in Musculoskeletal Research** was established in 1988 by J. Warren and Lois H. McClure. Dr. Bruce David Beynnon, PhD is the McClure Professor in Musculoskeletal Research.
- 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. Dr. Polly E. Parsons, MD is the E.L. Amidon Chair in the Department of Medicine.
- The **Roger H. Allbee '31 Professorship in Surgery** was created in 1992 by Roger H. Allbee, MD '31, to provide support for a research fellow in the Department of Surgery. Dr. Jonathan E. Boyson, PhD is the Roger H. Allbee '31 Professor in Surgery.
- 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. Dr. Roger F. Soll, MD is the Harry W. Wallace Professor in Neonatology.
- 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, PhD is the Gund Chair in Liberal Arts.
- The **Dorothean Chair of Engineering and Science** 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. Donna M. Rizzo, PhD is the Dorothean Chair of Engineering and Science.
- The **Berta Pi-Sunyer Williams Endowed Professorship** was established in 1996 in recognition of the importance of women's health care issues. Established to provide general support for education, research and patient services in women's health care at Fletcher Allen and its affiliated organizations. Dr. Cheung Wong, MD is the inaugural Berta Pi-Sunyer Williams Endowed Professor.
- 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. Dr. David N. Krag, MD is the inaugural S.D. Ireland Family Professor in Surgical Oncology.
- 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. Dr. Benjamin Littenberg, MD is the inaugural Henry and Carleen Tufo Chair in General Internal Medicine.
- 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. Dr. Richard J. Solomon, MD is the inaugural Robert F. and Genevieve B. 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, PhD is the Robert F. and Genevieve B. Patrick Endowed Chair in Watershed Science and Planning.
- The **John Van Sicklen Maeck, MD 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. Dr. Ira M. Bernstein, MD is the John Van Sicklen Maeck, MD 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. Dr. Taylor H. Ricketts, PhD is the Gund Professor of Ecological Economics.
- The **Stanley S. Fieber '48 Chair in Surgery** was created in 2002 by Stanley S. Fieber, MD to enhance the research and educational activities of the Department of Surgery. Dr. Mitchell C. Norotsky, MD is the Stanley S. Fieber '48 Chair in Surgery.
- The **Irwin H. Krakoff, MD Green and Gold Professorship in the University of Vermont Cancer Center** was established in 2003 in honor of Dr. Krakoff, first director of the University of Vermont Cancer Center. It supports outstanding senior or promising junior faculty members in the University of Vermont Cancer Center in cancer research.
- The **Duncan W. Persons, MD '34 Green and Gold Professorship in Ophthalmology** was established in 2003 by Dr. Duncan Persons, an ophthalmologist who graduated from The Robert Larner, MD College of Medicine at the University of Vermont in 1934, to support an ophthalmology faculty member who demonstrates scholarly productivity in the mission areas of education and research, as well as clinical excellence.
- The **Lisa Steele Professorship in Nursing and Health Sciences** was established in the College of Nursing and Health Sciences in 2003 by an anonymous donor for a tenured Medical Laboratory and Radiation Sciences faculty member with a focus on regulation of human health and disease. Dr. Paula B. Deming, PhD is the Lisa Steele Professor in Nursing and Health Sciences.
- 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 L. Forehand, PhD is the inaugural Heinz and Rowena Ansbacher Green and Gold Professor in Psychology.
- The **Mary Kay Davignon Green and Gold Professorship** was established in 2005 to support the strategic priorities of the Dean of Medicine. Dr. C. Lawrence Kien, MD, PhD is the Mary Kay Davignon Green and Gold Professor.
- The **Cordell E. Gross Green and Gold Professorship in Neurosurgery** was established in 2005 by former professor and chief of neurosurgery Dr. Cordell Gross to provide annual



support for educational or research purposes. Dr. Bruce I. Tranmer, MD is the inaugural Cordell E. Gross Green and Gold Professor in Neurosurgery.

- The **Samuel B. and Michelle D. Labow Green and Gold Professorship of Colon and Rectal Surgery** was established in 2005 to support colon and rectal surgeons in the Department of Surgery. Dr. Peter A. Cataldo, MD is the Samuel B. and Michelle D. Labow Green and Gold Professor of Colon and Rectal Surgery.
- 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. Dr. Edward C. Borrazzo, MD, FACS is the Albert G. Mackay, MD '32 and H. Gordon Page, MD '45 Professor in Surgical Education.
- The **John P. and Kathryn H. Tampas '54 Green and Gold Professorship in Radiology** was established in 2005 to support education and research in the Department of Radiology. Dr. Kristen K. DeStigter, MD is the John P. and Kathryn H. Tampas '54 Green and Gold Professor of Radiology.
- The **Richard and Pamela Ader Green and Gold Professorship** was established in 2006 by Richard H. Ader '63 to be awarded to a faculty member in the College of Arts and Sciences or the Grossman School of Business. Dr. William E. Mierse, PhD is the Richard and Pamela Ader Green and Gold Professor.
- The **Richard A. Dennis Green and Gold Professor** 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 L. Jackson, MFA is the inaugural Richard A. Dennis 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 and Sciences Holocaust Studies Program. Dr. Alan E. Steinweis, PhD is the Raul Hilberg Distinguished Professor of Holocaust Studies.
- The **R. James McKay, MD Green and Gold Professor in Pediatrics** was established in 2006 to support the research and educational activities in the Department of Pediatrics. Dr. Marshall L. Land, Jr., MD is the inaugural R. James McKay, MD Green and Gold Professor in Pediatrics.
- 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 and Sciences Holocaust Studies Program.
- The **A. Bradley Soule and John Tampas Green and Gold Professorship of Radiology** was established in 2006 to support the Department of Radiology's academic mission. Dr. Jeffrey S. Klein, MD is the inaugural A. Bradley Soule and John Tampas Green and Gold Professor of Radiology.
- 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. Dr. James J.

Hudziak, MD is the inaugural Thomas Achenbach Chair in Developmental Psychopathology.

- The **Robert L. Bickford, Jr. Green and Gold Professorship** was established in 2007 in the College of Agriculture and Life Sciences 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. Jean R. Harvey, PhD, RD is the Robert L. Bickford, Jr. Green and Gold Professor.
- The **Jerold F. Lucey, MD 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. Dr. Jeffrey D. Horbar, MD is the inaugural Jerold F. Lucey, MD Chair in Neonatal Medicine.
- The **Breazzano Family Green and Gold Professorship** was established in 2008 by David and Roxanne Breazzano to support an endowed faculty position in the College of Arts and Sciences. Dr. Jim O. Vigoreaux, PhD is the inaugural Breazzano Family Green and Gold Professor.
- The **Holly D. and Robert E. Miller Professorship in Nursing Leadership** was established in 2009 so the College of Nursing and Health Sciences may pilot an innovative approach to enable future nurses to strengthen their commitment to the profession, embody more fully the deeply held values of nursing, and assume a leadership role in the formation of a better and more compassionate health care system that continues today. Dr. Rosemary L. Dale, EdD is the inaugural Holly D. and Robert E. Miller Professor in Nursing Leadership.
- The **Robert B. Lawson Green and Gold Professorship in Psychology** was established in 2010 by the Segal and Davis Family Foundation of Charles Town, WV, in honor of Dr. Robert B. Lawson, who retired in May of 2010 from the University of Vermont's Department of Psychology. The professorship was founded to support teaching, service and research in the Department of Psychology. Dr. Mark E. Bouton, PhD is the inaugural Robert B. Lawson Green and Gold Professor in Psychology.
- The **L. Richard Fisher Professorship** was established in 2011 by Dick Fisher to attract and retain high quality faculty in electrical engineering in the College of Engineering and Mathematical Sciences. Dr. Paul D. Hines, PhD is the inaugural L. Richard Fisher Professor.
- The **Roy Korson, MD and Lorraine Korson, MD Green and Gold Professor in Pathology** was established in 2011 by the Korsons to promote academic excellence in the Department of Pathology and Laboratory Medicine. Dr. Mark K. Fung, MD, PhD, is the inaugural Roy Korson, MD and Lorraine Korson, MS Green and Gold Professor of Pathology.
- The **Elliott A. Brown Green and Gold Professorship of Law, Politics, and Political Behavior** was established in 2012 to support an endowed faculty position in the Department of Political Science. Dr. Robert Pepperman Taylor, PhD is the Elliott A. Brown Green and Gold Professor of Law, Politics, and Political Behavior.



- The **David Blittersdorf Professor of Sustainability Science and Policy** was established in 2013 by David Blittersdorf to support a faculty position in the Rubenstein School of Environment and Natural Resources that fosters collaboration with the College of Engineering and Mathematical Sciences to build a sustainability curriculum addressing solutions to fossil fuel resource depletion and renewable energy. Dr. Jon D. Erickson, PhD is the David Blittersdorf Professor of Sustainability Science and Policy.
- The **Virginia H. Donaldson, MD '51 Professorship** was established in 2013 in The Robert Larner, MD College of Medicine at the University of Vermont by Virginia Donaldson, MD to faculty who demonstrate a commitment to translational science and who actively contribute to the goal of promoting the impact of biological science on clinical medicine, as Dr. Donaldson did. Dr. Stephen T. Higgins, PhD is the Virginia H. Donaldson, MD '51 Professor.
- The **Steven Grossman Endowed Chair in Entrepreneurship** was established in 2013 by the Grossman Family Foundation to recruit and retain an outstanding faculty member to the Grossman School of Business. Dr. Erik Monsen, PhD is the inaugural Steven Grossman Chair in Entrepreneurship.
- The **Steven Grossman Endowed Chair in Finance** was established in 2013 by the Grossman Family Foundation to recruit and retain an outstanding faculty member to the Grossman School of Business. Dr. Charles R. Schnitzlein, PhD is the inaugural Steven Grossman Chair in Finance.
- The **Steven Grossman Endowed Chair in Sustainable Business** was established in 2013 by the Grossman Family Foundation to recruit and retain an outstanding faculty member to the Grossman School of Business. Dr. Stuart L. Hart, PhD is the inaugural Steven Grossman Endowed Chair in Sustainable Business.
- The **Frank P. Ittleman, MD Professorship in Surgery** was established in 2013 to help The Robert Larner, MD College of Medicine at the University of Vermont and the University of Vermont Medical Center attract and retain nationally recognized cardiothoracic surgeons. Dr. Frank P. Ittleman, MD is the inaugural Frank P. Ittleman Professor in Surgery.
- The **Wolfgang and Barbara Mieder Green and Gold Professorship** was established in 2013 by Wolfgang and Barbara Mieder to recognize outstanding faculty in smaller academic units within the arts and humanities, the social sciences, and education, beginning with the Department of German and Russian. Dr. Helga Schreckenberger, PhD is the Wolfgang and Barbara Mieder Green and Gold Professor.
- The **Steven Rubenstein Professorship for Environment and Natural Resources** was established in 2013 by Steve and Beverly Rubenstein. Dr. Adrian J. Ivakhiv, PhD is the Steven Rubenstein Professor for Environment and Natural Resources.
- The **Peter Weimersheimer Endowed Professorship in Emergency Medicine** was established in 2013 to advance clinical and academic Emergency Medicine at The Robert Larner, MD College of Medicine at the University of Vermont and the University of Vermont Medical Center. Dr. Peter E. Weimersheimer, MD, FACEP is the inaugural Peter Weimersheimer Endowed Professor in Emergency Medicine.
- The **Mark J. Zwynenburg Green and Gold Professorship of Financial History** was established in 2013 to honor Mark J. Zwynenburg '81 to assist the Department of Economics in its efforts to recruit and retain exceptionally qualified new faculty members actively engaged in teaching and research investigating financial history issues. Dr. Jane E. Knodell, PhD is the inaugural Mark J. Zwynenburg Green and Gold Professor of Financial History.
- The **Barrett Foundation Chair in Engineering** was established in 2013 by the Barrett Foundation to recruit and retain a new dean for the College of Engineering and Mathematical Sciences. Dr. Luis A. Garcia, PhD is the inaugural Barrett Foundation Chair in Engineering.
- The **Green and Gold Professorship of Pediatric Surgery** was established in 2013 to recognize and reward outstanding faculty and to allow the holder to advance his or her scholarly activities through access to additional resources outside of customary institutional support of the Department. Dr. Kenneth H. Sartorelli, MD, FACS is the inaugural Green and Gold Professor of Pediatric Surgery.
- The **Levitt Family Green and Gold Professorship** was established in 2013 by an anonymous donor to reward high-performing faculty in the teacher education program. Dr. Katharine G. Shepherd EdD is the inaugural Levitt Family Green and Gold Professor.
- The **Green and Gold Professorship of Urology** was established in 2013 in recognition of the outstanding faculty of the Department of Surgery and as an investment to increase philanthropy to benefit the Department of Surgery, the Foundation's Board of Directors approved the creation of this Professorship as a quasi-endowment from an unrestricted gift made by University Medical Education Associates. Dr. Mark K. Plante, MD, FRCS(C), FACS is the inaugural Green and Gold Professor of Urology.
- The **Green and Gold Professorship of Vascular Surgery** was established in 2013 in recognition of the outstanding faculty of the Department of Surgery and as an investment to increase philanthropy to benefit the Department of Surgery, the Foundation's Board of Directors approved the creation of this Professorship as a quasi-endowment from an unrestricted gift made by University Medical Education Associates. Dr. Andrew C. Stanley, MD, FACS is the inaugural Green and Gold Professor of Vascular Surgery.
- The **Elizabeth and David Daigle Professorship in Finance** was established in 2014 to attract and retain high quality faculty in finance. Dr. Andrew K. Prevost, PhD is the inaugural Elizabeth and David Daigle Professor in Finance.
- The **Arthur Jason Perelman, MD '52 Professorship** was established in 2014 to both recognize and support the invaluable work of research in cancer. Dr. Perelman's special interest in genomic medicine and research, in addition to his ongoing interest in research for gynecological cancer, general cancer research, and supportive initiatives to help patients and their

families navigate the cancer journey with clarity and dignity. Dr. Gary S. Stein, PhD is the inaugural Arthur Jason Perelman, MD '52 Professor.

- The **Cyril G. Veinott Green and Gold Professorship** was established in 2014 as part of the philanthropic legacy of Cyril G. Veinott '26 to enhance faculty support in the College of Engineering and Mathematical Sciences. Dr. Joshua C. Bongard, PhD is the inaugural Cyril G. Veinott Green and Gold Professor.
- The **Green and Gold Professorship of Neurosurgery** was established in 2014 recognition of the outstanding faculty of the Department of Surgery and as an investment to increase philanthropy to benefit the Department of Surgery. Dr. Susan R. Durham, MD, is the inaugural Green and Gold Professor of Neurosurgery.
- The **Green and Gold Professorship of Surgical Research** was established in 2014 to recognize and reward outstanding faculty and allow their advancement of scholarly activities through access to additional resources. Dr. Brian L. Sprague, PhD is the inaugural Green and Gold Professor of Surgical Research.
- The **Green and Gold Professorship of Transplant Surgery and Immunology** was established in 2014 to recognize and reward outstanding faculty and allow their advancement of scholarly activities through access to additional resources. Dr. Carlos E. Marroquin, MD, FACS is the inaugural Green and Gold Professor of Transplant Surgery and Immunology.
- The **Robert Lerner Professorship in Medical Education** was established in 2015 in medical education for The Teaching Academy at The Robert Lerner, MD College of Medicine at the University of Vermont. Dr. Kathryn N. Huggett, PhD is the inaugural Robert Lerner Professor in Medical Education.
- The **Holly and Bob Miller Endowed Chair in Palliative Medicine** was established in 2015 for the position of division chief for palliative medicine in the Department of Family Medicine to recognize and support excellence in palliative medical education. Dr. Robert E. Gramling, MD is the inaugural Holly and Bob Miller Endowed Chair in Palliative Medicine.
- The **Sarah Nichols Gruenig Green and Gold Professor of Diabetes Research** was established in 2015 to benefit the Division of Endocrinology, Diabetes and Metabolism in the Department of Medicine. Dr. John L. Leahy, MD is the inaugural Sarah Nichols Gruenig Green and Gold Professor of Diabetes Research.
- The **Philip Ades, MD Professorship of Cardiovascular Disease Prevention** was established in 2016 for the Director of Cardiac Rehabilitation in the Department of Medicine to allow continued evolution and growth of the program, ensuring that cardiac rehabilitation and cardiovascular disease prevention services will be available to patients in the region. Dr. Philip A. Ades, MD is the inaugural Philip Ades, MD Professor of Cardiovascular Disease Prevention.
- The **Robert W. Hamill, MD Green and Gold Professorship** was established in 2016 to provide support to conduct cutting-edge research and to advance educational activities in Parkinson's disease and related conditions. Dr. James

T. Boyd, MD is the inaugural Robert W. Hamill, MD Green and Gold Professor.

- The **Gregory N. Sweeny Green and Gold Professorship of Civil Engineering** was established in 2016 by Gregory N. Sweeny to recruit good professors, and retain good professors by rewarding those whose accomplishments should be honored. This Green and Gold Professorship is Gregory's way of thanking the University for what it did for him, and for what the University can do for the faculty and students in the future. Dr. Eric M. Hernandez, PhD is the inaugural Gregory N. Sweeny Green and Gold Professor of Civil Engineering.
- The **Bloomfield Early Career Professor in Cardiovascular Research** was established in 2017 by Martin Bloomfield, MD '60, to help young investigators combine practice and research by providing more assistance, reduce teaching loads, and offer salary support early in their careers at the Cardiovascular Research Institute of Vermont (CVRI). Dr. Benedek Erdos, MD, PhD is the inaugural Bloomfield Early Career Professor in Cardiovascular Research.
- The **Julian Lindsay Green and Gold Professorship of English** was established in 2017 by Robert E. Fenix to honor his late father-in-law Julian Lindsay, who taught in UVM's English Department from 1910 to 1952. The Professorship will recognize and foster the research and teaching of the recipient, a tenured faculty member in the English Department who has made, and continues to make, a significant contribution to the study of American literature. Dr. Emily E. Bernard, PhD, is the inaugural Julian Lindsay Green and Gold Professor of English.
- The **Pizzagalli Chair of Free Enterprise** was established in 2017 to advance the value and benefits of capitalism to the global economy, and to educate individuals in, and to promote, basic concepts of free enterprise, business competition, limited government, capitalism and self-reliance. Dr. Andrey D. Ukhov, PhD, is the inaugural Pizzagalli Chair of Free Enterprise.
- The **Holly and Bob Miller Endowed Chair in Memory and Aging** was established in 2018 in honor of Michael LaMantia, MD, MPH, UVM Associate Professor of Medicine & Neurological Sciences, Section Head of Geriatric Medicine in the Department of Medicine, and Director of the UVM Center on Aging. Holly and Bob Miller wish for this Chair to support a recognized leader in the fields of memory and aging/geriatrics, and the continued growth of the memory and aging program(s) in the UVM LCOM and the UVMCMC. Because of his compassionate care of patients and families in the UVMCMC Memory Clinic and the groundbreaking research he is conducting at UVM in the fields of memory and aging Dr. Michael A. LaMantia, MD, MPH, is the inaugural Holly and Bob Miller Endowed Chair in Memory and Aging.
- The **Adam and Abigail Burack Green and Gold Professorship of Education** was established in 2018 to support an education faculty member focused on school climate in the Department of Education, and to help recruit and retain education faculty who will expand students' development to becoming transformational educators and teachers. Dr. Bernice R. Garnett, ScD is the

inaugural Adam and Abigail Burack Green and Gold Professor of Education.

- The **Rogers and Nancy Follansbee Professorship in Dermatology** was established in 2019 by their daughter, Lenore Broughton, in support of solidifying a permanent foundation of excellence in Dermatology in the Department of Medicine at the University of Vermont, and to support the goal of fostering education, encouraging research, and promoting the exchange of skill sets with international colleagues and other general purposes of an Endowed faculty position. Dr. Glenn D. Goldman, MD is the inaugural Rogers and Nancy Follansbee Professor in Dermatology.
- The **Chris Abajian, MD and Margaret Abajian Green and Gold Professorship of Pediatric Anesthesiology** was established in 2019 by Chris Abajian, MD and Margaret Abajian for their years of service and philanthropy to the Department of Anesthesia, the UVM Larner College of Medicine, and the UVM Medical Center, and Dr. Abajian's leadership in the field of Pediatric Anesthesiology. Dr. Robert K. Williams, MD is the inaugural Chris Abajian, MD and Margaret Abajian Green and Gold Professor of Pediatric Anesthesiology.
- The **Morris Goldman '29, MD '32 Green and Gold Professorship of Family Medicine** was established in 2019 in honor of Morris Goldman, MD, to support the threefold mission of the department: to provide high quality care and service to our patients; to insure high quality education programs for our residents and students; and to advance the science and specialty of family medicine through investigation and query. Dr. Thomas C. Peterson, MD is the inaugural Morris Goldman '29, MD '32 Green and Gold Professor of Family Medicine.
- The **Sanford Friedman-Jerome Hips Green and Gold Professorship of Education** was established in 2020 in honor of the teaching, research, and support of LGBTQ students, faculty, and administrators at the post-secondary education and public education levels, where teaching, research, and support is inclusive of LGBTQ students, faculty and administrators of color, as well as Caucasians and the non-binary categorization of gender, sexuality, sex, etc. Dr. Jason C. Garvey, PhD, is the inaugural Sanford Friedman-Jerome Hips Green and Gold Professor of Education.

## 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-wide honorary societies include the Boulder Society, which acknowledges outstanding senior men; and the Tower Society, which acknowledges outstanding seniors from all groups who have been traditionally marginalized based on their gender identity or expression.

National honorary societies represented on campus are as follows:

The Alpha of Vermont Chapter of Phi Beta Kappa was established at the university in 1848 and has the honor of being the first Phi Beta Kappa chapter to initiate women and African Americans to membership, which it did in the 1870s. Membership in Phi Beta Kappa reflects outstanding academic achievement in a broad range of liberal arts disciplines and is typically extended to students in their senior year. The chapter also selects one junior each year to receive the Bogorad Award, which recognizes superlative academic achievement in the liberal arts through the sophomore year.

The 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.

The 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 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.

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

Other national honorary societies include: Alpha Kappa Delta (sociology), Alpha Omega Alpha (medical), Alpha Zeta (agriculture), Beta Beta Beta (biology), Beta Gamma Sigma (business administration), Chi Epsilon (civil and environmental engineering), Eta Sigma Phi (classical studies), Delta Sigma Rho (debating), Gamma Kappa Alpha (italian), Gamma Theta Upsilon (geography), Kappa Delta Pi (education), Mu Sigma Rho (statistics), Nu Rho Psi (neuroscience), Omicron Delta Epsilon (international economics), Omicron Nu (home economics), Order of Omega (fraternities and sororities), Phi Alpha (social work), Phi Alpha Theta (history), Phi Eta Sigma (first-year students), Pi Delta Phi (french), Pi Sigma Alpha (political science), Psi Chi (psychological science), Sigma Delta Pi (spanish), Sigma Gamma Epsilon (geology), Sigma Pi Sigma (physics), Theta Tau (nursing), Tau Beta Pi (engineering), Triota (Iota Iota Iota, women's studies) and Upsilon Pi Epsilon (computer science).

## ACCREDITATIONS

The University of Vermont is accredited by the New England Commission of Higher Education (NECHE), a non-governmental, nationally-recognized organization whose affiliated institutes include elementary schools through collegiate institutions offering postgraduate instruction.



Accreditation of an institution by the New England Commission 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 Commission 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 NECHE should be directed to the administrative staff of the university. Individuals may also contact:

New England Commission of Higher Education  
209 Burlington Road  
Bedford, MA 01730-1433  
(781) 271-0022

Specific academic program accreditations include:

## AGRICULTURE AND LIFE SCIENCES

- Dietetics — Accreditation Council for Education and Dietetics of the Academy of Nutrition and Dietetics
- Public Administration — Network of Schools of Public Affairs, and Administration - NASPAA

## ARTS AND SCIENCES

- Chemistry — American Chemical Society
- Clinical Psychology — American Psychological Association

## GROSSMAN SCHOOL OF BUSINESS

- AACSB International — The Association to Advance Collegiate Schools of Business

## EDUCATION AND SOCIAL SERVICES

- Social Work — Council on Social Work Education
- Educator Preparation — Council for the Accreditation of Educator Preparation; Vermont Standards Board for Professional Educators
- Clinical Mental Health Counseling — Council for Accreditation of Counseling and Related Educational Programs
- School Counseling — Council for Accreditation of Counseling and Related Educational Programs; Vermont Standards Board for Professional Educators

## ENGINEERING AND MATHEMATICAL SCIENCES

- Biomedical Engineering - The Engineering Accreditation Commission of ABET; pending July 2020

- Civil, Electrical, Environmental, and Mechanical Engineering — The Engineering Accreditation Commission of ABET

## LARNER COLLEGE OF 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
- Integrative Health and Wellness Coaching Certificate - National Board of Health and Wellness Coaching
- 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
- Nursing — The baccalaureate degree program in nursing, master's degree program in nursing, Doctor of Nursing Practice program and post-graduate APRN certificate program at the University of Vermont are accredited by the Commission on Collegiate Nursing Education, 655 K Street NW, Suite 750, Washington, DC 20001, 202-887-6791
- Physical Therapy — Commission on Accreditation in Physical Therapy Education
- Speech-Language Pathology — Council for Academic Accreditation

## RUBENSTEIN SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES

- Forestry Program — Society of American Foresters

## UVM EQUAL OPPORTUNITY STATEMENTS

### 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, disability, or gender identity or expression, as those terms are defined under applicable law, in admitting students to its programs and facilities and in administering its admissions policies, educational policies, scholarship and loan programs, athletic programs, and other institutionally administered programs or activities made available to students at the university. The university also prohibits harassment, as defined in the Vermont Statutes at Title 16, section 11(a)(26). Unlawful harassment is a form of discrimination and is therefore prohibited. 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 non-discrimination laws as may apply.

For more information on this policy, please refer to the Equal Opportunity in Educational Programs and Activities and Non-Harassment Policy (<http://www.uvm.edu/policies/student/equaledu.pdf>) web page.

## 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, hire, train, and promote persons in all positions and ensure that all other personnel actions are administered without regard to unlawful criteria including race, color, religion, ancestry, national origin, place of birth, sex, sexual orientation, disability, age, positive HIV-related blood test results, genetic information, gender identity or expression, or status as a disabled veteran, recently separated veteran, active duty wartime or campaign badge veteran, or Armed Forces service medal veteran (collectively "protected veterans"), or crime victim status, as these terms are defined under applicable law, or any other factor or characteristic protected by law, and ensure that all employment decisions are based only on valid job requirements.

In addition, the University of Vermont recognizes that discriminatory harassment and sexual harassment are forms of unlawful discrimination, and it is, therefore, the policy of the University that discriminatory harassment and sexual harassment will not be tolerated. The University also prohibits unlawful harassment on the basis of other characteristics protected by law.

Further, employees and applicants will not be subjected to harassment or retaliation because they have engaged in or may engage in the following: filing a complaint or assisting or participating in an investigation regarding alleged discrimination or harassment as prohibited in the policy statement above; filing a complaint or assisting or participating in an investigation, compliance evaluation, or any other activity related to the administration of the Vietnam Era Veterans' Readjustment Assistance Act of 1974 ('VEVRAA'), Section 503 of the Rehabilitation Act of 1973 ('Rehabilitation Act'), or the Affirmative Action provisions of federal, state or local law; opposing any act or practice made unlawful by VEVRAA, requiring equal employment opportunities for individuals with disabilities, disabled veterans, recently separated veterans, other protected veterans, or Armed Forces service medal veterans; or exercising any rights under VEVRAA or the Rehabilitation Act.

Sources: Titles VI and VII of the Civil Rights Act of 1964; the Immigration Reform and Control Act of 1986; Title IX of the Education Amendments of 1972; the Equal Pay Act of 1963; the Age Discrimination in Employment Act of 1967; the Age Discrimination Act of 1975; Sections 503 and 504 of the Rehabilitation Act of 1973; the Americans with Disabilities Act of 1990; Section 402 of the Vietnam-Era Veterans Readjustment Assistance Act of 1974; Executive Order 11246; the Genetic Information Nondiscrimination

Act of 2008; and the Vermont Fair Employment Practices Act, all as amended; and such other federal, state and local non-discrimination laws as may apply.

Note: This Statement of Policy is the official University of Vermont Equal Educational Opportunity Policy Statement and supersedes all prior policy statements regarding its subject matter. It may be modified only by written statement issued by the President as Chief Executive Officer of the University or by formal action by the University of Vermont and State Agricultural College Board of Trustees. This Policy Statement is designed to express the University's intent and commitment to comply with the requirements of federal, state and local non-discrimination laws. It shall be applied co extensively with such laws, and shall not be interpreted as creating any rights, contractual or otherwise, that are greater than exist under such non-discrimination laws. Persons seeking to participate in educational opportunities offered by the University must consult position and program descriptions to determine criteria for eligibility. All such criteria shall be established in a manner consistent with the legal requirements herein referenced.

For more information on this policy, please refer to the Equal Employment Opportunity/Affirmative Action Policy Statement ([http://www.uvm.edu/policies/general\\_html/affirm.pdf](http://www.uvm.edu/policies/general_html/affirm.pdf)) web page.

## FACULTY

The full-time and part-time faculty list included in the Undergraduate Catalogue is static, and is updated annually each Fall. The prior academic year's faculty list will appear in the Undergraduate Catalogue until the Fall update. The updated faculty list for the 2020-21 Undergraduate Catalogue will be populated in November 2020.

The emeriti faculty list is updated annually in the Spring and reflects the addition of the cohort of faculty granted emeriti status at the close of the prior academic year.

- Emeriti Faculty (p. 477)
- Full-Time and Part-Time Faculty (p. 501)

## EMERITI FACULTY

### THE FOLLOWING UNIVERSITY OF VERMONT FACULTY MEMBERS WERE GRANTED EMERITI STATUS IN 2020:

Brenda Pauline Bissell-Hamel, Professor of Nursing, College of Nursing and Health Sciences

Sidney C. Bosworth, Extension Professor, College of Agriculture and Life Sciences

John P. Burke, Professor of Political Science, College of Arts and Sciences

Mark A. Capeless, Professor of Medicine, Larner College of Medicine

Candace Fraser, Associate Professor of Family Medicine, Larner College of Medicine

Christine G. Griffin, Senior Lecturer, College of Nursing and Health Sciences

Hesterly Black Goodson, Senior Lecturer, College of Arts and Sciences

Ruth Heimann, Professor of Radiology, Larner College of Medicine

Virginia L. Hood, Professor of Medicine, Larner College of Medicine

John R. Hughes, Professor of Psychiatry, Larner College of Medicine

Craig L. Kien, Professor of Pediatrics, Larner College of Medicine

Martin M. LeWinter, Professor of Medicine, Larner College of Medicine

John H. Lunde, Professor of Pathology and Laboratory Medicine, Larner College of Medicine

Scott D. Luria, Associate Professor of Medicine, Larner College of Medicine

Hendrika J. Maltby, Professor of Nursing, College of Nursing and Health Sciences

Keith P. Mintz, Associate Professor of Microbiology and Molecular Genetics, Larner College of Medicine

Robert J. Nash, Professor of Leadership and Development Sciences, College of Education and Social Services

Patrick A. Neal, Professor of Political Science, College of Arts and Sciences

George J. Osol, Professor of Obstetrics, Gynecology and Reproductive Services, Larner College of Medicine

Mercedes R. Rincón, Professor of Medicine, Larner College of Medicine

Donald S. Ross, Professor of Plant and Soil Science, College of Agriculture and Life Sciences

Jonathan W. Sands, Professor of Mathematics and Statistics, College of Engineering and Mathematical Sciences

R. Thomas Simone, Professor of English, College of Arts and Sciences

Peter H. Spitzform, Library Associate Professor, University Libraries

Brenda V. Tessmann, Assistant Professor of Microbiology and Molecular Genetics, Larner College of Medicine

Guy Tousignant, Associate Professor of Anesthesiology, Larner College of Medicine

Richard C. Wasserman, Professor of Pediatrics, Larner College of Medicine

Jun-Ru Wu, Professor of Physics, College of Arts and Sciences

## THE FOLLOWING UNIVERSITY OF VERMONT FACULTY MEMBERS WERE GRANTED EMERITI STATUS IN 2019:

Judith A. Aiken, Associate Professor of Education, College of Education and Social Services

Jamie A. Alpert, Associate Professor of Medicine, Larner College of Medicine

Takamaru Ashikaga, Facility Director, Medical Biostatistics and Biometry Facility

Adrian D. Bonev, Assistant Professor of Pharmacology, Larner College of Medicine

Christopher R. Chase, Associate Professor of Anesthesiology, Larner College of Medicine

Jeffrey H. Dinitz, Professor of Mathematics and Statistics, College of Engineering and Mathematical Sciences

Maj Eisinger, Associate Professor of Family Medicine, Larner College of Medicine

Richard M. Foote, Professor of Mathematics and Statistics, College of Engineering and Mathematical Sciences

Barbara L. Frankowski, Professor of Pediatrics, Larner College of Medicine

James C. Hebert, Associate Professor of Pathology and Laboratory Medicine, Larner College of Medicine

Nancy Swords Jenny, Associate Professor of Pathology and Laboratory Medicine, Larner College of Medicine

Brian P. Kent, Senior Lecturer, College of Arts and Sciences

Douglas O. Lantagne, Dean of UVM Extension

Dwight E. Matthews, Professor of Chemistry and Medicine, College of Arts and Sciences

Kevin J. McKenna, Professor of German and Russian, College of Arts and Sciences

Charlotte J. Mehrrens, Professor of Geology, College of Arts and Sciences

Jeff Modereger, Professor of Theatre, College of Arts and Sciences

Kurt Oughstun, Professor of Electrical and Biomedical Engineering, College of Engineering and Mathematical Sciences

William C. Paganelli, Professor of Anesthesiology, Larner College of Medicine

Alison Merel Pechenick, Senior Lecturer, College of Engineering and Mathematical Sciences

Stephen J. Pintauro, Associate Professor of Nutrition and Food Sciences, College of Agriculture and Life Sciences

Michael Radermacher, Professor of Molecular Physiology and Biophysics, Larner College of Medicine

Joanna M. Rankin, Professor of Physics, College of Arts and Sciences

Brian V. Reed, Associate Professor of Rehabilitation and Movement Science, College of Nursing and Health Sciences

Frederick B. Rogers, Professor of Surgery, Larner College of Medicine

Mara R. Saule, Dean of University Libraries

Tom Streeter, Professor of Sociology, College of Arts and Sciences

James A. Vecchio, Professor of Medicine, Larner College of Medicine

Thomas C. Vogelmann, Dean of the College of Agriculture and Life Sciences

Arthur Woolf, Associate Professor of Economics, College of Arts and Sciences

**THE FOLLOWING UNIVERSITY OF VERMONT FACULTY MEMBERS WERE GRANTED EMERITI STATUS IN 2018:**

Sarah E. Abrams, Associate Professor of Nursing, College of Nursing and Health Sciences

Marianne Deschenes Burke, Library Associate Professor, University Libraries

Sheldon M. Cooper, Professor of Medicine, Larner College of Medicine

Carson J. Cornbrooks, Associate Professor of Neurological Sciences, Larner College of Medicine

Susan Dinitz, Senior Lecturer, College of Arts and Sciences

Margaret (Maggie) J. Eppstein, Professor of Computer Science, College of Engineering and Mathematical Sciences

Charles William Ferreira, Associate Professor of Community Development and Applied Economics, College of Agriculture and Life Sciences

Eva V. Fraser-Harris, Associate Professor of Anesthesiology and Pediatrics, Larner College of Medicine

Natalia I. Gokina, Associate Professor of Obstetrics, Gynecology and Reproductive Sciences, Larner College of Medicine

Barry Guitart, Professor of Communication Sciences and Disorders, College of Nursing and Health Sciences

Huck Gutman, Professor of English, College of Arts and Sciences

Theresia Hoeck, Senior Lecturer, College of Arts and Sciences

Rachel Kline Johnson, Professor of Nutrition and Food Sciences, College of Agriculture and Life Sciences

David E. Kerr, Professor of Animal and Veterinary Sciences, College of Agriculture and Life Sciences

Joseph M. Kreutz, Associate Professor of Anesthesiology, Larner College of Medicine

Carol T. Miller, Professor of Psychological Science, College of Arts and Sciences

Beth Mintz, Professor of Sociology, College of Arts and Sciences

Peter L. Moses, Professor of Medicine, Larner College of Medicine

Eliot W. Nelson, Professor of Pediatrics, Larner College of Medicine

Garrison Nelson, Professor of Political Science, College of Arts and Sciences

Francis R. Nicosia, Professor of History, College of Arts and Sciences

Robert G. Oppenheimer, Professor of Radiology, Larner College of Medicine

Turner M. Osler, Professor of Surgery Emeritus, Larner College of Medicine

Richard Paradis, Lecturer, Rubenstein School of Environment and Natural Resources

Robert L. Parsons, Extension Professor of Community Development and Applied Economics, College of Agriculture and Life Sciences

Fiona M. Patterson, Associate Professor of Social Work, College of Education and Social Services

Dennis A. Plante, Associate Professor of Medicine, Larner College of Medicine

Susan E. Roche, Associate Professor of Social Work, College of Education and Social Services

Deborah Z. Rubin, Associate Professor of Radiology, Larner College of Medicine

George B. Salembier, Associate Professor of Education, College of Education and Social Services

Susan S. Wallace, Professor of Microbiology and Molecular Genetics, Larner College of Medicine

Judith Van Houten, Professor of Biology, College of Arts and Sciences

Curtis (Curt) Ventriss, Professor of Natural Resources, Rubenstein School of Environment and Natural Resources

Walter J. Varhue, Professor of Electrical and Environmental Engineering, College of Engineering and Mathematical Sciences

Ge Wu, Professor of Rehabilitation and Movement Science, College of Nursing and Health Sciences

Junji Yano, Research Assistant Professor of Biology, College of Arts and Sciences

**THE FOLLOWING UNIVERSITY OF VERMONT FACULTY MEMBERS WERE GRANTED EMERITI STATUS IN 2017:**

Jean E. Beatson, Clinical Professor of Nursing, College of Nursing and Health Sciences

Joseph E. Brayden, Professor of Pharmacology, Larner College of Medicine

Jeanine Carr, Associate Professor of Nursing, College of Nursing and Health Sciences

Catherine Connor-Swietlicki, Professor of Spanish, College of Arts and Sciences

George L. Cook, Extension Professor of Maple and Farm Safety, College of Agriculture and Life Sciences

Ann P. Guillot, Professor of Pediatrics, Larner College of Medicine

Jonathan B. Hayden, Associate Professor of Medicine, Larner College of Medicine

Malai Holland, Research Associate Professor of Metabolic Nutrition, College of Education and Social Services

C. William Kilpatrick, Professor of Biology, College of Arts and Sciences

Willem R. Leenstra, Associate Professor of Chemistry, College of Arts and Sciences

Jonathan G. Leonard, Senior Lecturer, College of Agricultural and Life Sciences

David N. Little, Professor of Family Medicine, Larner College of Medicine

Dennis F. Mahoney, Professor of German, College of Arts and Sciences

Christina S. Melvin, Clinical Associate Professor of Nursing, College of Nursing and Health Sciences

Ruth Mickey, Professor of Statistics, College of Engineering and Mathematical Sciences

Betty Ann Rambur, Professor of Nursing, College of Nursing and Health Sciences

Robert H. Rodgers, Professor of Classics, College of Arts and Sciences

Gregory H. Sharp, Associate Professor of Pathology and Laboratory Medicine, Larner College of Medicine

Dinah K. Smith, Clinical Associate Professor of Communication Sciences and Disorders, College of Nursing and Health Sciences

Kevork Spartalian, Associate Professor of Physics, College of Arts and Sciences

Deane Wang, Associate Professor of Natural Resources, Rubenstein School of Environment and Natural Resources

Burton W. Wilcke, Jr., Associate Professor of Medical Laboratory and Radiation Sciences, College of Nursing and Health Sciences

Stanley L. Witkin, Professor of Social Work, College of Education and Social Services

Denise Youngblood, Professor of History, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 2016:**

Eleanor Lacava Capeless, Professor of Obstetrics, Gynecology and Reproductive Sciences, College of Medicine

Stephen Harry Contompasis, Professor of Pediatrics, College of Medicine

Nicholas L. Danigelis, Professor of Sociology, College of Arts and Sciences

Josie Davis, Lecturer of Animal and Veterinary Sciences, College of Agriculture and Life Science

Eugene R. Delay, Associate Professor of Biology, College of Arts and Sciences

Rona J. Delay, Associate Professor of Biology, College of Arts and Sciences

David S. Dummit, Professor of Mathematics, College of Engineering and Mathematical Sciences

Susan Wilson Edelman, Research Associate Professor of Education, College of Education and Social Services

Kenneth I. Golden, Professor of Mathematics, Electrical Engineering and Physics, College of Engineering and Mathematical Sciences

Robert J. Gordon, Professor of Anthropology, College of Arts and Sciences

Kenneth I. Gross, Professor of Mathematics, College of Engineering and Mathematical Sciences

Sharon M. Henry, Professor of Physical Therapy, College of Nursing and Health Sciences

Sally A. Huber, Professor of Pathology and Laboratory Medicine, College of Medicine

David W. Leitner, Professor of Surgery, College of Medicine

Suzanne N. Levine, Associate Professor of Environment and Natural Resources, Rubenstein School of Environment and Natural Resources



Robert E. Manning, Professor of Environment and Natural Resources, Rubenstein School of Environment and Natural Resources

Elaine McCrate, Associate Professor of Economics and Gender, Sexuality and Women's Studies, College of Arts and Sciences

Lynda Reeves McIntyre, Professor of Art, College of Arts and Sciences

Fayneese Miller, Dean of the College of Education and Social Services, College of Education and Social Services

Kenneth E. Najarian, Professor of Radiology, College of Medicine

Deborah A. O'Rourke, Clinical Professor of Physical Therapy, College of Nursing and Health Sciences

Leonard Payne Perry, Extension Professor of Plant and Soil Science, College of Agriculture and Life Science

Barbara Saylor Rodgers, Professor of Classics, College of Arts and Sciences

Jane Ross-Allen, Research Associate of Leadership and Developmental Sciences, College of Education and Social Services

Kathleen McGann Schneider, Professor of Art, College of Arts and Sciences

Wayne Schneider, Associate Professor of Music, College of Arts and Sciences

James M. Sinkula, Professor of Business Administration, Grossman School of Business

Stephen Titcomb, Associate Professor of Electrical Engineering, College of Engineering and Mathematical Sciences

Brenda L. Waters, Associate Professor of Pathology and Laboratory Medicine, College of Medicine

Nancy Woods, Research Associate of Education, College of Education and Social Services

**The following University of Vermont faculty members were granted emeriti status in 2015:**

James W. Burgmeier, Professor of Mathematics, College of Engineering and Mathematical Sciences

John M. Burke, Professor of Microbiology and Molecular Genetics, College of Medicine

Karen H. Burke, Associate Professor of Family Medicine, College of Medicine

Judith Ann Cohen, Professor of Nursing, College of Nursing and Health Sciences

D. Brookes Cowan, Senior Lecturer of Sociology, College of Arts and Sciences

Riley A. Elliott, Associate Professor of Anesthesiology, College of Medicine

Roger S. Foster, Jr., Professor of Surgery, College of Medicine

Naomi K. Fukagawa, Professor of Medicine, College of Medicine

Robert Griffin, Professor of Leadership and Developmental Sciences, College of Education and Social Service

Jurij Homziak, Extension Assistant Professor, Rubenstein School of Environment and Natural Resources

Thomas R. Hudspeth, Professor of Environmental Studies and Natural Resources, Rubenstein School of Environment and Natural Resources

Neil Hyman, Professor of Surgery, College of Medicine

Dennis Kauppila, Extension Associate Professor, University Extension

Stephanie Kaza, Professor of Environmental Studies and Natural Resources, Rubenstein School of Environment and Natural Resources

Ray E. Keller, Associate Professor of Surgery, College of Medicine

Susan Lowey, Professor of Molecular Physiology & Biophysics, College of Medicine

Ted Lyman, Professor of Art and Art History, College of Arts and Sciences

Kathleen Manning, Professor of Leadership and Developmental Sciences, College of Education and Social Services

Barbara McIntosh, Professor of Business Administration, School of Business Administration

William McMaster, Extension Associate Professor, University Extension

Jane E. Mekkelson, Senior Lecturer of Education, College of Education and Social Services

Gagan Mirchandani, Professor of Electrical Engineering, College of Engineering and Mathematical Sciences

Lee Burns Nelson, Clinical Professor of Physical Therapy, College of Nursing and Health Sciences

S. Abu Turab Rizvi, Professor of Economics, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 2014:**

David D. Aronsson, MD, Professor of Orthopaedics and Rehabilitation, College of Medicine

Jay I. Ashman, Senior Lecturer of Community Development and Applied Economics, College of Agriculture and Life Sciences

Allyson Bolduc, MD, Associate Professor of Family Medicine, College of Medicine

Lynne A. Bond, Professor of Psychology, College of Arts and Sciences

Gale Burford, Professor of Social Work, College of Education and Social Services

John N. Evans, PhD, Professor of Molecular Physiology & Biophysics, College of Medicine

Lawrence K. Forcier, Associate Professor of Environment and Natural Resources, Rubenstein School of Environment and Natural Resources

Jeanne Goldhaber, Associate Professor of Early Childhood Education, College of Education and Social Services

Vladimir V. Gouli, Research Associate Professor of Plant and Soil Science, College of Agriculture and Life Sciences

Christopher James Grace, MD, Professor of Medicine, College of Medicine

Nicholas H. Heintz, PhD, Professor of Pathology, College of Medicine

Susan M. Hill, Clinical Associate Professor of Dental Hygiene, College of Nursing and Health Sciences

Albert Joy, Library Associate Professor, University Libraries

Arthur Kuflik, Associate Professor of Philosophy, College of Arts and Sciences

John C. Lawlor, Senior Lecturer of Mathematics, College of Engineering and Mathematical Sciences

Edward S. Leib, MD, Professor of Medicine, College of Medicine

Alan William McIntosh, Professor of Environmental Sciences, Rubenstein School of Environment and Natural Resources

Diane E. Mincher, Extension Associate Professor, University Extension

Leslie A. Morrissey, Associate Professor of Environmental Sciences, Rubenstein School of Environment and Natural Resources

Rodney Parsons, PhD, Professor of Neurological Sciences, College of Medicine

William W. Pendlebury, MD, Professor of Pathology, College of Medicine

Mark Philippe, MD, Professor of Obstetrics, Gynecology and Reproductive Sciences, College of Medicine

Karen Richardson-Nassif, PhD, Professor of Family Medicine, College of Medicine

Thomas A. Roland, MD, Professor of Radiology, College of Medicine

Jane K. Ross, Professor of Nutrition and Food Science, College of Agriculture and Life Sciences

Joseph Julian Schall, Professor of Biology, College of Arts and Sciences

David A. Shiman, Professor of Education, College of Education and Social Services

Jill Mattuck Tarule, Professor of Leadership and Developmental Sciences, College of Education and Social Services

Peter Jack Tkatch, Associate Professor Theatre, College of Arts and Sciences

Gary Charles Widrick, Research Associate Professor of Social Work, College of Education and Social Services

Martha Woodman, Lecturer, School of Business Administration

David W. Yandell, Sc.D., Professor of Pathology, College of Medicine

**The following University of Vermont faculty members were granted emeriti status in 2013:**

J. Christian Abajian, Professor of Anesthesiology, College of Medicine

Frank M. Bryan, Professor of Political Science, College of Arts and Sciences

Peter A. Dietrich, Professor of Radiology, College of Medicine

Jeanne M. Douglas, Senior Lecturer of Computer Science, College of Engineering and Mathematical Sciences

Elizabeth B. Ezerman, Assistant Professor of Neurological Sciences, College of Medicine

John C. Ferguson, Associate Professor of Family Medicine, College of Medicine

Jerome F. Fiekers, Associate Professor of Neurological Sciences, College of Medicine

Berta M. Geller, Professor - Research Scholar Pathway of Family Medicine, College of Medicine

Lynne Greeley, Associate Professor of Theatre, College of Arts and Sciences

Michael A. Gurdon, Professor of Business Administration, School of Business Administration

Robert W. Hamill, Professor of Neurological Sciences, College of Medicine

Nancy J. Hayden, Associate Professor of Engineering, College of Engineering and Mathematical Sciences

Eva A. Kristensen, Associate Professor of Anesthesiology, College of Medicine

Kenneth G. Mann, Professor of Biochemistry, College of Medicine

James H. Mosenthal, Associate Professor of Education, College of Education and Social Services

Thomas F. Patterson, Jr., Senior Lecturer of Community Development and Applied Economics

Jeryl R. Shapiro, Associate Professor of Anesthesiology, College of Medicine

David F. Smail, Associate Professor of Anesthesiology, College of Medicine

Mary C. Watzin, Professor of Natural Resources, Rubenstein School of Environment and Natural Resources

**The following University of Vermont faculty members were granted emeriti status in 2012:**

Edwin Bovill, Professor of Pathology, College of Medicine

Peter Cherouny, Professor of Obstetrics and Gynecology, College of Medicine

Gerald S. Davis, Professor of Medicine, College of Medicine

Jonathan T. Fairbank, Professor of Radiology, College of Medicine

Brian S. Flynn, Professor of Family Medicine, College of Medicine

Barbara Grant, Associate Professor of Medicine, College of Medicine

James G. Howe, Professor of Orthopaedics and Rehabilitation, College of Medicine

Robert Jenkins, Professor of Engineering, College of Engineering and Mathematical Sciences

Robert Karp, Associate Professor of Medicine, College of Medicine

Edward L. Krawitt, Professor of Medicine, College of Medicine

Richard A. LeVitre, Extension Associate Professor of Extension Services, University Extension

Daniel Lusk, Senior Lecturer of English, College of Arts and Sciences

Theodore W. Marcy, Professor of Medicine, College of Medicine

Anne B. Mason, Professor of Biochemistry, College of Medicine

Paul A. Newhouse, Professor of Psychiatry, College of Medicine

Chester F. Parsons, Extension Associate Professor of Extension Services, University Extension

Allan Ramsay, Professor of Family Medicine, College of Medicine

Bela L. Ratkovits, Professor of Radiology, College of Medicine

Michael Ricci, Professor of Surgery, College of Medicine

Daniel H. Riddick, Professor of Obstetrics, Gynecology and Reproductive Sciences, College of Medicine

Karen A. Schneider, Extension Associate Professor of Extension Services, University Extension

John B. Shane, Jr., Lecturer of Natural Resources, Rubenstein School of Environment and Natural Resources

Jean Szilva, Assistant Professor of Anatomy and Neurobiology, College of Medicine

John P. Tampas, Professor of Radiology, College of Medicine

John Henry Todd, Research Professor of Natural Resources, Rubenstein School of Environment and Natural Resources

G. Scott Waterman, Professor of Psychiatry, College of Medicine

Wes (Wayne) Williams, Professor of Education, College of Education and Social Services

**The following University of Vermont faculty members were granted emeriti status in 2011:**

Lorraine P. Berkett, Professor and Extension Professor of Plant and Soil Science, College of Agriculture and Life Sciences

Linda S. Brew, Library Associate Professor of Libraries, University Libraries

Lyndon B. Carew, Professor of Animal Science and Nutrition and Food Science, College of Agriculture and Life Sciences

Susan C. Crockenberg, Professor of Psychology, College of Arts and Sciences

William W. Currier, Associate Professor of Plant Biology, College of Agriculture and Life Sciences

Timothy J. Fox, Research Associate of Education, College of Education and Social Services

James F. Gatti, Associate Professor of Business Administration, School of Business Administration

William E. Geiger, Professor of Chemistry, College of Arts and Sciences

F. John Gennari, Professor of Medicine, College of Medicine

Dale E. Goldhaber, Associate Professor of Education, College of Education and Social Services

Joyce E. Heckman, Research Assistant Professor of Microbiology and Molecular Genetics, College of Medicine

Richard R. Jesse, Associate Professor of Business Administration, School of Business Administration

Robbie P. Kahn, Associate Professor of Sociology, College of Arts and Sciences

James M. Kraushaar, Associate Professor of Business Administration, School of Business Administration

Paul A. Krusinski, Professor of Medicine, College of Medicine

Jeffrey Laible, Professor of Engineering, College of Engineering and Mathematical Sciences

Diane H. Lamb, Extension Associate Professor of Extension Services, University Extension

Timothy J. McEvoy, Extension Professor of Natural Resources, Rubenstein School of Environment and Natural Resources

Herman W. Meyers, Associate Professor of Integrated Professional Studies, College of Education and Social Services

Frank Owen, Professor of Art and Art History, College of Arts and Sciences

Larry Shirland, Professor of Business Administration, School of Business Administration

Robert A. Sofferman, Professor of Surgery, College of Medicine

Ian A. F. Stokes, Research Associate of Orthopaedics, College of Medicine

Robyn Warhol, Professor of English, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 2010:**

Susan Baker, Senior Lecturer of Education, College of Education and Social Services

Richard A. Bernstein, Associate Professor of Psychiatry, College of Medicine

Kenneth A. Brown, Professor of Medicine, College of Medicine

Corrine Glesne, Professor of Education, College of Education and Social Services

Susan B. Hasazi, Professor of Education, College of Education and Social Services

Robert B. Lawson, Professor of Psychology, College of Arts and Sciences

Arthur M. Levy, Professor of Medicine, College of Medicine

Jerold F. Lucey, Professor of Pediatrics, College of Medicine

William E. Mann, Professor of Philosophy, College of Arts and Sciences

Luther H. Martin, Professor of Religion, College of Arts and Sciences

George H. Moyser, Professor of Political Science, College of Arts and Sciences

Timothy Murad, Associate Professor of Romance Languages, College of Arts and Sciences

Glen F. Rogers, Extension Professor of Extension Services, University Extension

Joseph-André Senécal, Professor of Romance Languages, College of Arts and Sciences

Susan Sobel, Associate Professor of Psychiatry, College of Medicine

Janet Whatley, Professor of Romance Languages, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 2009:**

Anthony G. Bradley, Professor of English, College of Arts and Sciences

Judy H. Branch, Extension Associate Professor of Extension Services, University Extension

Jean-Guy L. Béliveau, Professor of Civil and Environmental Engineering, College of Engineering and Mathematical Sciences

Stephen J. Cutler, Professor of Sociology, College of Arts and Sciences

Laura T. Fishman, Associate Professor of Sociology, College of Arts and Sciences

Laura Fulwiler, Lecturer of Elementary Education, College of Education and Social Services

John Helzer, Professor of Psychiatry, College of Medicine

David H. Hirth, Associate Professor of Wildlife and Fisheries Biology, Rubenstein School of Environment and Natural Resources

Richard Hong, Clinical Professor of Pediatrics, College of Medicine

David Huddle, Professor of English, College of Arts and Sciences

Alan Irwin, Professor of Surgery, College of Medicine

Louis M. Izzo, Associate Professor of Medical Laboratory and Radiation Science, College of Nursing and Health Sciences

Justin M. Joffe, Professor of Psychology, College of Arts and Sciences

Christina A. Kasprisin, Clinical Assistant Professor of Nursing, College of Nursing and Health Sciences

Marjorie Youmans Lipson, Professor of Literacy and Elementary Education, College of Education and Social Services

Brian V. MacPherson, Lecturer of Mathematics and Statistics, College of Engineering and Mathematical Sciences

David W. Maughan, Research Professor of Molecular Physiology and Biophysics, College of Medicine



Stephanie H. McConaughy, Research Professor of Psychiatry and Psychology, College of Medicine

William E. Paden, Professor of Religion, College of Arts and Sciences

Phyllis Paolucci-Whitcomb, Professor of Social Work, College of Education and Social Services

Charles Rathbone, Associate Professor of Education/Curriculum and Instruction, College of Education and Social Services

Mary Lucia Razza, Research Associate of Education, College of Education and Social Services

Fred Schmidt, Associate Professor of Community Development and Applied Economics, College of Agriculture and Life Sciences

David A. Scrase, Professor of German, College of Arts and Sciences

M. Dale Skinner Steen, Extension Associate Professor of Extension Services, University Extension

Dennis William Vane, Professor of Surgery and Pediatrics, College of Medicine

Juefei Wang, Research Professor of Educational Leadership and Policy Studies, College of Education and Social Services

Ian A. Worley, Professor of Environmental Studies/Plant Biology, College of Agriculture and Life Sciences

**The following University of Vermont faculty members were granted emeriti status in 2008:**

Russell Maynard Agne, Professor of Education, College of Education and Social Services

A. John Bramley, Professor of Microbiology and Molecular Genetics, College of Agriculture and Life Sciences

Richard F. Branda, Professor of Medicine, College of Medicine

Sara Ann Burczy, Extension Professor of Extension Services, University Extension

Donald H. DeHayes, Professor of Natural Resources, Rubenstein School of Environment and Natural Resources

John P. Fogarty, Professor of Family Medicine, College of Medicine

Joe R. Haeberle, Associate Professor of Molecular Physiology and Biophysics, College of Medicine

Ruth Irene Hamilton, Research Assistant Professor of Education, College of Education and Social Services

David R. Hemenway, Professor of Civil and Environmental Engineering, College of Engineering and Mathematical Sciences

James Paul Hoffmann, Associate Professor of Plant Biology and Computer Science, College of Agriculture and Life Sciences

William Donald Lakin, Professor of Mathematics and Statistics/Biomedical Engineering, College of Engineering and Mathematical Sciences

Frederic J. Meier, Lecturer of Business, School of Business Administration

Joyce Morris, Research Assistant Professor of Education, College of Education and Social Services

Jo Anne Murad, Lecturer of Romance Languages/Spanish, College of Arts and Sciences

Thomas L. Read, Professor of Music, College of Arts and Sciences

Steven R. Shackford, Professor of Surgery, College of Medicine

Laura J. Solomon, Research Professor of Family Medicine/Psychology, College of Medicine

Nancy A. Sowan, Associate Professor of Nursing, College of Nursing and Health Sciences

Mary Jackman Sullivan, Lecturer of Education, College of Education and Social Services

Susan Yuan, Research Assistant Professor of Education, College of Education and Social Services

Nancy J. Zimny, Associate Professor of Rehabilitation Movement Science/Physical Therapy, College of Nursing and Health Sciences

**The following University of Vermont faculty members were granted emeriti status in 2007:**

Pamela Judd Ainsworth, Extension Professor of Extension Services, University Extension

Peter E. Battelle, Assistant Professor of Business Administration, School of Business Administration

Sara N. Burchard, Associate Professor of Psychology, College of Arts and Sciences

Willi Coleman, Associate Professor of History and ALANA U.S. Ethnic Studies, College of Arts and Sciences

Kenneth R. Cutroneo, Professor of Biochemistry, College of Medicine

Marty Dewees, Associate Professor of Social Work, College of Education and Social Services

J. R. Deep Ford, Associate Professor of Agricultural Economics, College of Agriculture and Life Sciences

James Gilmore, Associate Professor of Animal Science, College of Agriculture and Life Sciences

Frederick R. Magdoff, Professor of Plant and Soil Science, College of Agriculture and Life Sciences

Brooke T. Mossman, Professor of Pathology, College of Medicine

Carlton M. Newton, Professor of Forestry, Rubenstein School of Environment and Natural Resources

Eric C. Nichols, Senior Lecturer of Integrated Professional Studies, College of Education and Social Services

James H. Overfield, Professor of History, College of Arts and Sciences

Joseph B. Patlak, Professor of Molecular Physiology and Biophysics, College of Medicine

Holly P. Puterbaugh, Senior Lecturer of Mathematics and Statistics, College of Engineering and Mathematical Sciences

J. Patrick Reed, Associate Professor of Biomedical Technologies, College of Nursing and Health Sciences

John J. Saia, Associate Professor of Family Medicine, College of Medicine

Gerald C. Silverstein, Lecturer of Microbiology and Molecular Genetics, College of Agriculture and Life Sciences/College of Medicine

Mark A. Stoler, Professor of History, College of Arts and Sciences

Ruth E. Uphold, Professor of Surgery, College of Medicine

**The following University of Vermont faculty members were granted emeriti status in 2006:**

Joseph A. Abruscato, Professor of Education, College of Education and Social Services

Z. Philip Ambrose, Professor of Classical Languages and Literature, College of Arts and Sciences

Marguerite Gemson Ashman, Extension Professor of Community Development and Applied Economics, University Extension

William F. Averyt, Associate Professor of Business Administration, School of Business Administration

Dale R. Bergdahl, Professor of Natural Resources, Rubenstein School of Environment and Natural Resources

Chigee J. Cloninger, Research Associate Professor of Education, College of Education and Social Services

Connell Bernard Gallagher, Library Professor of Libraries, University Libraries

Nicholas J. Hardin, Professor of Pathology, College of Medicine

Larry D. Haugh, Professor of Statistics, College of Engineering and Mathematical Sciences

Jean M. Held, Associate Professor of Physical Therapy, College of Nursing and Health Sciences

Marc Kessler, Associate Professor of Psychology, College of Arts and Sciences

George L. Long, Professor of Biochemistry, College of Medicine

Robert B. Low, Professor of Molecular Physiology and Biophysics, College of Medicine

Richard E. Musty, Professor of Psychology, College of Arts and Sciences

Craig A. Robertson, Library Associate Professor of Libraries, University Libraries

John Kimball Worden, Research Professor of Family Medicine, College of Medicine

**The following University of Vermont faculty members were granted emeriti status in 2005:**

Christopher W. Allen, Professor of Chemistry, College of Arts and Sciences

Daniel W. Bousquet, Extension Associate Professor of Extension Services, University Extension

Lydia Harvey, Extension Assistant Professor of Extension Services, University Extension

Robert J. Johnson, McClure Professor of Orthopaedic Surgery, College of Medicine

William E. Jokela, Professor of Plant and Soil Science, College of Agriculture and Life Sciences

Bruce R. MacPherson, Associate Professor of Pathology, College of Medicine

Gil McCann, Associate Professor of Sociology, College of Arts and Sciences

Willard M. Miller, Assistant Professor of Philosophy, College of Arts and Sciences

Mildred A. Reardon, Clinical Professor of Medicine, College of Medicine

Marga Susas Sproul, Associate Professor of Family Medicine, College of Medicine

Alan Wertheimer, John G. McCullough Professor of Political Science, College of Arts and Sciences

Robert K. Wright, Professor of Mathematics, College of Engineering and Mathematical Sciences

**The following University of Vermont faculty members were granted emeriti status in 2004:**

Phyllis Bronstein, Professor of Psychology, College of Arts and Sciences

Beth A. Hart, Professor of Biochemistry, College of Medicine

Elizabeth Low, Lecturer of Statistics, College of Engineering and Mathematics/College of Medicine

Bill Murphy, Professor of Plant and Soil Science, College of Agriculture and Life Sciences

Lawrence B. Myott, Extension Associate Professor of Extension Services, University Extension

Neil H. Pelsue, Jr., Extension Associate Professor of Extension Services, University Extension

Nancy B. Portnow, Library Professor of Bailey-Howe, University Libraries

Diane R. Sande, Lecturer of Nursing, College of Nursing and Health Sciences

William C. Snow, Extension Associate Professor of Extension Services, University Extension

Barbara H. Tindle, Associate Professor of Pathology, College of Medicine

**The following University of Vermont faculty members were granted emeriti status in 2003:**

Richard G. Absher, Professor of Electrical and Computer Engineering, College of Engineering and Mathematics

Linda Diane Aines, Associate Professor of Extension Services, University Extension

Rosalind E. Andreas, Assistant Professor of Education, College of Education and Social Services

Mary C. Carlson, Assistant Professor of Extension Services, University Extension

Roger L. Cooke, Professor of Mathematics, College of Engineering and Mathematics

Grant Crichfield, Associate Professor of Romance Languages, College of Arts and Sciences

William E. Davison, Professor of Art, College of Arts and Sciences

Barry Lee Doolan, Associate Professor of Geology, College of Arts and Sciences

John C. Drake, Associate Professor of Geology, College of Arts and Sciences

Carolyn M. Elliott, Professor of Political Science, College of Arts and Sciences

Paul Anderson Eschholz, Professor of English, College of Arts and Sciences

Alfred P. Fengler, Associate Professor of Sociology, College of Arts and Sciences

Christie Fengler-Stephany, Associate Professor of Art, College of Arts and Sciences

Paula M. Fives-Taylor, Professor of Microbiology and Molecular Genetics, College of Agriculture and Life Sciences/College of Medicine

Ted B. Flanagan, Professor of Chemistry, College of Arts and Sciences

Lois M. Frey, Associate Professor of Extension Services, University Extension

Larry R. Gordon, Professor of Psychology, College of Arts and Sciences

Alan B. Gotlieb, Extension Professor of Plant and Soil Science, College of Agriculture and Life Sciences

Bernd Heinrich, Professor of Biology, College of Arts and Sciences

Patrick H. Hutton, Professor of History, College of Arts and Sciences

Edward Stanley Emery III, Professor of Neurology and Pediatrics, College of Medicine

Jan E. H. Johansson, Lecturer of Mathematics, College of Engineering and Mathematics

Herbert L. Leff, Associate Professor of Psychology, College of Arts and Sciences/College of Medicine

John H. McCormack, Professor of Surgery, College of Medicine

James P. Olson, Associate Professor of Civil and Environmental Engineering, College of Engineering and Mathematics

Edwin M. Owre, Professor of Art, College of Arts and Sciences

David Bogart Pilcher, Professor of Surgery, College of Medicine

David L. Rogers, Lecturer of Animal Sciences, College of Agriculture and Life Sciences

Alfred F. Rosa, Professor of English, College of Arts and Sciences

James C. Rosen, Professor of Psychology, College of Arts and Sciences

Ronald Savitt, Professor of Business Administration, School of Business Administration

Warren I. Schaeffer, Professor of Microbiology and Molecular Genetics, College of Agriculture and Life Sciences/College of Medicine

William Murrell Schenk, Professor of Theatre, College of Arts and Sciences

Henry J. Steffens, Professor of History, College of Arts and Sciences

William A. Stephany, Professor of English, College of Arts and Sciences

Michael J. Strauss, Professor of Chemistry, College of Arts and Sciences

Richard Carl Sweterlitsch, Associate Professor of English, College of Arts and Sciences

Lee Briscoe Thompson, Professor of English, College of Arts and Sciences

Elizabeth Scannell Trent, Extension Associate Professor of Community Development and Applied Economics, College of Agriculture and Life Sciences

Branimir F. von Turkovich, Professor of Mechanical Engineering, College of Engineering and Mathematics

Edward S. Twardy, Associate Professor of Public Administration, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 2002:**

Abbas Alnaswari, Professor of Economics, College of Arts and Sciences

Howard Ball, Professor of Political Science, College of Arts and Sciences

Richard G. Brandenburg, Professor of Business Administration, School of Business Administration

David Edward Capen, Research Professor of Natural Resources, School of Natural Resources

Phillippe Carrard, Professor of Romance Languages, College of Arts and Sciences

Jen-fu Chiu, Professor of Biochemistry, College of Medicine

Clinton A. Erb, Associate Professor of Education, College of Education and Social Services

Toby E. Fulwiler, Professor of English, College of Arts and Sciences

D. Jacques Grinnell, Professor of Business Administration, School of Business Administration

Robert W. Hall, James Marsh Professor of Intellectual and Moral Philosophy, College of Arts and Sciences

Daniel W Higgins, Professor of Art, College of Arts and Sciences

H. Charles Hill, Associate Professor of Dental Hygiene, School of Allied Health Sciences

David C. Howell, Professor of Psychology, College of Arts and Sciences/College of Medicine

John Ives, Associate Professor of Psychiatry, College of Medicine

Lynville W. Jarvis, Extension Professor of Extension Services, University Extension

Martin E. Kuehne, Professor of Chemistry, College of Arts and Sciences

Diane Meyer, Research Assistant Professor of Microbiology and Molecular Genetics, College of Agriculture and Life Sciences/College of Medicine

Louis Mulieri, Research Associate Professor of Molecular Physiology and Biophysics, College of Medicine

Ghita Orth, Lecturer of English, College of Arts and Sciences

Anne Sullivan, Associate Professor of Biomedical Technologies, School of Allied Health Sciences

Leonard J. Tashman, Associate Professor of Business Administration, School of Business Administration

Eugen E. Weltin, Associate Professor of Chemistry, College of Arts and Sciences

Nancy B. Wessinger, Associate Professor of Education, College of Education and Social Services

A. Peter Woolfson, Professor of Anthropology, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 2001:**

Richard Albertini, Professor of Medicine, College of Medicine

Jane P. Ambrose, Professor of Music, College of Arts and Sciences

Alfred J. Andrea, Professor of History, College of Arts and Sciences

Robert G. Arns, Professor of Physics, College of Arts and Sciences

James R. Barbour, Associate Professor of Integrated Professional Studies, College of Education and Social Services

H. Gardiner Barnum, Associate Professor of Geography, College of Arts and Sciences

Ross T. Bell, Professor of Biology, College of Arts and Sciences

Charles "Chuck" W. Bigalow, Extension Professor of Community Development and Applied Economics, College of Agriculture and Life Sciences

T. Alan Broughton, Professor of English, College of Arts and Sciences

Angela Marie Capone, Associate Professor of Integrated Professional Studies, College of Education and Social Services

E. Alan Cassell, Professor of Natural Resources, School of Natural Resources

Valerie M. Chamberlain, Professor of Nutrition and Food Sciences, College of Agriculture and Life Sciences

John H. Clarke, Associate Professor of Education, College of Education and Social Services



Richard N. Downer, Associate Professor of Civil and Environmental Engineering, College of Engineering and Mathematics

Margaret F. Edwards, Associate Professor of English, College of Arts and Sciences

Martha D. Fitzgerald, Professor of Education, College of Education and Social Services

Donald C. Foss, Professor of Animal Sciences, College of Agriculture and Life Sciences

Alphonse H. Gilbert, Associate Professor of Natural Resources, School of Natural Resources

Joseph E. Hasazi, Associate Professor of Psychology, College of Arts and Sciences/College of Medicine

Mahendra S. Hundal, Professor of Mechanical Engineering, College of Engineering and Mathematics

Barent W. Stryker III, Extension Professor of Extension Services, University Extension

Bruce S. Kapp, Professor of Psychology, College of Arts and Sciences

Helene W. Lang, Associate Professor of Education, College of Education and Social Services

Harold Leitenberg, Professor of Psychology, College of Arts and Sciences/College of Medicine

Carroll Lewin, Associate Professor of Anthropology, College of Arts and Sciences

William Charles Lipke, Professor of Art, College of Arts and Sciences

Frank Manchel, Professor of English, College of Arts and Sciences

Philip Bartlett Mead, Clinical Professor of Obstetrics and Gynecology, College of Medicine

Raymond Lee Milhous, Professor of Orthopaedics and Rehabilitation, College of Medicine

David C. Morency, Lecturer of Mathematics and Statistics, College of Engineering and Mathematics

Charles P. Novotny, Professor of Microbiology and Molecular Genetics, College of Agriculture and Life Sciences/College of Medicine

Monica B. Porter, Extension Associate Professor of Extension Services, University Extension

Jean Richardson, Professor of Natural Resources, School of Natural Resources

Peter Jordan Seybolt, Professor of History, College of Arts and Sciences

Allen G. Shepherd, Professor of English, College of Arts and Sciences

David Young Smith, Professor of Physics, College of Arts and Sciences

Robert E. Stanfield, Professor of Sociology, College of Arts and Sciences

Michael Neill Stanton, Associate Professor of English, College of Arts and Sciences

S. Christopher Stevenson, Professor of Education, College of Education and Social Services

Neil R. Stout, Professor of History, College of Arts and Sciences

Robert C. Ullrich, Professor of Botany, College of Agriculture and Life Sciences

Sheldon Weiner, Professor of Psychiatry, College of Medicine

Lorraine M. Welch, Associate Professor of Nursing, School of Nursing

David L. Weller, Professor of Botany and Agricultural Biochemistry, College of Agriculture and Life Sciences

Susan M. Whitebook, Assistant Professor of Romance Languages, College of Arts and Sciences

Lewis R. Willmuth, Associate Professor of Psychiatry, College of Medicine

Patricia Winstead-Fry, Professor of Nursing, School of Nursing

Barbara M. Zucker, Professor of Art, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 2000:**

P. Marlene Absher, Research Associate Professor of Medicine, College of Medicine

Elizabeth Fleming Allen, Assistant Professor of Pathology, College of Medicine

Kathleen Kirk Bishop, Associate Professor of Social Work, College of Education and Social Services

Thomas K. Bloom, Associate Professor of Community Development and Applied Economics, College of Agriculture and Life Sciences

Carol A. Burdett, Assistant Professor of Education, College of Education and Social Services

David Van Buskirk, Associate Professor of Psychiatry, College of Medicine

David Conrad, Professor of Education, College of Education and Social Services

Milton H. Crouch, Library Professor of Libraries, University Libraries

Mary J. Dickerson, Associate Professor of English, College of Arts and Sciences

John R. Donnelly, Professor of Natural Resources, School of Natural Resources

Gerald P. Francis, Professor of Mechanical Engineering, College of Engineering and Mathematics

John W. Frymoyer, Professor of Orthopaedics and Rehabilitation, College of Medicine

Everett W. Harris, Associate Professor of Community Development and Applied Economics, College of Agriculture and Life Sciences

Clarke E. Hermance, Professor of Mechanical Engineering, College of Engineering and Mathematics

A. Paul Krapchow, Professor of Chemistry, College of Arts and Sciences

Mary Elizabeth Laferriere, Lecturer of Nursing, School of Nursing

Richard H. Landesman, Associate Professor of Biology, College of Arts and Sciences

Beverly A. Nichols, Associate Professor of Education, College of Education and Social Services

Sidney B. Poger, Professor of English, College of Arts and Sciences

Patricia Powers, Associate Professor of Anatomy and Neurobiology, College of Medicine

Carl H. Reidel, Daniel Clarke Sanders Professor of Environmental Studies, School of Natural Resources

Samuel F. Sampson, Professor of Sociology, College of Arts and Sciences

Dolores Sandoval, Associate Professor of Education, College of Education and Social Services

Robin R. Schlunk, Professor of Classics, College of Arts and Sciences

Tamotsu Shinozaki, Professor of Anesthesiology, College of Medicine

Robert L. Townsend, Extension Professor of Extension Service, College of Agriculture and Life Sciences

Marshal M. True, Associate Professor of History, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 1999:**

John H. Davis, Professor of Surgery, College of Medicine

Bud Etherton, Professor of Botany and Agricultural Biochemistry, College of Agriculture and Life Sciences

Daniel W. Gade, Professor of Geography, College of Arts and Sciences

Peter R. Hannah, Professor of Forestry, School of Natural Resources

William A. Haviland, Professor of Anthropology, College of Arts and Sciences

David Bucke Jr., Associate Professor of Geology, College of Arts and Sciences

Walter L. Brenneeman Jr., Professor of Religion, College of Arts and Sciences

Robert L. Larson, Professor of Education, College of Education and Social Services

Marion E. Metcalfe, Lecturer of Music, College of Arts and Sciences

Molly Moore, Lecturer of English, College of Arts and Sciences

Barbara L. Murray, Associate Professor of Nursing, School of Nursing

Roger Secker-Walker, Professor of Medicine, College of Medicine

Robert J. Sekerak, Library Associate Professor of Dana Library, University Libraries

William S. Stirewalt, Associate Professor of Obstetrics and Gynecology and Molecular Physiology and Biophysics, College of Medicine

John W. Thanassi, Professor of Biochemistry, College of Medicine

C. Robert Wigness, Professor of Music, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 1998:**

Arthur W. Biddle, Professor of English, College of Arts and Sciences

Bertie R. Boyce, Professor of Plant and Soil Science, College of Agriculture and Life Sciences

John Farnham, Clinical Professor of Surgery, College of Medicine

C. Lynn Fife, Associate Professor of Community Development and Applied Economics, College of Agriculture and Life Sciences

Antonio J. Gomez, Associate Professor of Neurology, College of Medicine

Frederick C. Evering Jr., Professor of Electrical and Computer Engineering, College of Engineering and Mathematics

William Metcalfe, Professor of History, College of Arts and Sciences

William L. Meyer, Professor of Biochemistry, College of Medicine

Joseph C. Oppenlander, Professor of Civil and Environmental Engineering, College of Engineering and Mathematics

Mary Ellen Palmer, Associate Professor of Nursing, School of Nursing

Marlene P. Thibault, Extension Associate Professor of Extension Services, University Extension

John G. Weiger, Professor of Romance Languages, College of Arts and Sciences

Peter Wesseling, Associate Professor of Romance Languages, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 1997:**

Richmond J. Bartlett, Professor of Plant and Soil Science, College of Agriculture and Life Sciences

Rosemary D. Bevan, Professor of Pharmacology, College of Medicine

Joanne C. Brown, Lecturer of Mathematics and Statistics, College of Engineering and Mathematics

John S. Brown, Professor of Physics, College of Arts and Sciences

Ardith M. Fenton, Extension Instructor of Extension Services, College of Agriculture and Life Sciences

Kenneth N. Fishell, Professor of Education, College of Education and Social Services

K. Steward Gibson, Professor of Animal and Food Sciences, College of Agriculture and Life Sciences

Theodore E. Braun Jr., Associate Professor of Obstetrics and Gynecology, College of Medicine

Karin B. Larson, Lecturer of Mathematics and Statistics, College of Engineering and Mathematics

Aulis Lind, Associate Professor of Geography, College of Arts and Sciences

John J. Lindsay, Professor of Natural Resources, School of Natural Resources

James W. Loewen, Professor of Sociology, College of Arts and Sciences

Donald J. McFeeters, Extension Professor of Extension Services, College of Agriculture and Life Sciences

H. Marie McGrath, Professor of Nursing, School of Nursing

Thomas J. Moehring, Professor of Microbiology and Molecular Genetics, College of Medicine

Veronica C. Richel, Associate Professor of German and Russian, College of Arts and Sciences

Robert E. Sjogren, Associate Professor of Microbiology and Molecular Genetics, College of Medicine

Vernon Tuxbury, Extension Associate Professor of Extension Services, University Extension

George D. Webb, Associate Professor of Molecular Physiology and Biophysics, College of Medicine

James G. Welch, Professor of Animal and Food Sciences, College of Agriculture and Life Sciences

Joseph Wells, Professor of Anatomy and Neurobiology, College of Medicine

Robert C. Woodworth, Professor of Biochemistry, College of Medicine

Dorothy Jean Wooton, Associate Professor of Allied Health Sciences, School of Allied Health Sciences

**The following University of Vermont faculty members were granted emeriti status in 1996:**

Janet P. Brown, Associate Professor of Nursing, School of Nursing

Leon F. Burrell, Professor of Social Work, College of Education and Social Services

Anthony S. Campagna, Professor of Economics, College of Arts and Sciences

Richard X. Chase, Professor of Economics, College of Arts and Sciences

Virginia P. Clark, Professor of English, College of Arts and Sciences

Joseph Costante, Extension Professor of Plant and Soil Science, College of Agriculture and Life Sciences

John E. Craighead, Professor of Pathology, College of Medicine

Robert S. Deane, Professor of Anesthesiology, College of Medicine

Alan M. Elkins, Professor of Psychiatry, College of Medicine

Samuel B. Feitelberg, Professor of Physical Therapy, School of Allied Health Sciences

Jeremy Felt, Professor of History, College of Arts and Sciences

Martin E. Flanagan, Professor of Surgery, College of Medicine

Steven L. Freedman, Associate Professor of Anatomy and Neurobiology, College of Medicine

William G. B. Graham, Professor of Medicine, College of Medicine

Robert E. Gussner, Professor of Religion, College of Arts and Sciences

Burt B. Hamrell, Associate Professor of Molecular Physiology and Biophysics, College of Medicine

George Happ, Professor of Biology, College of Arts and Sciences

Kenneth W. Hood, Assistant Professor of Education, College of Education and Social Services

Allen S. Hunt, Professor of Geology, College of Arts and Sciences

Martin E. Koplewitz, Associate Professor of Surgery, College of Medicine

John R. Kunkel, Extension Associate Professor of Animal and Food Sciences, College of Agriculture and Life Sciences

Gene Laber, Professor of Business Administration, School of Business Administration

Chester H. Liebs, Professor of History, College of Arts and Sciences

Peter C. Linton, Professor of Surgery, College of Medicine

James Lubker, Professor of Communication Sciences, College of Arts and Sciences

William E. Mitchell, Professor of Anthropology, College of Arts and Sciences

Joan M. Moehring, Research Professor of Microbiology and Molecular Genetics, College of Medicine

Roger W. Murray, Research Associate Professor of Animal and Food Sciences, College of Agriculture and Life Sciences

Donald R. Parks, Assistant Professor of Education, College of Education and Social Services

Norman E. Pellett, Professor of Plant and Soil Science, College of Agriculture and Life Sciences

James Allan Peterson, Professor of Integrated Professional Studies, College of Education and Social Services

Marjory W. Power, Associate Professor of Anthropology, College of Arts and Sciences

Johanna M. Ruess, Associate Professor of Orthopaedic Rehabilitation, College of Medicine

Henry M. Tufo, Professor of Medicine, College of Medicine

Frank John Watson, Lecturer of Education, College of Education and Social Services

Armando Zarate, Professor of Romance Languages, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 1995:**

Richard L. Anderson, Professor of Electrical Engineering and Materials Science, College of Engineering and Mathematics

William E. Bright, Assistant Professor of Education, College of Education and Social Services

Peter M. Brown, Associate Professor of Music, College of Arts and Sciences

Robert V. Carlson, Professor of Education, College of Education and Social Services

Robert W. Detenbeck, Professor of Physics, College of Arts and Sciences

Dieter Walter Gump, Professor of Medicine, College of Medicine

Philip Lloyd Howard, Professor of Pathology, College of Medicine

William H. Kelly, Associate Professor of Community Development and Applied Economics, College of Agriculture and Life Sciences

Charles A. Letteri, Associate Professor of Education, College of Education and Social Services

John E. Mazuzan Jr., Professor of Anesthesiology, College of Medicine

Harold A. Meeks, Professor of Geography, College of Arts and Sciences

Mary S. Moffroid, Professor of Physical Therapy, School of Allied Health Sciences

Ralph H. Orth, Professor of English, College of Arts and Sciences

Carol Fenton Phillips, Professor of Pediatrics, College of Medicine

Ernest M. I. Reit, Associate Professor of Pharmacology, College of Medicine

Margaret Roland, Associate Professor of Art, College of Arts and Sciences

Canute Vander Meer, Professor of Geography, College of Arts and Sciences

William N. White, Professor of Chemistry, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 1994:**

E. William Chamberlain, Professor of Mathematics, College of Engineering and Mathematics

C. Sam Dietzel, Clinical Associate Professor of Psychology, College of Arts and Sciences

Henry C. Finney, Associate Professor of Sociology, College of Arts and Sciences

Gerald R. Fuller, Professor of Vocational Education and Technology, College of Agriculture and Life Sciences

Mary S. Hall, Associate Professor of English, College of Arts and Sciences

Samuel B. Hand, Professor of History, College of Arts and Sciences

Edith D. Hendley, Professor of Molecular Physiology and Biophysics, College of Medicine

Louis I. Hochheiser, Professor of Family Practice, College of Medicine

E. Douglas McSweeney Jr., Assistant Professor of Surgery, College of Medicine

Elliot Danforth Jr., Professor of Medicine, College of Medicine



John D. Lewis, Associate Professor of Obstetrics and Gynecology,  
College of Medicine

George B. MacCollom, Professor of Plant and Soil Science, College of  
Agriculture and Life Sciences

H. Lawrence McCrorey, Professor of Molecular Physiology and  
Biophysics, College of Medicine

Donald L. McLean, Professor of Plant and Soil Science, College of  
Agriculture and Life Sciences

Carlene A. Raper, Research Associate Professor of Microbiology and  
Molecular Genetics, College of Medicine

Dolores M. Reagin, Assistant Professor of Organizational Counseling,  
College of Education and Social Services

Carl F. Runge, Associate Professor of Medicine, College of Medicine

Thomas D. Sachs, Associate Professor of Physics, College of Arts and  
Sciences

Alfred L. Thimm, Professor of Business Administration, School of  
Business Administration

Harry L. Thompson, Associate Professor of Social Work, College of  
Education and Social Services

W. Allan Tisdale, Professor of Medicine, College of Medicine

Thomas D. Trainer, Professor of Pathology, College of Medicine

Julian A. Waller, Professor of Medicine, College of Medicine

Mary S. Wilson, Professor of Communication Science and Disorders,  
College of Arts and Sciences

**The following University of Vermont faculty members  
were granted emeriti status in 1993:**

Norman R. Alpert, Professor of Physiology and Biophysics, College of  
Medicine

Paul W. Aschenbach, Lecturer of Art, College of Arts and Sciences

David Babbott, Professor of Medicine, College of Medicine

Warren L. Beeken, Professor of Medicine, College of Medicine

Malcom I. Bevins, Extension Professor of Outdoor Recreation,  
College of Agriculture and Life Sciences

Betty M. Bolognani, Extension Instructor of Extension Services,  
College of Agriculture and Life Sciences

Munro Spaulding Brook, Extension Professor of Extension Services,  
College of Agriculture and Life Sciences

James G. Chapman, Professor of Music, College of Arts and Sciences

Marilyn Chase, Assistant Professor of Human Development, College  
of Education and Social Services

Lu Smalley Christie, Lecturer of Special Education, College of  
Education and Social Services

Laurence H. Coffin, Professor of Surgery, College of Medicine

Edith F. (Schulze) Deck, Associate Professor of Nursing, School of  
Nursing

Norris A. Elliott, Extension Associate Professor of Extension Services,  
College of Agriculture and Life Sciences

Edward J. Feidner, Professor of Theatre, College of Arts and Sciences

Marie Gontier Geno, Lecturer of Romance Languages, College of  
Arts and Sciences

Thomas H. Geno, Associate Professor of Romance Languages,  
College of Arts and Sciences

Brady Blackford Gilleland, Professor of Classics, College of Arts and  
Sciences

Jackie M. Gribbons, Assistant Professor of Organizational,  
Counseling and Foundational Studies, College of Education and  
Social Services

Edward M. Hanley, Professor of Education and Curriculum  
Development, College of Education and Social Services

Edward S. Horton, Professor of Medicine, College of Medicine

Richard H. Janson, Professor of Art History, College of Arts and  
Sciences

John O. Outwater Jr., Professor of Mechanical Engineering, College  
of Engineering and Mathematics

Denis E. Lambert, Assistant Professor of Human Development  
Studies, College of Education and Social Services

Christopher Patrick McAree, Associate Professor of Psychiatry,  
College of Medicine

James S. Pacy, Professor of Political Science, College of Arts and  
Sciences

S. Alexander Rippa, Professor of Organizational, Counseling and  
Foundational Studies, College of Education and Social Services

Leonard M. Scarfone, Professor of Physics, College of Arts and  
Sciences

Albert M. Smith, Professor of Animal Sciences, College of Agriculture  
and Life Sciences

Roy A. Whitmore, Professor of Forestry and Natural Resources,  
School of Natural Resources

**The following University of Vermont faculty members  
were granted emeriti status in 1992:**

George W. Albee, Professor of Psychology, College of Arts and  
Sciences

Philip W. Cook, Associate Professor of Botany, College of Agriculture and Life Sciences

Jean Margaret Davison, Professor of Classics, College of Arts and Sciences

Edward R. DuCharme, Professor of Organizational, Counseling and Foundational Studies, College of Education and Social Services

Faith G. Emerson, Associate Dean/Associate Professor of Nursing, School of Nursing

Barbara T. Gay, Library Associate Professor of Libraries, University Libraries

Robert J. Gobin, Professor of Human Development Studies, College of Education and Social Services

Harold A. Greig, Assistant Professor of Human Development Studies, College of Education and Social Services

James Robinson Howe IV, Professor of English, College of Arts and Sciences

Richard M. Klein, Professor of Botany, College of Agriculture and Life Sciences

Roy Korson, Professor of Pathology, College of Medicine

Arthur S. Kunin, Professor of Medicine, College of Medicine

Herbert L. Martin, Professor of Medicine, College of Medicine

Gordon Roy Nielsen, Extension Assistant Professor of Plant and Soil Science, College of Agriculture and Life Sciences

David W. Racusen, Professor of Agricultural Biochemistry, College of Agriculture and Life Sciences

Dorothy C. Senghas, Library Assistant Professor of Libraries, University Libraries

**The following University of Vermont faculty members were granted emeriti status in 1991:**

Richard Emile Bouchard, Professor of Medicine, College of Medicine

R. Nolan Cain, Associate Professor of Surgery, College of Medicine

Jackson J. W. Clemmons, Professor of Pathology, College of Medicine

Robert Willard Cochran, Professor of English, College of Arts and Sciences

Julius G. Cohen, Professor of Psychiatry, College of Medicine

Ben R. Forsyth, Professor of Medicine, College of Medicine

E. Bennette Henson, Professor of Zoology, College of Arts and Sciences

Raul Hilberg, Professor of Political Science, College of Arts and Sciences

William Johnson Young II, Professor of Anatomy and Neurology, College of Medicine

Deedee M. Jameson, Assistant Professor of Human Development Studies, College of Education and Social Services

Stanley Burns Jr., Professor of Medicine, College of Medicine

Lloyd M. Lambert, Professor of Physics, College of Arts and Sciences

William H. Luginbuhl, Dean/Professor of Pathology, College of Medicine

Suzanne Massonneau, Library Professor of Libraries, University Libraries

Edward J. Miles, Professor of Geography, College of Arts and Sciences

Kenneth Sprague Rothwell, Professor of English, College of Arts and Sciences

Burton S. Tabakin, Professor of Medicine, College of Medicine

David M. Tormey, Associate Professor of Family Practice, College of Medicine

Hubert W. Vogelmann, Professor of Botany, College of Agriculture and Life Sciences

**The following University of Vermont faculty members were granted emeriti status in 1990:**

Alexander Harry Duthie, Professor of Animal Sciences, College of Agriculture and Life Sciences

Armin E. Grams, Professor of Human Development Studies, College of Education and Social Services

William Halpern, Professor of Physiology and Biophysics, College of Medicine

Robert E. Honnold, Extension Professor of Extension Service, College of Agriculture and Life Sciences

Herbert A. Durfee Jr., Professor of Obstetrics and Gynecology, College of Medicine

Lyman Curtis Hunt Jr., Professor of Education and Curriculum Development, College of Education and Social Services

Leslie R. Leggett, Professor of Human Development Studies, College of Education and Social Services

Joyce Kenyon Livak, Associate Professor of Nutritional Science, College of Agriculture and Life Sciences

J. Bishop McGill, Associate Professor of Surgery, College of Medicine

Milton Potash, Professor of Zoology, College of Arts and Sciences

John Edward Reinhardt, Professor of Political Science, College of Arts and Sciences

Stanley Rush, Professor of Electrical Engineering, College of Engineering and Mathematics

Roberta A. Schwalb, Associate Professor of Nursing, School of Nursing

Donald R. Whaples, Extension Professor of Extension Service, College of Agriculture and Life Sciences

**The following University of Vermont faculty members were granted emeriti status in 1989:**

Henry V. Atherton, Professor of Animal Sciences, College of Agriculture and Life Sciences

Edward L. Bouton, Extension Professor of Plant and Soil Science, College of Agriculture and Life Sciences

John L. Buechler, Library Professor of Libraries, University Libraries

Rose J. Forgione, Associate Professor of Nursing, School of Nursing

Robert W. Fuller, Assistant Professor of Natural Resources, School of Natural Resources

Carleton R. Haines, Associate Professor of Surgery, College of Medicine

Julian J. Jaffe, Professor of Pharmacology, College of Medicine

William J. Lewis, Professor of Sociology, College of Arts and Sciences

Donald E. Moser, Professor of Mathematics and Statistics, College of Engineering and Mathematics

H. Gordon Page, Professor of Surgery, College of Medicine

Wolfe W. Schmokel, Professor of History, College of Arts and Sciences

Phyllis M. Soule, Assistant Professor of Nutritional Science, College of Agriculture and Life Sciences

Thomas J. Spinner, Professor of History, College of Arts and Sciences

Dean F. Stevens, Associate Professor of Zoology, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 1988:**

Elizabeth F. Atwood, Associate Professor of Merchandising, Consumer Studies and Design, College of Agriculture and Life Sciences

Dallas R. Boushey, Assistant Professor of Anatomy and Neurobiology, College of Medicine

Arthur H. Cheney, Director of Office of Student and Field Services, College of Education and Social Services

Robert V. Daniels, Professor of History, College of Arts and Sciences

Beal B. Hyde, Professor of Botany, College of Agriculture and Life Sciences

George William Welsh III, Associate Professor of Medicine, College of Medicine

Leonidas M. Jones, Frederick and Fanny Corse Professor of English Language and Literature, College of Arts and Sciences

Gordon F. Lewis, Professor of Sociology, College of Arts and Sciences

Maria Franca Morselli, Research Professor of Botany, College of Agriculture and Life Sciences

K. Rogers Simmons, Associate Professor of Animal Sciences, College of Agriculture and Life Sciences

Ronald A. Steffenhagen, Professor of Sociology, College of Arts and Sciences

Fred C. Webster, Professor of Agricultural and Resource Economics, College of Agriculture and Life Sciences

**The following University of Vermont faculty members were granted emeriti status in 1987:**

John H. Bland, Professor of Medicine, College of Medicine

Howard J. Carpenter, Professor of Mechanical Engineering, College of Engineering and Mathematics

Joseph H. Gans, Professor of Pharmacology, College of Medicine

Thomas C. Gibson, Professor of Medicine, College of Medicine

Irene T. Gora, Lecturer of Merchandising, Consumer Studies and Design, College of Agriculture and Life Sciences

John S. Hanson, Professor of Medicine, College of Medicine

Robert James McKay Jr., Professor of Pediatrics, College of Medicine

A. Rosemary Lamoray, Lecturer of Dental Hygiene, School of Allied Health Sciences

Jean B. Milligan, Dean of Nursing, School of Nursing

Robert O. Sinclair, Dean of Agriculture, Natural Resources, Life Science, College of Agriculture and Life Sciences

Raymond H. Tremblay, Professor of Agricultural and Resource Economics, College of Agriculture and Life Sciences

Louis Maldonado Ugalde, Professor of Romance Languages, College of Arts and Sciences

H. Carmer VanBuren, Associate Professor of Medicine, College of Medicine

Lelon A. Weaver, Assistant Professor of Psychiatry, College of Medicine

**The following University of Vermont faculty members were granted emeriti status in 1986:**

Wesson D. Bolton, Professor of Animal Pathology, College of Agriculture and Life Sciences

L. Aline Demers, Associate Professor of Nursing, School of Nursing

Thomas C. Dunkley, Assistant Professor of Human Development Studies, College of Education and Social Services

James A. Edgerton, Extension Professor of Extension Service, College of Agriculture and Life Sciences

Milton J. Nadworny, Professor of Economics, College of Arts and Sciences

David P. Newton, Extension Professor of Extension Service, College of Agriculture and Life Sciences

Wesley Lemars Nyborg, Professor of Physics, College of Arts and Sciences

John C. Page, Extension Professor of Extension Service, College of Agriculture and Life Sciences

Wilfred Roth, Professor of Electrical Engineering, College of Engineering and Mathematics

Janet R. Sawyer, Professor of Nursing, School of Nursing

Herbert L. Schultz, Associate Professor of Music, College of Arts and Sciences

Malcolm F. Severance, Professor of Business Administration, School of Business Administration

Warren R. Stinebring, Professor of Microbiology, College of Medicine

Winston A. Way, Extension Professor of Plant and Soil Science, College of Agriculture and Life Sciences

**The following University of Vermont faculty members were granted emeriti status in 1985:**

Donald J. Balch, Professor of Animal Sciences, College of Agriculture

Betty M. Boller, Professor of Organizational, Counseling and Foundational Studies, College of Education and Social Services

Mary E. Breen, Associate Professor of Medical Technology, School of Allied Health Sciences

Mary Julia Cronin, Associate Professor of Nursing, School of Nursing

Verle R. Houghaboom, Extension Professor of Agricultural and Resource Economics, College of Agriculture

Hans Rosenstock Huessy, Professor of Psychiatry, College of Medicine

Frederick M. Laing, Research Associate Professor of Botany, College of Agriculture

Merton P. Lamden, Professor of Biochemistry, College of Medicine

Littleton Long, Professor of English, College of Arts and Sciences

Gilbert A. Marshall, Professor of Mechanical Engineering, College of Engineering and Mathematics

Harry J. McEntee, Assistant Professor of Education, College of Education and Social Services

John R. Price, Extension Assistant Professor of Extension Service, College of Agriculture

Frederic O. Sargent, Professor of Agricultural and Resource Economics, College of Agriculture

Glen M. Wood, Professor of Plant and Soil Science, College of Agriculture

Hazen F. Wood, Coordinator of Professional Laboratory Experiences, College of Education and Social Services

**The following University of Vermont faculty members were granted emeriti status in 1984:**

Evaline I. Barrett, Associate Professor of Nursing, School of Nursing

William M. Corey, Extension Professor of Extension Service, College of Agriculture

Edward W. Goodhouse, Extension Associate Professor of Extension Service, College of Agriculture

Philip K. Grime, Extension Professor of Extension Service, College of Agriculture

Joseph N. Russo II, Clinical Assistant Professor of Obstetrics and Gynecology, College of Medicine

Edward Suter Irwin, Clinical Professor of Surgery, College of Medicine

Donald B. Johnstone, Professor of Microbiology and Biochemistry, College of Medicine

Frank Lusk Babbott Jr., Clinical Associate Professor of Medicine, College of Medicine

Douglas Kinnard, Professor of Political Science, College of Arts and Sciences

George T. Little, Professor of Political Science, College of Arts and Sciences

Thomas J. McCormick, Extension Professor of Extension Service, College of Agriculture



Bethia N. Munger, Extension Associate Professor of Extension Service, College of Agriculture

Mary M. Petrusich, Professor of Human Development Studies, College of Education and Social Services

Heath K. Riggs, Professor of Mathematics, College of Engineering and Mathematics

Blanche E. Royce, Lecturer of Education, College of Education and Social Services

Stanislaw J. Staron, Professor of Political Science, College of Arts and Sciences

Noah C. Thompson, Extension Professor of Extension Service, College of Agriculture

Kenneth E. Varney, Assistant Professor of Plant and Soil Science, College of Agriculture

Francis A. Weinrich, Assistant Professor of Music, College of Arts and Sciences

Samuel C. Wiggins, Professor of Plant and Soil Science, College of Agriculture

**The following University of Vermont faculty members were granted emeriti status in 1983:**

Martha Marie Caldwell, Associate Professor of Textiles, Merchandising and Consumer Studies, College of Agriculture

Thomas Whitfield Dowe, Professor of Animal Science, College of Agriculture

Dwight K. Eddy, Extension Professor of Agricultural and Resource Economics, College of Agriculture

Edward E. Friedman, Professor of Family Practice, College of Medicine

Susan M. Hopp, Research Associate Professor of Agriculture, College of Agriculture

Roy G. Julow, Professor of Romance Languages, College of Arts and Sciences

David L. Kinsey, Associate Professor of Music, College of Arts and Sciences

Karin Kristiansson, Extension Professor of Extension Services, College of Agriculture

Dorothy Page, Associate Professor of Physical Therapy, School of Allied Health Sciences

Lucien D. Paquette, Extension Professor of Extension Services, College of Agriculture

William I. Shea, Associate Professor of Surgery, College of Medicine

Kathleen Strassburg, Extension Professor of Textiles, Merchandising and Consumer Studies, College of Agriculture

William A. Woodruff, Associate Professor of Psychiatry, College of Medicine

**The following University of Vermont faculty members were granted emeriti status in 1982:**

Samuel N. Bogorad, Professor of English, College of Arts and Sciences

Robert Whitney Dumville, Extension Assistant Professor of Extension Services, College of Agriculture

Gordon V. Farr, Extension Associate Professor of Extension Services, College of Agriculture

Theodore Ross Flanagan, Extension Associate Professor of Extension Services, College of Agriculture

Ellen M. Gillies, Library Professor of Medical Laboratory, University Libraries

Morris Handelsman, Professor of Electrical Engineering, College of Engineering and Mathematics

Joseph A. Izzo, Professor of Mathematics, College of Engineering and Mathematics

Paul B. Kebakian, Library Professor of Libraries, University Libraries

Frank Wayne Lidral, Professor of Music, College of Arts and Sciences

Frances E. Magee, Assistant Professor of Nursing, School of Nursing

Bruce E. Meserve, Professor of Mathematics, College of Engineering and Mathematics

N. James Schoonmaker, Professor of Mathematics, College of Engineering and Mathematics

Horace H. Squire, Associate Professor of Business Administration, School of Business Administration

Margaret B. Whittlesey, Associate Professor of Special Education, Social Work and Social Services, College of Education and Social Services

**The following University of Vermont faculty members were granted emeriti status in 1981:**

Beatrice Buxton, Extension Associate Professor of Extension Services, College of Agriculture

Julius S. Dwork, Associate Professor of Mathematics, College of Engineering and Mathematics

Murray W. Foote, Associate Professor of Microbiology and Biochemistry, College of Agriculture

Chesley P. Horton, Extension Assistant Professor of Extension Services, College of Agriculture

William P. Leamy, Extension Associate Professor of Extension Services, College of Agriculture

Leonard S. Mercia, Extension Professor of Extension Services, College of Agriculture

Donald B. Miller, Associate Professor of Surgery, College of Medicine

Harold S. Schultz, Professor of History, College of Arts and Sciences

Ethan A. H. Sims, Professor of Medicine, College of Medicine

John F. Stephenson, Extension Professor of Extension Services, College of Agriculture

Arthur F. Tuthill, Professor of Mechanical Engineering, College of Engineering and Mathematics

Selina Williams Webster, Professor of Clothing, Textiles and Design, College of Agriculture

Robert E. White, Extension Assistant Professor of Extension Services, College of Agriculture

**The following University of Vermont faculty members were granted emeriti status in 1980:**

Alfred H. Chambers, Professor of Physiology and Biophysics, College of Medicine

Shirley A. Cushing, Extension Assistant Professor of Extension Services, College of Agriculture

Henry M. Doremus, Associate Professor of Pharmacology and Animal Pathology, College of Medicine

Raymond T. Foulds, Extension Professor of Extension Services, College of Agriculture

Edwin C. Greif, Professor of Marketing, College of Engineering, Mathematics and Business Administration

Sinclair T. Allen Jr., Professor of Medicine, College of Medicine

C. Alan Phillips, Professor of Medicine and Medical Microbiology, College of Medicine

Doris H. Steele, Extension Professor of Extension Services, College of Agriculture

**The following University of Vermont faculty members were granted emeriti status in 1979:**

Bernard B. Barney, Associate Professor of Surgery, College of Medicine

Alice J. Blair, Extension Associate Professor of Extension Services, College of Agriculture

Francis R. Bliss, Professor of Classics, College of Arts and Sciences

Raymond M. P. Donaghy, Professor of Neurosurgery, College of Medicine

Howard Duchacek, Professor of Mechanical Engineering, College of Engineering, Mathematics and Business Administration

Nathaniel Gould, Professor of Orthopaedic Surgery, College of Medicine

Charles S. Houston, Professor of Epidemiology and Environmental Health, College of Medicine

George A. Wolfe Jr., Professor of Medicine, College of Medicine

Raymond F. Kuhlmann, Clinical Professor of Orthopaedic Surgery, College of Medicine

Eugene Lepeschkin, Professor of Medicine, College of Medicine

John E. Little, Professor of Microbiology and Biochemistry, College of Agriculture

John Van S. Maeck, Professor of Obstetrics and Gynecology, College of Medicine

Frank Martinek, Professor of Mechanical Engineering, College of Engineering, Mathematics and Business Administration

Donald B. Melville, Professor of Biochemistry, College of Medicine

Elbert A. Nyquist, Professor of Business Administration, College of Engineering, Mathematics and Business Administration

Agnes T. Powell, Associate Professor of Human Nutrition and Food, School of Home Economics

William W. Stone, Extension Professor of Extension Services, College of Agriculture

Lester J. Wallman, Professor of Neurosurgery, College of Medicine

**The following University of Vermont faculty members were granted emeriti status in 1978:**

Robert P. Davison, Associate Dean/Director of Extension Service, College of Agriculture

Donald C. Gregg, Pomeroy Professor of Chemistry, College of Arts and Sciences

Silas H. Jewett, Extension Assistant Professor of Extension Services, University Extension

Esther L. Knowles, Associate Professor of Home Economics, School of Home Economics

Paul N. Paganuzzi, Professor of Russian, College of Arts and Sciences

Platt R. Powell, Professor of Surgery, College of Medicine

George A. Schumacher, Professor of Neurology, College of Medicine

Christopher M. Terrien Sr., Associate Professor of Medicine, College of Medicine

Helena A. Ure, Associate Professor of Nursing, School of Nursing

**The following University of Vermont faculty members were granted emeriti status in 1977:**

Rolf N. B. Haugen, Professor of Political Science, College of Arts and Sciences

Harry H. Kahn, Professor of German and Russian, College of Arts and Sciences

Ernest Stark, Professor of Pathology, College of Medicine

**The following University of Vermont faculty members were granted emeriti status in 1976:**

Blair Williams, Professor of Home Economics, School of Home Economics

**The following University of Vermont faculty members were granted emeriti status in 1975:**

Betty Bandel, Professor of English, College of Arts and Sciences

Marion Brown, Professor of Home Economics, School of Home Economics

John H. Lochhead, Professor of Zoology, College of Arts and Sciences

Ippocrates Pappoutsakis, Professor of Music, College of Arts and Sciences

Fred H. Taylor, Professor of Botany, College of Agriculture

Truman M. Webster, Professor of German, College of Arts and Sciences

Wendell Jennison Whitcher, Associate Professor of Chemistry, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 1974:**

Arthur A. Gladstone, Professor of Surgery, College of Medicine

Robert Bruce Huber, Professor of Communications and Theatre, College of Arts and Sciences

James Wallace Marvin, Professor of Botany, College of Agriculture

Ellen Hastings Morse, Professor of Home Economics, School of Home Economics

Thomas Sproston, Jr., Professor of Botany, College of Agriculture

Marion Brown Thorpe, Professor of Home Economics, School of Home Economics

**The following University of Vermont faculty members were granted emeriti status in 1973:**

Malcome Daniel Daggett, Professor of Romance Languages, College of Arts and Sciences

J. Edward Donnelly, Director of Athletics, College of Education

John C. Evans, Professor of Physical Education, College of Education

Albert George Mackag, Professor of Surgery, College of Medicine

Malcolm Skeels Parker, Associate Professor of Romance Languages, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 1972:**

Earl Lee Arnold, Professor of Agricultural Engineering, College of Agriculture

Stuart Lynde Johnston, Professor of Romance Languages, College of Arts and Sciences

Isabel Clark Mills, Associate Professor of Art, College of Arts and Sciences

James Fellows White, Professor of German, College of Arts and Sciences

Albert Wilhelm Wurthmann, Assistant Professor of German, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 1971:**

Ellsworth L. Amidon, Professor of Medicine, College of Medicine

Fred W. Dunihue, Professor of Anatomy, College of Medicine

Frank D. Lathrop, Associate Professor of Otolaryngology, College of Medicine

Andrew E. Nuquist, Professor of Political Science, College of Arts and Sciences

William J. Slavin, Professor of Obstetrics and Gynecology, College of Medicine

**The following University of Vermont faculty members were granted emeriti status in 1970:**

Heinz Ansbacher, Professor of Psychology, College of Arts and Sciences

George Crooks, Professor of Chemistry, College of Technology

Richard Hopp, Professor of Plant and Soil Science, College of Agriculture and Life Sciences

Eleanor Luse, Professor of Speech, College of Arts and Sciences

Karl Treial, Clinical Instructor of Psychiatry, College of Medicine

Keith Truax, Associate Professor of Surgery, College of Medicine

**The following University of Vermont faculty members were granted emeriti status in 1969:**

Arthur Bradley. Soule Jr., Professor of Radiology, College of Medicine

Reginald Venn Milbank, Professor of Civil Engineering, College of Technology

Archibald Thomson Post, Associate Professor of Physical Education for Men, College of Education

Phyllis Melville Quinby, Associate Professor of Dental Hygiene, School of Dental Hygiene

Walter Alva Stultz, Professor of Anatomy, College of Medicine

Elizabeth K. Zimmerli, Associate Professor of Physical Education for Women, College of Education

**The following University of Vermont faculty members were granted emeriti status in 1968:**

Fred William Gallagher, Professor of Medical Microbiology, College of Medicine

Donald Cedric Henderson, Associate Professor of Poultry Science, College of Agriculture and Home Economics

Muriel Joy Hughes, Professor of English, College of Arts and Sciences

Paul Amos Moody, Professor of Natural History and Zoology, College of Arts and Sciences

Willard Bissell Pope, Fred Corse Professor of English Language and Literature, College of Arts and Sciences

Louise Adele Raynor, Associate Professor of Botany, College of Agriculture and Home Economics

Laurence Forrest Shorey, Associate Professor of Electrical Engineering, College of Technology

William Greenhill Young, Associate Professor of Clinical Psychology, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 1967:**

Nelle Alexander Adams, Assistant Professor of Education, College of Education and Nursing

William Ritchie Adams, Professor of Forestry, College of Agriculture and Home Economics

Constance Lorraine Brown, Associate Professor of Chemistry, College of Technology

Paul Dennison Cark, Associate Professor of Clinical Pediatrics, College of Medicine

Rupert Addison Chittick, Professor of Psychology, College of Arts and Sciences

Charles William Hoilman, Associate Professor of Electrical Engineering, College of Technology

George Vincent Kidder, Professor of Classical Languages and Literature, College of Arts and Sciences

Chester Albert Newhall, Professor of Anatomy, College of Medicine

Nelson Lee Walbridge, Professor of Physics, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 1966:**

Alec Bradfield, Professor of Animal and Dairy Science, College of Agriculture and Home Economics

James Eugene Pooley, Associate Professor of Classical Languages and History, College of Arts and Sciences

Florence May Woodard, Professor of Commerce and Economics, College of Technology/College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in 1965:**

Sally Berry Maybury, Associate Professor of Commerce and Economics, College of Technology/College of Arts and Sciences

Alvin Rees Midgley, Professor of Agronomy, College of Agriculture and Home Economics

Paul Robert Miller, Professor of Agronomy, College of Agriculture and Home Economics

Richard S. Woodruff, Assistant Professor of Pathology, College of Medicine

**The following University of Vermont faculty members were granted emeriti status in 1964:**

Charles George Doll, Professor of Geology, College of Arts and Sciences

George Dykhuizen, James Marsh Professor of Moral Philosophy and Religion, College of Arts and Sciences

Herbert Everett Putnam, Associate Professor of History, College of Arts and Sciences

Alban Bennett Rooney, Associate Professor of Physics, College of Arts and Sciences

**The following University of Vermont faculty members were granted emeriti status in Pre-1964:**

Oliver Newell Eastman, Professor of Gynecology, College of Medicine



Jay E. Keller, Associate Professor of Surgery, College of Medicine

Elizabeth Kundert, Assistant Professor of Clinical Psychiatry, College of Medicine

George H. Nicholson, Associate Professor of Mathematics, College of Engineering, Mathematics and Business Administration

Morris L. Simon, Associate Professor of Political Science, College of Arts and Sciences

J. William Sumner, Extension Assistant Professor of Extension Services, University Extension

Lawrence L. Weed, Professor of Medicine, College of Medicine

THE FOLLOWING UNIVERSITY OF VERMONT FACULTY MEMBERS WERE GRANTED EMERITI STATUS IN 2018:

**THE FOLLOWING UNIVERSITY OF VERMONT FACULTY MEMBERS WERE GRANTED EMERITI STATUS IN 2019:**

## **FULL-TIME AND PART-TIME FACULTY LIST: NOVEMBER 2019**

Abaied, Jamie L.; Associate Professor; Department of Psychological Science; PHD; University of IL Urbana-Champaign

Abajian, Michael John; Lecturer; Department of Nursing; MD; St. George's University

Abdallah, Rany Talal; Assistant Professor (COM); Department of Anesthesiology;

Abdul-Karim, Yasmeen Assistant Professor (COM); Department of Psychiatry; MD; New Jersey Medical Sch Rutgers

Abernathy, Karen E; Assistant Professor (COM); Department of Med-Gen Internal Med; MD; University of Mississippi

Abernathy, Mac Wilson; Assistant Professor (COM); Department of Psychiatry; MD; University of Mississippi

Abnet, Kevin R; Associate Professor (COM); Department of Anesthesiology; MD; Harvard Medical School

Abu Alfa, Amer K; Assistant Professor (COM); Department of PathLabMed - Anatomic;

Abujaish, Wasaf Associate Professor (COM); Department of Surg-General; MD; University of Craiova

Achenbach, Thomas Max; Professor; Department of Psychiatry; PHD; University of Minnesota

Ackil, Daniel J.; Assistant Professor (COM); Department of Surg-Emergency Med; DO; University of New England

Acostamadiedo, Jose Maria; Clinical Prac Phys-CVPH (COM); Department of Med-Hematology Oncology; MD; Universityersidad del Norte

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Wachtel, Deborah Clinical Assistant Prof.; Department of Nursing; MPH;

Wackerman, Linda Lecturer (Part-Time); Department of Leadership and Development Sci;

Wadsworth, Stephen T; Lecturer I; Department of Animal and Veterinary Sciences;

Waheed, Waqar Associate Professor (COM); Department of Neurological Sciences; MBBS; King Edward Med College

Walberg, Glenn C; Associate Professor; Department of Grossman School of Business; JD; College of William and Mary

Walberg, Julia Coleman; Lecturer; Department of Communication Sci Disorders; MS; University of District of Columbia

Waldron, John Vincent; Associate Professor; Department of Romance Languages Linguistics; PHD; University of Calif Irvine

Waldschmidt, Brian M; Assistant Professor (COM); Department of Anesthesiology; MD; University of Washington

Walker, Vernon E.; Associate Professor (COM); Department of PathLabMed - General; DVM; University of Tenn College of Vet Med

Wallace III, Harold James; Associate Professor (COM); Department of Radiation-Oncology; MD; University of Vermont

Wallin, Kimberly F.; Research Associate Prof; Department of Rubenstein Sch Env Nat Res; PHD; University of Wisconsin Madison

Walls, Leon Associate Professor; Department of Education; PHD; Purdue University

Walsh, Katherine Anne; Assistant Professor (COM); Department of Surg-Emergency Med; MD; State University of NY Stony Brook

Walsh, Ryan Assistant Professor (COM); Department of Radiology; MD; St. George's University

Wang, Qingbin Professor; Department of Com Dev Applied Economics; PHD; Iowa State University

Ward, Gary E.; Professor; Department of COM Microbio Molec Genetics; PHD; University of Calif San Diego

Ward, Norman Stewart; Associate Professor (COM); Department of Family Medicine; MD; Brown University

Wargo, Matthew Associate Professor; Department of COM Microbio Molec Genetics; PHD; Dartmouth College

Wargo, William E; Instructor (COM); Department of LCOMEO; JD; New York University

Warren Hagan, Shelley M.; Senior Lecturer; Department of Art Art History; MFA; Yale University

Warrington, Gregory S.; Associate Professor; Department of Mathematics Statistics; PHD; Harvard University

Warrington, Jill S; Assistant Professor (COM); Department of PathLabMed - Anatomic; MDPHD; Tufts University

Warshaw, David Michael; Professor; Department of Molecular Physlgy Biophysics; PHD; University of Vermont

Waterman, G. Scott Professor Emeritus; Department of Philosophy; MD; University of Michigan Ann Arbor

Waterman, Rory Professor; Department of Chemistry; PHD; University of Chicago

Watkins, Matthew Wells; Professor (COM); Department of Med-Cardiology; MD; University of Pennsylvania

Watson, Elizabeth J; Assistant Professor (COM); Department of Radiology; MD; University of Vermont

Watson, Ellen C; Clinical Instructor; Department of Nursing; SM; University of Vermont

Watson, R. Bradford Clinical Prac Phys-CVMC (COM); Department of Anesthesiology; MD; University of Vermont

Watts, Richard A.; Lecturer; Department of Geography; PHD; University of Vermont

Wax, John William; Assistant Professor (COM); Department of Family Medicine; MD; Albany Medical College

Wayman, Katherine Ann; Assistant Professor (COM); Department of Neurological Sciences; MD; University of Virginia

Weaver, Donald Lee; Professor; Department of PathLabMed - Anatomic; MD; University of Vermont

Weaver, Sheila O'Leary; Senior Lecturer; Department of Mathematics Statistics; MS; University of IL Urbana-Champaign

Webb, Laura E.; Associate Professor; Department of Geology; PHD; Stanford University

Wegner, Elisabeth Kirsten; Associate Professor (COM); Department of ObGyn-General; MD; University of Connecticut

Weimersheimer, Peter Edward; Professor (COM); Department of Surg-Emergency Med; MD; University of Vermont

Weinberger, Christine H.; Associate Professor (COM); Department of Med-Dermatology; MD; Dartmouth Med Sch

Weinberger, Stanley J.; Associate Professor (COM); Department of Pediatrics; MD; Dartmouth Med Sch

Weiner, Matthew C.; Associate Professor; Department of Philosophy; PHD; University of Pittsburgh

Weinstein, Daniel J.; Assistant Professor (COM); Department of Family Medicine; MD; University of Vermont

Weinstein, Susan D; Assistant Professor (COM); Department of Med-Gen Internal Med; DO; Midwestern University

Weinstock, Jacqueline S.; Associate Professor; Department of Leadership and Development Sci; PHD; University of Vermont

Weintraub, Zachary Assistant Professor (COM); Department of Med-Pulmonary;

Weise, Wolfgang Johannes; Associate Professor (COM); Department of Med-Nephrology; MD; Eberhard Karls University of Tübingen

Weiss, Daniel Jay; Professor; Department of Med-Pulmonary; MDPHD; Mount Sinai Sch of Med

Weiss, David M; Lecturer (Part-Time); Department of Rehab Movement Sci;

Welch, Nancy Ellen; Professor; Department of English; PHD; University of Nebraska Lincoln



Welkowitz, Julie Ann; Lecturer; Department of Leadership and Development Sci; PHD; University of Vermont

Wellman, George C.; Professor; Department of Pharmacology; PHD; University of Vermont

Wells, Craig E; Lecturer; Department of Theatre; BA; Albion College

Wells, Katie M.; Assistant Professor (COM); Department of Surg-Emergency Med; MD; Mercer University

Westervelt, Karen C.; Clinical Assistant Prof.; Department of Rehab Movement Sci; PHD; Bond University

Weston, Matthew Clark; Assistant Professor; Department of Neurological Sciences; DHSC; Baylor College of Med

Whalley, Adam C; Assistant Professor; Department of Chemistry; PHD; Columbia University

Whitaker III, Emmett E; Assistant Professor (COM); Department of Anesthesiology; MD; University of Rochester

Whitcomb, Holly Thomas; Clinical Instructor; Department of Nursing; MSN; University of Vermont

White, Annie S; Lecturer I; Department of Plant Soil Science;

White, Erika Romig; Lecturer; Department of Art Art History; MED; Saint Michael's College

White, Matthew Schuette; Assistant Professor; Department of Physics; PHD; University of Colorado Boulder

White, Sheryl Lynne; Assistant Professor (COM); Department of Neurological Sciences; PHD; University of Vermont

White III, Easton Radley; Research Associate; Department of Biology;

Whitehead, Alia F; Assistant Professor (COM); Department of Surg-Trauma;

Whitfield, Harvey Amani; Professor; Department of History; PHD; Dalhousie University

Whitman, Timothy James; Associate Professor (COM); Department of Med-Infectious Disease; DO; NY College- Osteopathic Medicine

Whitney, Patricia G; Assistant Professor (COM); Department of Family Medicine; MD; University of Vermont

Whitney, Stuart Luhn; Clinical Professor; Department of Nursing; EDD; University of Vermont

Wijesinghe, B.H.M. Priyantha Senior Lecturer; Department of Civil Env Engineering; PHD; University of Oklahoma

Wilburn, Clayton R.; Assistant Professor (COM); Department of PathLabMed - Clinical; MD; Vanderbilt University

Wilcock, Andrew David; Assistant Professor (COM); Department of Family Medicine;

Wilcox, Rebecca Associate Professor (COM); Department of PathLabMed - Anatomic; MD; Oregon Health Science University

Wildin, Robert S.; Associate Professor (COM); Department of PathLabMed - Clinical; MD; University of Calif San Francisco

Wile, Timothy S.; Lecturer I; Department of Leadership and Development Sci; MS; University of Vermont

Wilfong, Jonathan B; Assistant Professor (COM); Department of Med-Gen Internal Med; MD; University of Calif San Francisco

Wilkinson, Jenny T.; Senior Lecturer; Department of Animal and Veterinary Sciences; DVM; Cornell University

Wilkinson, Lynn E.; Clinical Practice Phys (COM); Department of Med-Geriatrics; MD; Vanderbilt University

Willard-Foster, Melissa Margaret; Assistant Professor; Department of Political Science; PHD; University of Calif Los Angeles

Williams, Anthony Rashad; Clinical Prac Phys-CVMC (COM); Department of Family Medicine; MD; University of Rochester

Williams, Clayton Jack; Research Assistant Prof; Department of Rubenstein Sch Env Nat Res; PHD; Florida Int'l University

Williams, Robert Keith; Professor (COM); Department of Anesthesiology; MD; Pennsylvania State University

Williams, Robert C.; Lecturer III; Department of Com Dev Applied Economics;

Williamson, Genevieve A.; Assistant Professor (COM); Department of Psychiatry; MD; University of Pittsburgh

Williamson, James Thomas; Senior Lecturer; Department of English; MA; University of Vermont

Willson, Thomas D.; Assistant Professor (COM); Department of Surg-Plastic; MD; Rush University

Wilson, Diana L.; Assistant Professor (COM); Department of Neurological Sciences; MD; University of Vermont

Wilson, James Michael; Professor; Department of Mathematics Statistics; PHD; University of Calif Los Angeles

Wilson, Jennifer E; Lecturer I; Department of Rehab Movement Sci;

Winer, Kristin M; Lecturer (Part-Time); Department of School of Engineering; MBA; Stetson University

Winget, Joseph F.; Associate Professor (COM); Department of Med-Cardiology; MD; Tufts University

Winterbauer, Elizabeth P.; Lecturer I; Department of Biomedical and Health Sci; MPH; University of Michigan

Witters, Sean Aaron; Senior Lecturer; Department of English; PHD; Brandeis University

Wittman, Sarah Elizabeth; Lecturer; Department of Biology; PHD; University of Vermont

Wittpenn, Ann S.; Associate Professor (COM); Department of Pediatrics; MD; University of Virginia

Wojewoda, Christina Marie; Associate Professor (COM); Department of PathLabMed - Clinical; MD; University of Illinois Chicago

Wolf, James E; Assistant Professor (COM); Department of Anesthesiology; MD; State University of New York

Wolfson, Daniel Associate Professor (COM); Department of Surg-Emergency Med; MD; University of Vermont

Wollenberg, Eva K.; Research Professor; Department of Rubenstein Sch Env Nat Res; PHD; University of Calif Berkeley

Wong, Cheung Professor (COM); Department of ObGyn-Gynecologic Oncology; MD; New York University

Wood, Marie E.; Professor (COM); Department of Med-Hematology Oncology; MD; University of Colorado Boulder

Wood, Valerie F.; Research Assistant Prof; Department of Education; PHD; Colorado State University

Woods, Dennis D.; Assistant Professor (COM); Department of Med-Gen Internal Med; MD; University of Kansas

Woolson, Maria Alessandra; Lecturer; Department of Romance Languages Linguistics; PHD; University of Arizona

Worley, Ian Almer; Professor Emeritus; Department of Rubenstein Sch Env Nat Res; PHD; University of British Columbia

Wosky, Rosemary E; Clinical Instructor; Department of Nursing; MSN; University of Texas Austin

Wright, Stephen F.; Senior Lecturer; Department of Geology; PHD; University of Minnesota

Wshah, Safwan Assistant Professor; Department of Computer Science; PHD; State University of NY Buffalo

Wu, Jun-Ru Professor; Department of Physics; PHD; University of Calif Los Angeles

Wurthmann, Alexander Senior Lecturer; Department of Chemistry; PHD; University of Vermont

Xia, Tian Professor; Department of Elec Biomed Engineering; PHD; University of Rhode Island

Yang, Jianke Professor; Department of Mathematics Statistics; PHD; Mass Inst of Tech

Yang, Jie Associate Professor; Department of Physics; PHD; Princeton University

Yayac, Laura M; Lecturer (Part-Time); Department of Rubenstein Sch Env Nat Res;

Yeager, Scott Brand; Professor (COM); Department of Peds-Cardiology; MD; University of Virginia

Yin, Jing-hua Professor; Department of Asian Languages Literatures; PHD; State University of NY Buffalo

Yoo, Hyon Joo Associate Professor; Department of English; PHD; Syracuse University

Young, Jeffery Danny; Assistant Professor (COM); Department of Surg-Ophthalmology; MD; Medical College of Wisconsin

Young, Leslie W; Assistant Professor (COM); Department of Peds-Neonatology; MD; University of Vermont

Yu, Jun Professor; Department of Mathematics Statistics; PHD; University of Washington Seattle

Zagroba, Marie L; Clinical Prac Phys-CVMC (COM); Department of Anesthesiology; MD; University of Vermont

Zaidi, Sayyed Kaleem; Associate Professor (COM); Department of Biochemistry; PHD; University of the Punjab

Zakai, Neil A.; Associate Professor; Department of Med-Hematology Oncology; MD; University of Virginia

Zakaras, Alex M.; Associate Professor; Department of Political Science; PHD; Princeton University

Zamboni, Joseph Z; Instructor (COM); Department of Med-LCOM Edupreneurship;

Zatny, Steven M.; Professor; Department of History; PHD; University of Pennsylvania

Zeglin, Magdalena A; Assistant Professor (COM); Department of Med-Cardiology;

Zenali, Maryam J; Assistant Professor (COM); Department of PathLabMed - Anatomic; MD; University of Texas

Zencey, Eric A; Lecturer I; Department of Rubenstein Sch Env Nat Res;

Zhang, Bei Associate Professor (COM); Department of PathologyLaboratory Medicine; MD; Shandong University

Zhang, Chun Associate Professor; Department of Grossman School of Business; PHD; Michigan State University

Zhang, Fan Research Associate Prof; Department of Biology;

Zhao, Feng-Qi Professor; Department of Animal and Veterinary Sciences; PHD; University of Alberta

Zia, Asim Professor; Department of Com Dev Applied Economics; PHD; Georgia Inst of Tech

Ziedins, Eduards G; Assistant Professor (COM); Department of Surg-General; MD; University of Maryland

Ziegelman, David S.; Assistant Professor (COM); Department of Med-Gen Internal Med; MD; University of Michigan Ann Arbor

Zigmund, Beth Associate Professor (COM); Department of Radiology; MD; Drexel University

Zimakas, Nilgun T.; Assistant Professor (COM); Department of Pediatrics; MD; McGill University

Zimakas, Paul James; Associate Professor (COM); Department of Peds-Endocrinology; MD; McGill University

Znojkwicz, Pierre Assistant Professor (COM); Department of Med-Cardiology; MD; Jagiellonian University

Zubarik, Richard S.; Professor (COM); Department of Med-Gastroenterology; MD; State University of NY Stony Brook

Zurawsky, Cassandra Assistant Professor (COM); Department of Pediatrics;

## CATALOGUE ARCHIVES

### PRIOR YEAR ADDENDUM INFORMATION

A summary of prior year addendum information is located here (p. 543).

#### Catalogue Year Web Version Print Version Addenda

2019-20 HTML (<http://catalogue.uvm.edu/archives/2019-20/>) PDF UGRAD ([http://catalogue.uvm.edu/pdf/2019-20\\_undergraduate.pdf](http://catalogue.uvm.edu/pdf/2019-20_undergraduate.pdf)); PDF GRAD ([http://catalogue.uvm.edu/pdf/2019-20\\_graduate.pdf](http://catalogue.uvm.edu/pdf/2019-20_graduate.pdf))  
Published June 17, 2019; revised March 27, 2020

2018-19 HTML (<http://catalogue.uvm.edu/archives/2018-19/>) PDF UGRAD ([http://catalogue.uvm.edu/pdf/2018-19\\_undergraduate.pdf](http://catalogue.uvm.edu/pdf/2018-19_undergraduate.pdf)); PDF GRAD ([http://catalogue.uvm.edu/pdf/2018-19\\_graduate.pdf](http://catalogue.uvm.edu/pdf/2018-19_graduate.pdf))  
Published June 18, 2018 in the web version; revised July 12, 2018

2017-18 HTML (<http://catalogue.uvm.edu/archives/2017-18/>) PDF UGRAD ([http://catalogue.uvm.edu/pdf/2017-18\\_undergraduate.pdf](http://catalogue.uvm.edu/pdf/2017-18_undergraduate.pdf)); PDF GRAD ([http://catalogue.uvm.edu/pdf/2017-18\\_graduate.pdf](http://catalogue.uvm.edu/pdf/2017-18_graduate.pdf))  
Published July 7, 2017 in the web version

2016-17 HTML (<http://catalogue.uvm.edu/archives/2016-17/>) PDF UGRAD (<http://catalogue.uvm.edu/pdf/2016-17-undergraduate.pdf>); PDF GRAD (<http://catalogue.uvm.edu/pdf/2016-17-graduate.pdf>)  
Published June 21, 2016 in the web version; revised September 12, 2016;

revised March 1, 2017

2015-16 HTML (<http://catalogue.uvm.edu/archives/2015-16/>) PDF UGRAD (<http://catalogue.uvm.edu/pdf/2015-16-undergraduate.pdf>); PDF GRAD

(<http://catalogue.uvm.edu/pdf/2015-16-graduate.pdf>)

Published July 22, 2015 in the web version; revised December 9, 2015

2014-15 HTML (<http://catalogue.uvm.edu/archives/2014-15/>) PDF UGRAD (<http://catalogue.uvm.edu/pdf/2014-15-undergraduate.pdf>); PDF GRAD (<http://catalogue.uvm.edu/pdf/2014-15-graduate.pdf>)  
Published June 25, 2014 in the web version

PRIOR YEARS (<https://www.uvm.edu/~rgweb/zoo/archive/catalogue/>)

## PRIOR YEAR ADDENDUM

In order to retain prior year addenda information in a print or PDF version of the catalogue, the prior year information is recorded here annually.

## 2019-20 UNDERGRADUATE CATALOGUE ADDENDUM

### MARCH 27, 2020

In response to COVID-19, the University of Vermont shifted to remote instruction on March 18, 2020 for the duration of the semester. In response to this shift, the following academic accommodations were extended to students for the Spring 2020 semester only.

- Letter grades will be recorded for the semester. Students will have the option to elect Pass/No Pass (S/U for graduate students) by **May 14 at noon**.
- Courses in which students earned a "Pass" (P) will count towards major, minor, and degree requirements, **with the exception of** courses in which a specific grade is required for progression or licensure requirements (see next bullet).
- Students are responsible for understanding the **implications of their decision** to move to Pass/No Pass for courses related to their program's major requirements, progression standards, and accreditation and licensing requirements.
- Once a student has elected a Pass/No Pass option, that decision **cannot be reversed**.
- For grades earned in Spring 2020, UVM will accept Pass grades as sufficient for **transfer credit**.
- Colleges will waive **academic dismissal** decisions based on performance this semester.
- **Academic Probation policies** are college/school specific. The Provost's Office is encouraging colleges to be thoughtful in their use of academic probation this semester.
- For **scholarships** impacted by GPA, a one-time allowance will be made as follows. The cumulative GPA (calculated based on Pass/No Pass decisions) will be evaluated for each student at the end of the Spring 2020 term. For students who fall below a 3.0 cumulative GPA at that time, the Spring 2020 term GPA will be removed and the cumulative GPA recalculated without it. If the recalculated cumulative GPA is a 3.0 or higher, the student will maintain scholarship eligibility. For all future reviews, the Spring 2020 GPA will be included.

- Students are able to **withdraw** from any course through April 3. Please note that a student who chooses to, or must, withdraw from all coursework for the Spring 2020 semester, will still maintain scholarship eligibility for the next year as long as they meet the other criteria for renewal and have not exhausted their scholarship length. Check the Student Financial Services website (<https://www.uvm.edu/studentfinancialservices/uvm-scholarship-policies/>) for details regarding the other renewal criteria and scholarship length.
- Students granted incompletes will have the full academic year (until May 7, 2021) to submit the work necessary to convert their incomplete to a final grade.

Students are being given an important responsibility for carefully weighing the potential impacts of these options (Pass/No Pass in particular). **Students are advised to consult with their academic advisors and Student Financial Services to understand the full consequences of their decisions for their particular academic major, graduate school candidacy, financial aid standing, and career path.** Students should begin to explore the implications of these decisions in early April so they are prepared to make informed decisions in May.

#### JUNE 17, 2019

The Integrative Health and Wellness Coaching Undergraduate Certificate was erroneously approved as the Integrated Health and Wellness Coaching Undergraduate Certificate by the Board of Trustees on February 1, 2019. The Board action has been revised to reflect the correct name, which will appear in the next edition of the Catalogue.

### 2019-20 GRADUATE CATALOGUE ADDENDUM

#### MARCH 27, 2020

In response to COVID-19, the University of Vermont shifted to remote instruction on March 18, 2020 for the duration of the semester. In response to this shift, the following academic accommodations were extended to students for the Spring 2020 semester only.

- Letter grades will be recorded for the semester. Students will have the option to elect Pass/No Pass (S/U for graduate students) by **May 14 at noon.**
- Courses in which students earned a "Pass" (P) will count towards major, minor, and degree requirements, **with the exception of** courses in which a specific grade is required for progression or licensure requirements (see next bullet).
- Students are responsible for understanding the **implications of their decision** to move to Pass/No Pass for courses related to their program's major requirements, progression standards, and accreditation and licensing requirements.
- Once a student has elected a Pass/No Pass option, that decision **cannot be reversed.**
- For grades earned in Spring 2020, UVM will accept Pass grades as sufficient for **transfer credit.**
- Colleges will waive **academic dismissal** decisions based on performance this semester.

- **Academic Probation policies** are college/school specific. The Provost's Office is encouraging colleges to be thoughtful in their use of academic probation this semester.
- For **scholarships** impacted by GPA, a one-time allowance will be made as follows. The cumulative GPA (calculated based on Pass/No Pass decisions) will be evaluated for each student at the end of the Spring 2020 term. For students who fall below a 3.0 cumulative GPA at that time, the Spring 2020 term GPA will be removed and the cumulative GPA recalculated without it. If the recalculated cumulative GPA is a 3.0 or higher, the student will maintain scholarship eligibility. For all future reviews, the Spring 2020 GPA will be included.
- Students are able to **withdraw** from any course through April 3. Please note that a student who chooses to, or must, withdraw from all coursework for the Spring 2020 semester, will still maintain scholarship eligibility for the next year as long as they meet the other criteria for renewal and have not exhausted their scholarship length. Check the Student Financial Services website (<https://www.uvm.edu/studentfinancialservices/uvm-scholarship-policies/>) for details regarding the other renewal criteria and scholarship length.
- Students granted incompletes will have the full academic year (until May 7, 2021) to submit the work necessary to convert their incomplete to a final grade.

Students are being given an important responsibility for carefully weighing the potential impacts of these options (Pass/No Pass in particular). **Students are advised to consult with their academic advisors and Student Financial Services to understand the full consequences of their decisions for their particular academic major, graduate school candidacy, financial aid standing, and career path.** Students should begin to explore the implications of these decisions in early April so they are prepared to make informed decisions in May.

### 2018-19 UNDERGRADUATE CATALOGUE ADDENDUM

#### JULY 12, 2018

The following program was approved by the Board of Trustees on May 19, 2018 and will be available to students in Fall 2018:

- a major in Plant Biology leading to the Bachelor of Science in the College of Arts and Sciences.

#### JUNE 18, 2018

The following program was approved by the Board of Trustees on May 19, 2018 and will be available to students in Fall 2018:

- a minor in American Sign Language in the College of Education and Social Services; further information can be found on the American Sign Language website (<https://www.uvm.edu/cess/dlds/asl/>).

The following correction has been made to the Computer Science and Computer Science and Information Systems majors in the College of Engineering and Mathematical Sciences:



- The Computer Science core requirements have been corrected as follows: Twenty-one additional credits in CS, including three at the 0XX-level (or above), six at the 1XX-level (or above), and twelve credits at the 2XX-level (or above).
- The Computer Science and Information Systems core requirements have been corrected as follows: Fifteen additional CS credits: Six credits at the 100-level or above (CS 125 (<http://catalogue.uvm.edu/archives/2018-19/search/?P=CS%20125/>) recommended for students who wish to pursue graduate study in CS); nine credits at the 200-level or above.

## 2018-19 GRADUATE CATALOGUE ADDENDUM

JUNE 18, 2018

The following programs were approved by the Board of Trustees on May 19, 2018:

- a PhD in Physics. For further information, visit the Physics Graduate Programs (<https://www.uvm.edu/cas/physics/graduate-programs/>) website.
- an M.S. in Athletic Training. For further information, visit the Athletic Training (<https://www.uvm.edu/cnhs/rms/master-science-athletic-training/>) website.
- a Certificate of Graduate Study in Community Resilience and Planning. For further information, visit the Community Resilience and Planning (<https://www.uvm.edu/cals/cdae/certificate-graduate-studies-community-resilience-and-planning/>) website.
- a Certificate of Graduate Study in Sustainable Enterprise. For further information, visit the Sustainable Enterprise (<https://www.uvm.edu/business/cgse/>) website.

The Graduate Executive Committee has approved an Accelerated Masters Program for the M.S. in Special Education. (<https://www.uvm.edu/cess/doe/accelerated-masters-degree-program-amp-special-education/>)

## 2017-18 UNDERGRADUATE CATALOGUE ADDENDUM

JULY 7, 2017

NEW PROGRAMS: The following programs were approved by the Board of Trustees on May 20, 2017 and will be available to students in Fall 2017:

- a minor in Cultural and Linguistic Diversity in the College of Education and Social Services; further information can be found on the Education for Cultural and Linguistic Diversity website (<https://www.uvm.edu/cess/doe/ecld/>).
- a certificate in Computer-Aided Engineering Technology in the College of Engineering and Mathematical Sciences; for further information contact the Office of Student Services in the Dean's Office of the College of Engineering and Mathematical Sciences.
- a certificate in Physical Activity Promotion in Children and Youth in the Department of Psychological Science.
- a minor in Public Policy Analysis in the Department of Political Science.

- the Quantitative Reasoning Requirement (<http://catalogue.uvm.edu/archives/2017-18/undergraduate/courses/quantitativereasoningcourses/>) as part of the University's program of General Education.

## COLLEGE OF ARTS AND SCIENCES

The Environmental Sciences: Biology and Environmental Sciences: Geology minors were approved for termination by the Board of Trustees on May 20, 2017.

The Minor in Art requirements originally published have been corrected as follows (changes in bold): Eighteen credits from the disciplines of Studio Art and Art History, including:

**Three credits from the following Studio Art courses:**

ARTS 001 Drawing

ARTS 012 Perspectives on Art Making

The Major in Studio Art requirements originally published have been corrected as follows (changes in bold):

Category B: Studio Art 100-level (18 credits)

Choose **three** of the following (**9** credits)

## COLLEGE OF ENGINEERING AND MATHEMATICAL SCIENCES

On May 4, 2017 the Curricular Affairs Committee of the Faculty Senate approved a proposal for significant revisions to the curriculum for the Bachelor of Science in Engineering Management in the College of Engineering and Mathematical Sciences. For further information contact the Office of Student Services in the Dean's Office of the College of Engineering and Mathematical Sciences.

## 2017-18 GRADUATE CATALOGUE ADDENDUM

JULY 7, 2017

NEW PROGRAMS: The following programs were approved by the Board of Trustees on May 20, 2017:

- a Certificate of Graduate Study in Agroecology in the Department of Plant and Soil Science; further information can be found on the Agroecology website (<https://www.uvm.edu/agroecology/learning/graduate-certificate-in-agroecology/>).
- The Department of Nutrition and Food Sciences has added an Accelerated master's option to its Master of Science in Nutrition and Food Sciences program; further information can be found on the Department of Nutrition and Food Sciences website (<http://www.uvm.edu/cals/nfs/accelerated-masters-degree-program-amp/>).

On April 24, 2017, the Faculty Senate approved the name change of the Sustainable Entrepreneurship MBA to the Sustainable Innovation MBA.

On April 24, 2017, the Faculty Senate approved the name change of the Certificate of Graduate Study in Environmental Public Health to the Certificate of Graduate Study in Global and Environmental Public Health.

## 2016-17 UNDERGRADUATE CATALOGUE ADDENDUM

### MARCH 1, 2017

On February 27, 2017, the Faculty Senate approved the following grades:

AF – Administrative Failure due to a missing grade. The AF grade is equivalent to the grade of F in the determination of grade-point averages and academic standing. Effective Spring 2017.

ANP – Administrative No Pass due to a missing grade. The ANP is the equivalent of No Pass. It is not used in the grade-point calculation. Effective Spring 2017.

AUP – Administrative Unsatisfactory Progress. The AUP is the equivalent of Unsatisfactory Progress. It is not used in the grade-point calculation. Effective Spring 2017.

### SEPTEMBER 12, 2016

ACADEMIC CALENDAR: The academic year 2016-17 final exam and reading day components of the academic calendar have been revised. The most current academic calendar can be found on the Registrar's website ([https://www.uvm.edu/~rgweb/?Page=importantdates/i\\_ac1617.html&/#38;SM=i\\_menuhtml](https://www.uvm.edu/~rgweb/?Page=importantdates/i_ac1617.html&/#38;SM=i_menuhtml)).

COMPUTER SCIENCE: In the Computer Science B.A. description found in this Catalogue, footnote 2, the current requirements incorrectly specify that (MATH019 and MATH020) is an acceptable substitute for (MATH021 and MATH022). This should rather be that (MATH019 and MATH023) is an acceptable substitute for (MATH021 and MATH022).

### COLLEGE OF EDUCATION AND SOCIAL SERVICES:

As a result of changes from the Vermont Agency of Education, the following section has been updated:

Approved Alternatives to PRAXIS Core Academic Skills Test for Educators (PRAXIS Core)

As of July 1, 2016, CESS will accept PRAXIS I, SAT, GRE, or ACT scores as approved by the Vermont Agency of Education. If the student has one of the aforementioned test scores, the student may submit those scores to the CESS Student Services office for review in accordance with Vermont Agency of Education standards. Post-Baccalaureate Teacher Preparation programs and Graduate Teacher Preparation programs: Applicants will provide passing scores on PRAXIS Core (or approved alternatives) before being admitted to the program. Students who receive conditional acceptance must provide passing scores for PRAXIS Core before being eligible for a teaching internship placement.

On September 12, 2016 the Board of Trustees approved the inclusion of the Early Childhood Special Education and Early Childhood PreK-3 Programs in the Bachelor of Science in Education degree in the College of Education and Social Services, as approved and advanced by the Provost on August 12, 2016, and President on August 21, 2016.

### JUNE 21, 2016

NEW PROGRAMS: The following programs were approved by the Board of Trustees on May 21, 2016 and will be available to students in Fall 2016:

Bachelor of Science in Food Systems in the College of Agriculture and Life Sciences; further information may be found on the Food Systems Major website ([http://www.uvm.edu/cals/food\\_systems\\_major/](http://www.uvm.edu/cals/food_systems_major/)).

Bachelor of Science in Economics in the Department of Economics; further information may be found on the Bachelor of Science in Economics website ([http://www.uvm.edu/~econ/?Page=bs.html&/#38;SM=advising\\_submenuhtml](http://www.uvm.edu/~econ/?Page=bs.html&/#38;SM=advising_submenuhtml)).

Minor in Writing in the Department of English; further information may be found on the Minor in Writing website (<http://www.uvm.edu/~english/?Page=WritingMnr.html>).

Minor in Jewish Studies in the College of Arts and Sciences; further information may be found by contacting Professor Huck Gutman at [Huck.Gutman@uvm.edu](mailto:Huck.Gutman@uvm.edu)

## 2016-17 GRADUATE CATALOGUE ADDENDUM

### JUNE 21, 2016

An Accelerated Master's Program has been approved for the Master of Science in Nursing.

The following programs were approved by the Board of Trustees on May 21, 2016 and will be available to students in Fall 2016:

Master of Science in Medical Laboratory Science; further information may be found on the Medical Laboratory and Radiation Sciences website (<http://www.uvm.edu/~cnhs/mlrs/>).

Certificate of Graduate Study in Epidemiology; further information may be found on the College of Medicine Graduate and Professional Programs website (<http://learn.uvm.edu/com/>).

## 2015-16 UNDERGRADUATE CATALOGUE ADDENDUM

### JULY 22, 2015

HLTH 051: Wilderness First Responder is a three credit course.

### DECEMBER 9, 2015

At its October 3, 2015 meeting, the Board of Trustees approved a minor in Sports Management in the Rubenstein School of Environment and Natural Resources.

## 2015-16 GRADUATE CATALOGUE ADDENDUM

### JULY 22, 2015

On May 16, 2015, the Board of Trustees approved a Ph.D. in Food Systems. For further information, visit the Food Systems

Program (<http://www.uvm.edu/foodsystemsprogram/?Page=doctoral.html&/#38;SM=degreesubmenuhtml>) website.

On May 16, 2015, the Board of Trustees approved an M.S. in Complex Systems and Data Science. For further information, visit the Complex Systems (<http://www.uvm.edu/complexsystems/teaching-learning/ms-in-complex-systems-and-data-science/>) website.

## 2014-15 UNDERGRADUATE CATALOGUE ADDENDUM

### JUNE 25, 2014

#### Bachelor of Science in Business Administration

The requirements for the Basic General Education Core of the Bachelor of Science in Business Administration include one three-credit course in Global and Regional Studies.

#### Bachelor of Science in Computer Science

There is an error in the stated requirements for the Bachelor of Science in Computer Science (B.S.CS) in the 2014-2015 catalogue. The CS core reads: 'Eighteen additional credits, including three at the 0XX-level (or above), three at the 1XX-level (or above), and twelve credits at the 2XX-level.' The 2014-2015 requirement should read as follows: 'Eighteen additional credits, including three at the 0XX-level (or above), six at the 1XX-level (or above), and nine credits at the 2XX-level.' More information is available through the Department of Computer Science and the College of Engineering & Mathematical Sciences Office of Student Services and on their respective websites.

#### Bachelor of Science in Electrical Engineering

An additional provision has been added to the requirement for technical electives within the Bachelor of Science in Electrical Engineering program. At least three of the twelve required technical elective credits must be from the following subject areas: MATH, STAT, CHEM or PHYS. Please contact CEMS Student Services for additional information.

#### Pre-Engineering Technical Requirement

At its meeting on May 22, 2014, the faculty of the School of Engineering revised the Pre-Engineering Technical (PET) requirement that will be in place for the 2014-2015 academic year. The revised requirement provides students additional flexibility, and is available through the College of Engineering & Mathematical Sciences Office of Student Services and on college website.

#### Writing and Information Literacy Requirement

Beginning with the entering first-year class in fall 2014 all undergraduates will complete a three-credit course addressing foundational writing and information literacy goals. In response to this university-wide requirement, colleges and schools may have updated their individual requirements after this catalogue was

published. Please consult the appropriate Dean's Office for the most current information on writing requirements.

## 2014-15 GRADUATE CATALOGUE ADDENDUM

### JUNE 25, 2014

At its June 16, 2014 meeting, the Executive Committee of the Board of Trustees approved the Certificate of Graduate Study in Environmental Public Health. The requirements for this certificate may be found on the Graduate College website and will be included in the next published Graduate Catalogue. The program will be available to students in the spring 2015 semester.

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